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REGIONAL NATURAL RESOURCES MANAGEMENT PROJECT (RENARM)

Project Outputs

Final M & E Report

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I. Introduction

The RENARM project was designed to address natural resource activities of regional scope, i.e., those having significant economies of scale, cross-border impacts, or that were perhaps risky but with potentially high payoff. As such, it is experimental and focuses on activities that are catalytic in nature. These are activities that: (1) promote partnering, (2) develop new approaches that can be tested under RENARM and then adopted and disseminated by RENARM cooperators, and (3) provide the context for transferring information and institutional and technical learning. Each component and its respective activities is conceived as part of a larger regional effort.

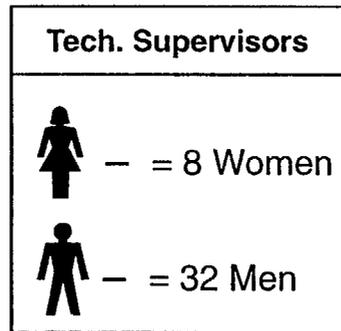
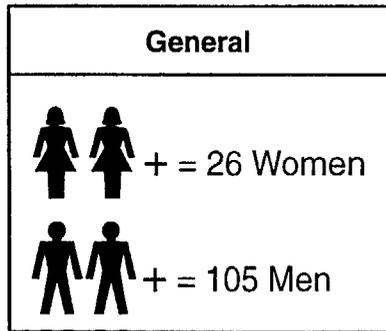
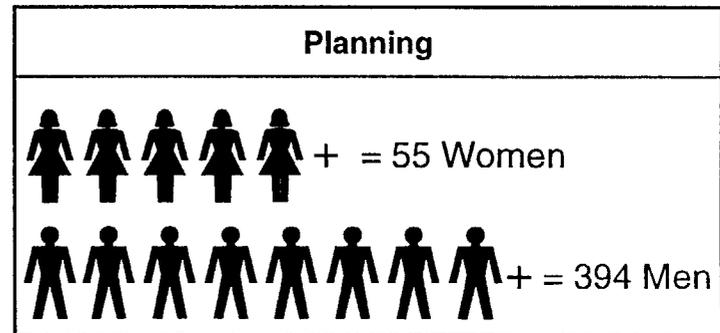
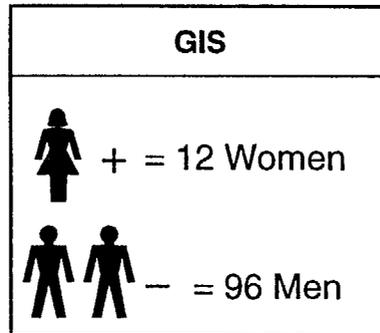
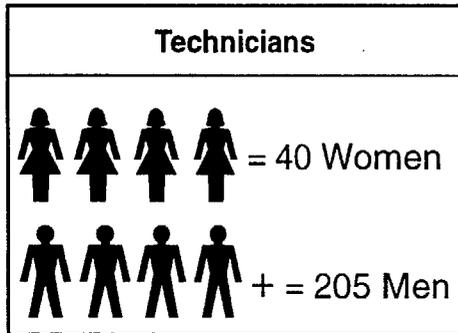
The independent evaluation of RENARM concluded in mid-1994 that the project is meeting the objectives of (1) developing effective assistance to Central American environment and natural resource policy; (2) involving US PVOs in Central American E/NR programs, and (3) focusing Central American institutions, particularly CATIE, on environment and natural resource matters.

Continuing monitoring and documentation indicate that there are **considerable cumulative accomplishments at the highest Program Output level: people employing more sustainable land use practices**. Regional and national extension networks have been created and strengthened, and leading institutions with pre-eminent and home-grown experience, capacity, and field presence have been involved in the project. Results in human resources development and training have greatly exceeded project plans.

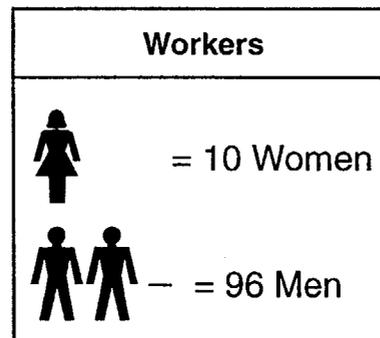
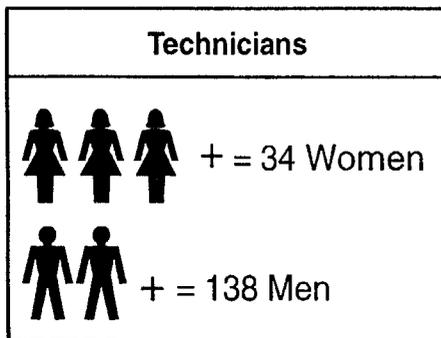
- ◆ More than 100,000 farmers have planted multi-purpose, fast-growing trees.
- ◆ Reports from extension networks indicate that a large proportion of the 20,000+ farmers and farm workers who have received training in sound natural resource management and sustainable agricultural practices, have in fact adopted those practices, as have others not directly participating in courses and seminars.
- ◆ At least 8 national parks and reserves in Belize, Guatemala, Costa Rica, and Honduras have made progress along the scale from "no park" to "paper park" to real management.
- ◆ More than 60,000 Central American extensionists, farmers, and agricultural and forestry trainers have received training through collaborating organizations, surpassing Life of Project targets by more than 300 percent. In addition, several thousand community leaders, extensionists, and teachers received training in park and buffer zone management, advocacy, and environmental education through the PACA program, which counted nearly 2,000 training participants per semester in the latter years of the RENARM project.
- ◆ More than 900 college students at the Panamerican Agricultural School (Zamorano) completed technical and field courses in plant protection and integrated pest management (IPM). By project's end, 66 will have received bachelor's degrees, and 28 advanced degrees. 90 advanced degrees were granted at CATIE programs in watershed management, natural forest management, and IPM.
- ◆ Communities have become involved in establishing model natural forest management sites in for the first time ever in Nicaragua and Guatemala.

In-Service Training Sustainable Agriculture

Watershed

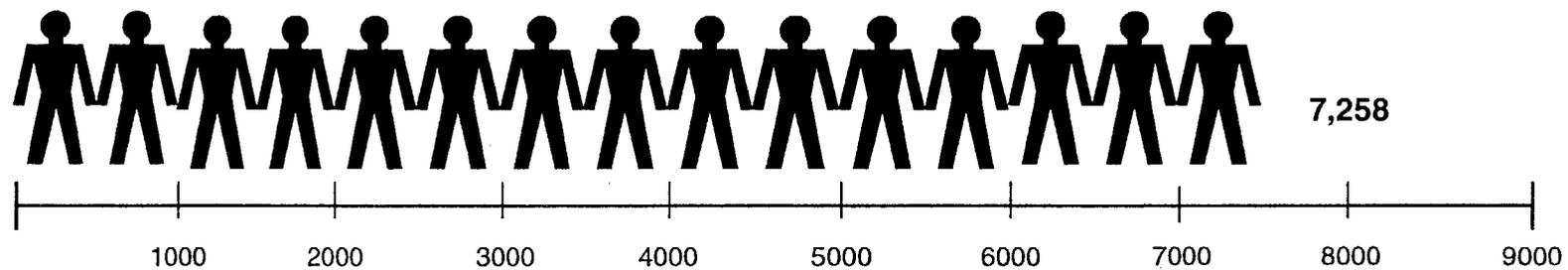
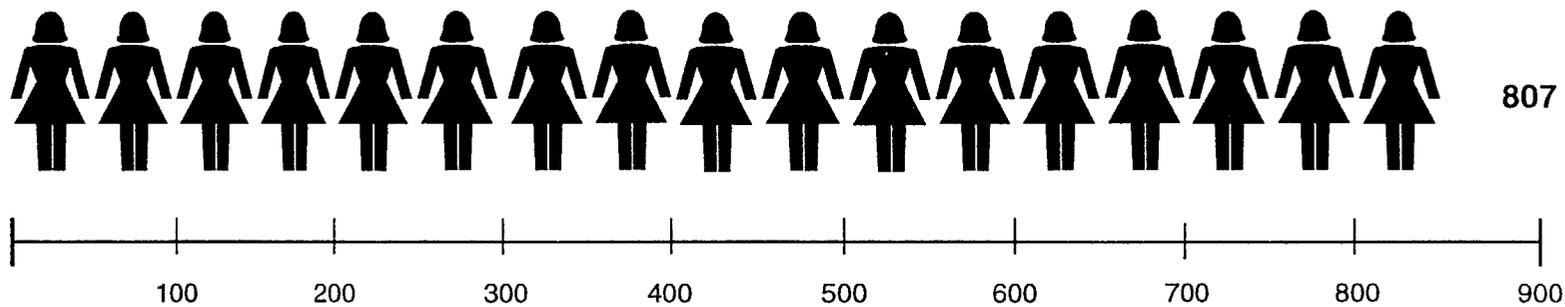


Natural Forest Management



In-Service Training Sustainable Agriculture

Tree Cropping (technicians & farmers)



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Across all the project's components (policy, biodiversity conservation and environmental education, sustainable agriculture and forestry), RENARM has prepared and supported Central Americans to generate, transfer, and apply the information and technology essential for the sustained use of natural resources in the region. The project as a whole has enhanced the installed capacity for training. Specific education and training programs have focused on NGOs and individuals. In addition to the thousands who participated in short-term training or became part of extension networks, 295 men and 75 women received fellowships for bachelors, masters, and PHD degrees, or year-long, intensive in-service training programs; and 10 research projects received grants.

Central American NGOs have acquired managerial, technical, and institutional strengths that will enable them to continue exercising influence beyond the life of the RENARM project. The policy component provided information and analysis tools, helping NGOs develop skills in policy analysis and strategic planning for policy advocacy and project implementation. Other components developed skills in ecological assessment and land management, as well as institutional development needs such as fundraising and administration. RENARM inputs of technical assistance, training, and hands-on experience in environmental policy and action have played a significant role in developing this vital private-sector community.

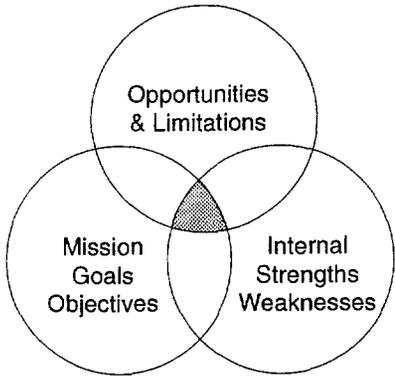
II. Natural Resource Policy

RENARM's approach to natural resource policy underwent a sea change during the early years of the project. It evolved from a prescriptive, "content" orientation whose centerpiece was model policy recommendations, to a "process" in which stakeholders learned to analyze the probable effects of various policy elements. Rather than being told, "a forestry law should say this," Central Americans were involved in developing tools able to demonstrate how a whole spectrum of laws and policies -- economics, trade, and monetary policies as well as agriculture, environment and forestry -- would affect forests or fisheries or water quality. The policy component assisted NGOs, natural resource agencies, and others to make strategic decisions about policy interventions, based on probability of effectiveness as well as better-understood effects.

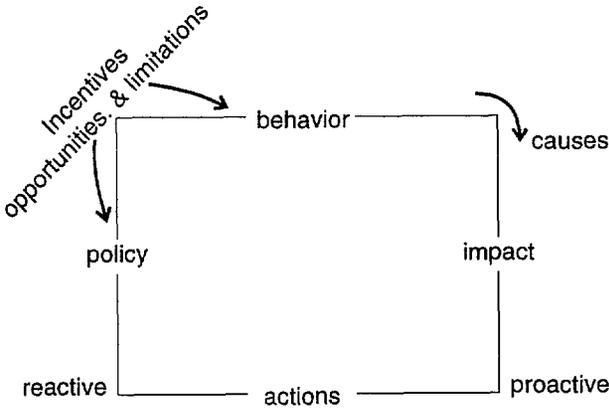
The primary product of this component is a participatory policy analysis package (The Green Book series) providing (1) a classification of E/NR policies and their effects; (2) a methodology for policy inventories at the national level; tools for structuring a policy dialogue process; and (4) a workbook for users. In collaboration with the PVO-managed PACA program, these products have been tested, disseminated, and used in workshops in every country in the region. NGOs, agencies, and stakeholder groups have used these tools in planning and implementing their policy intervention strategies. Specific targets have included forest fire control in Costa Rica, agricultural modernization in Honduras, the legal framework for protected areas throughout the region, and application of EIA guidelines in Belize.

RENARM has supported the Executive Secretariat of CCAD, the Central American Commission on Environment and Development, which has played an influential role during the project period in developing environmental agendas for summits of Central American

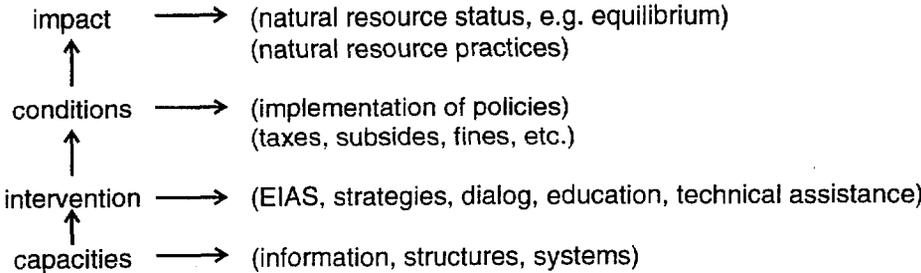
Policy Analysis and Intervention



Step 1. Strategic Planning. By identifying the overlap among these elements, it is possible to understand the opportunities and limitations posed by the policy environment.



Step 2. Green Book analysis of the policy environment.



Step 3. Effective intervention. Planning and analysis make it possible to predict the outcomes of particular types of interventions, and identify organizations most able to carry them out.

4-

Presidents; the Central American Agenda for Environment and Development; the inter-parliamentary commission, CICAD, and CCAP, the organization of Central American park directors; and the Tropical Forestry Action Plan for Central America. On October 12, 1994, the seven Central American Presidents signed the Alliance for Sustainable Development, a strategy to promote a regional trade and development model which is sustainable in political, economic, social, cultural, and economic terms. The U.S. became a partner in the alliance with the signing of the CONCAUSA Declaration at the Hemispheric Summit in December 1994. The declaration's corresponding action plan sets out a detailed agenda for conservation, biodiversity, energy, environmental legislation, and sustainable economic development.

Through the Mesoamerican Biodiversity Legal Project, RENARM has enabled legal research and the development of legal tools for biodiversity conservation, including inventories of protected area legislation, comparative analyses of environmental legal situations and legislation governing indigenous peoples and protected areas; and preparation of model environmental legislation. The project identified environmental lawyers in each country and formed an environmental law network.

RENARM's Forestry Advisors assisted in policy development throughout the region. One example of pioneering work with demonstrated impact on forest policy and effective implementation was assistance to the Government of Guatemala in the development of community concessions policies in the multiple-use zones of the Maya Biosphere Reserve. Currently some 11,000 hectares of natural forests are being managed by communities under this policy, with another 22,000 hectares in process of approval for community concessions. The total area covered by the new policies amounts to 800,000 hectares of multiple-use zones and 300,000 hectares in buffer zones.

III. Environmental Education

Environmental awareness is higher now in Central America than ever before. Although PACA and Paseo Pantera are only one among many public and private influences, RENARM has contributed significantly through training and the production of didactic materials and exhibits for parks and for general in-school and extracurricular use.

The PACA project's environmental education component focused on the buffer zones of protected areas in Guatemala, Costa Rica, Belize, and Honduras. PACA helped to strengthen local NGOs, some of whom had been involved in environmental education before, and others for whom this represented an expansion of their mission. About a dozen local NGOs received institutional development and program support. National campaigns promoted prevention of forest fires in Costa Rica and Honduras. Curricula and audiovisual materials were developed. PACA Central developed an extensive resource center of environmental education materials.

Paseo Pantera has carried out intensive efforts in both formal environmental education and non-formal public awareness in the Bay Islands of Honduras. A public awareness campaign focused on Honduras' Rio Platano had an extraordinary impact and resulted in extending that reserve to the border, completing a link to Nicaragua's Bosawas reserve. Internationally, Paseo Pantera placed numerous magazine articles and published several books.

Table 1 (page 17) compares environmental education activities and outcomes with the Project Paper EOPS.

IV. Biodiversity Conservation

In at least 8 protected areas throughout the region supported by various components of RENARM, NGOs are either directly responsible for nuclear zone management or are influential collaborators with the responsible government agencies. RENARM's US PVO collaborators have provided technical assistance and training to strengthen these NGOs' management capability, and have contributed their own expertise to the improvement of management of parks and protected areas throughout the region.

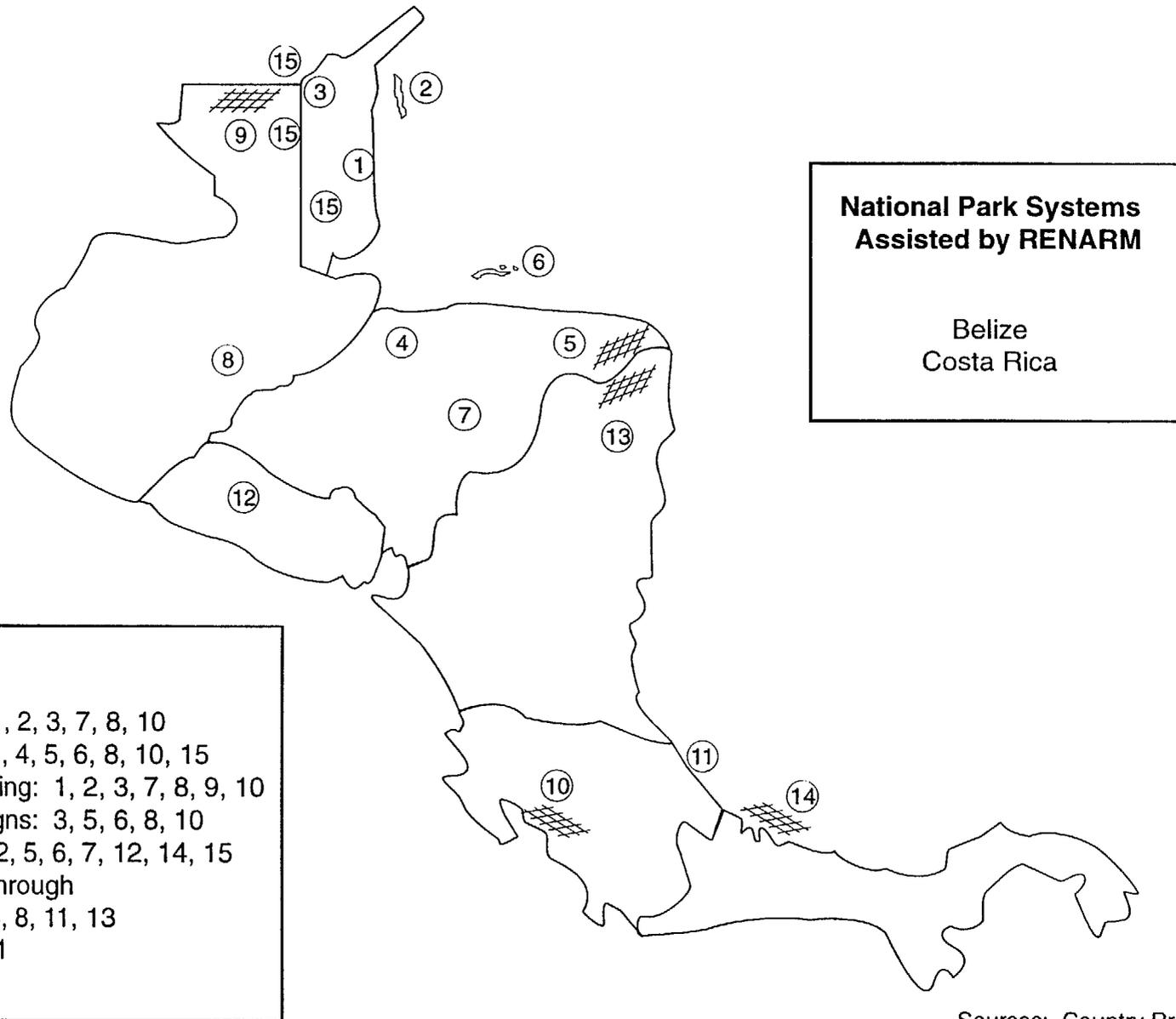
Over-arching the work on specific protected areas, RENARM has supported the development of Paseo Pantera's "biological corridor" concept, which unifies research, advocacy, protection, and development efforts in the overall goal of establishing both land-based and marine biological corridors. Support for this effort has included both mapping and identification of gaps, and development of strategies.

The Nature Conservancy, a US PVO collaborator in RENARM through PACA, developed a methodology for rapid ecological assessment (REA) and carried out assessments with RENARM support in Belize, Guatemala, Costa Rica, and Honduras.

In the areas surrounding protected areas, both in formal buffer zones and broader zones of influence, community development efforts have supported terracing and agro-conservation techniques, agroforestry and reforestation, ecotourism, and community credit. These programs are designed to address forest loss due to small-farmer slash-and-burn invasions.

Table 2 (page 18) lists protected areas and biodiversity conservation achievements by country.

Protected Areas Assisted by RENARM



LEGEND

Core Zone Protection: 1, 2, 3, 7, 8, 10
 Buffer Zone Activities: 1, 4, 5, 6, 8, 10, 15
 REAS/Inventories/Mapping: 1, 2, 3, 7, 8, 9, 10
 Env. Education Campaigns: 3, 5, 6, 8, 10
 Management Plans: 1, 2, 5, 6, 7, 12, 14, 15
 Declared or Expanded through
 RENARM Activities: 4, 8, 11, 13
 Infrastructure: 6, 8, 9, 11
 Legal Status: 3, 5, 15

Sources: Country Profiles
 SARS PACA & PP
 MIDTERM EVAL
 PERS. COMM.

V. Sustainable Agriculture and Forestry

USAID has provided major support to strengthen several Central American regional institutions, notably CATIE (Centro Agrónomo Tropical de Investigación y Enseñaza) and the Escuela Agrícola Panamericana (EAP) at Zamorano, Honduras. RENARM used this installed capacity to carry out E/NR work, and focused these programs more strongly on E/NR as a core of their missions. Toward this end, RENARM supported programs of plant protection and integrated pest management, production from natural forests, tree crop dissemination, and watershed management. At Zamorano, an already strong extension program was further developed; at CATIE, programs previously focused on research and development were focused on building strong extension networks.

The plant protection component, carried out primarily by CATIE and Zamorano, was a research-oriented effort to develop IPM options, compile information, validate technology, and educate practitioners. Research was conducted through student theses, buy-ins, and joint ventures with national, public and private institutions. A Regional IPM Information and Documentation Center was established and produced an IPM Journal, IPM Newsletter, and bibliographic information. Specific accomplishments include:

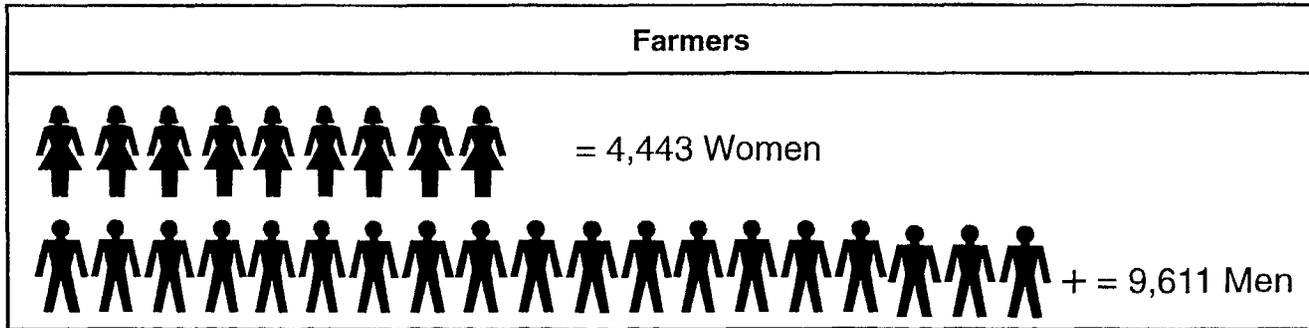
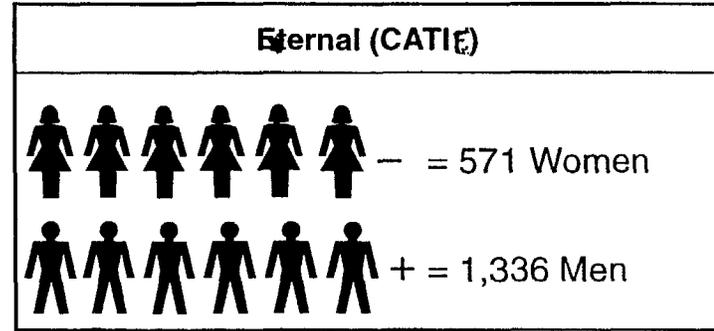
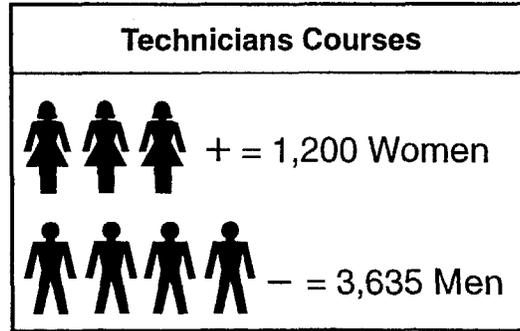
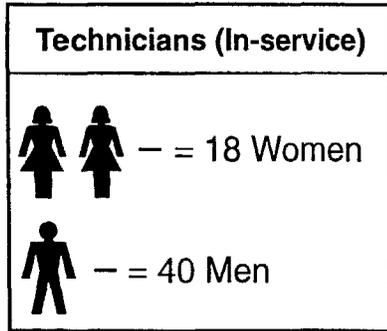
- ◆ Creation of an active regional plant protection network with 98 institutional and 120 individual members (CATIE); strengthening of a documentation center with consultative and didactic materials serving 22 institutions in 6 countries (Zamorano).
- ◆ Pioneering research at Zamorano in both technology (conservation tillage and its benefits for natural predator habitat; whitefly control; protection strategies for specific crops such as onions, broccoli, melons, squash, corn and beans) and extension methodology (participative design and dissemination). Validation and dissemination through extension, conferences, training, and networks.
- ◆ Validation of IPM plant protection methods in 2,000 farmers' fields (CATIE).
- ◆ In-service training, through courses and workshops, of more than 35,000 farmers, technicians, and farm workers.
- ◆ Dissemination of more than 400 publications, including bulletins, newsletters, and journals.

The pesticide management activity focused on education and training, addressing specific needs of people in different population sectors using and affected by pesticides. The program has distributed information, trained farmers, extension workers, and medical personnel about pesticide dangers and safe and appropriate uses. Manuals and courses have been developed. Technicians, laboratories, and research centers have received support. These activities have generally become institutionalized as part of the continuing core curricula and activities of the participating institutions, and will continue beyond the project's end. Through this program, Central Americans have had access to current, reliable information, technical assistance, and training to reduce overall pesticide use and manage pesticides more safely in the agricultural sector. Specific accomplishments include:

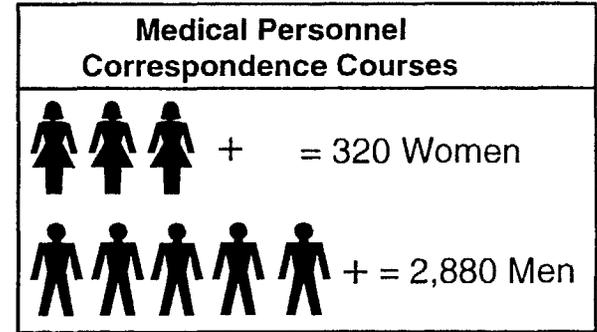
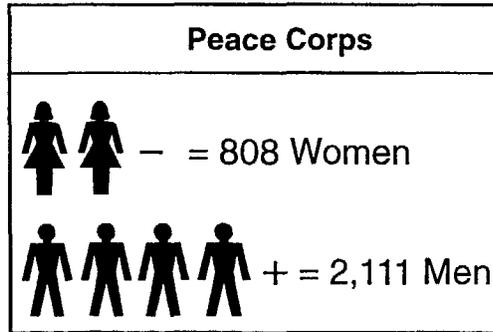
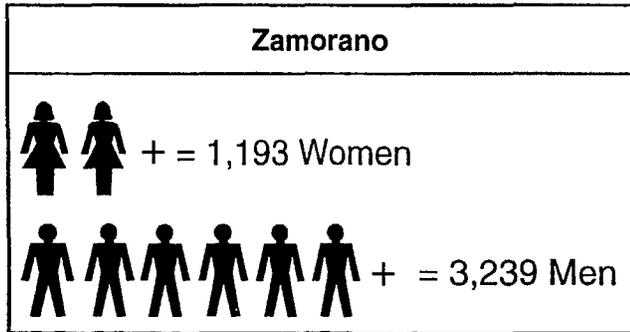
- ◆ More than 16,000 farmers, homemakers, students, trainers, children, and agricultural and health sector professionals received training and technical assistance in safe

Plant Protection and Pesticide Management

IPM



Pest Management




pesticide use through a PASA with Peace Corps. In Guatemala, Peace Corps has made IPM a permanent activity category that will continue beyond the life of the RENARM project.

- ◆ 2,262 persons have been trained in safe pesticide use through courses developed at Zamorano. The four courses (basic safe use, train-the-trainers, homemakers, and farm managers) exist as "off-the-shelf" courses that will continue to be presented and should be financially self-supporting through participating agency fees.

- ◆ More than 2,000 physicians have been trained in the diagnosis and treatment of acute pesticide poisoning, and 4,600 paraprofessionals have received training in pesticide effects, recognizing symptoms of poisoning, and first aid, through two correspondence courses developed and implemented through INCAP. Like the safe pesticide use courses, these courses can be self-perpetuating after RENARM ends.

- ◆ Laboratories in the region that analyze pesticide residues in food have received assessments, training, and technical assistance; a state-of-the-art laboratory manual for pesticide residue testing (applicable worldwide) was produced.

- ◆ A Pesticide Information System, accessible by phone, FAX, and modem, was established at CATIE, in collaboration with the U.S. EPA, whose data bases (for example, tolerance information) are made accessible to Central American regulatory agencies and pesticide users through CATIE's system. The EPA/CATIE connection is likely to continue beyond RENARM's life span.

Evidence that this program's educational component was on track to achieve its purposes, "enhance awareness and educate users, and "improve public and private sector pesticide management," can be found to some extent in the follow-up studies "Knowledge and Beliefs Regarding Agricultural Pesticides in Rural Guatemala" and "Impact Evaluation: Course on Diagnosis, Treatment and Prevention of Acute Intoxications with Pesticides."¹ The needs assessment documented that both laboratories and producers are now capable of measuring and maintaining control over pesticide residues in foods.

It is also important to note that perhaps the most significant outcome, *prevention* of pesticide misuse and poisoning, is almost impossible to measure, particularly since incidences often went unrecognized prior to training courses.

Production from Natural Forests² (PNF) worked to maintain natural forests by managing them for continuous production of profitable resources, and demonstrating the economic value of managed forests as commercial enterprises. Accomplishments include:

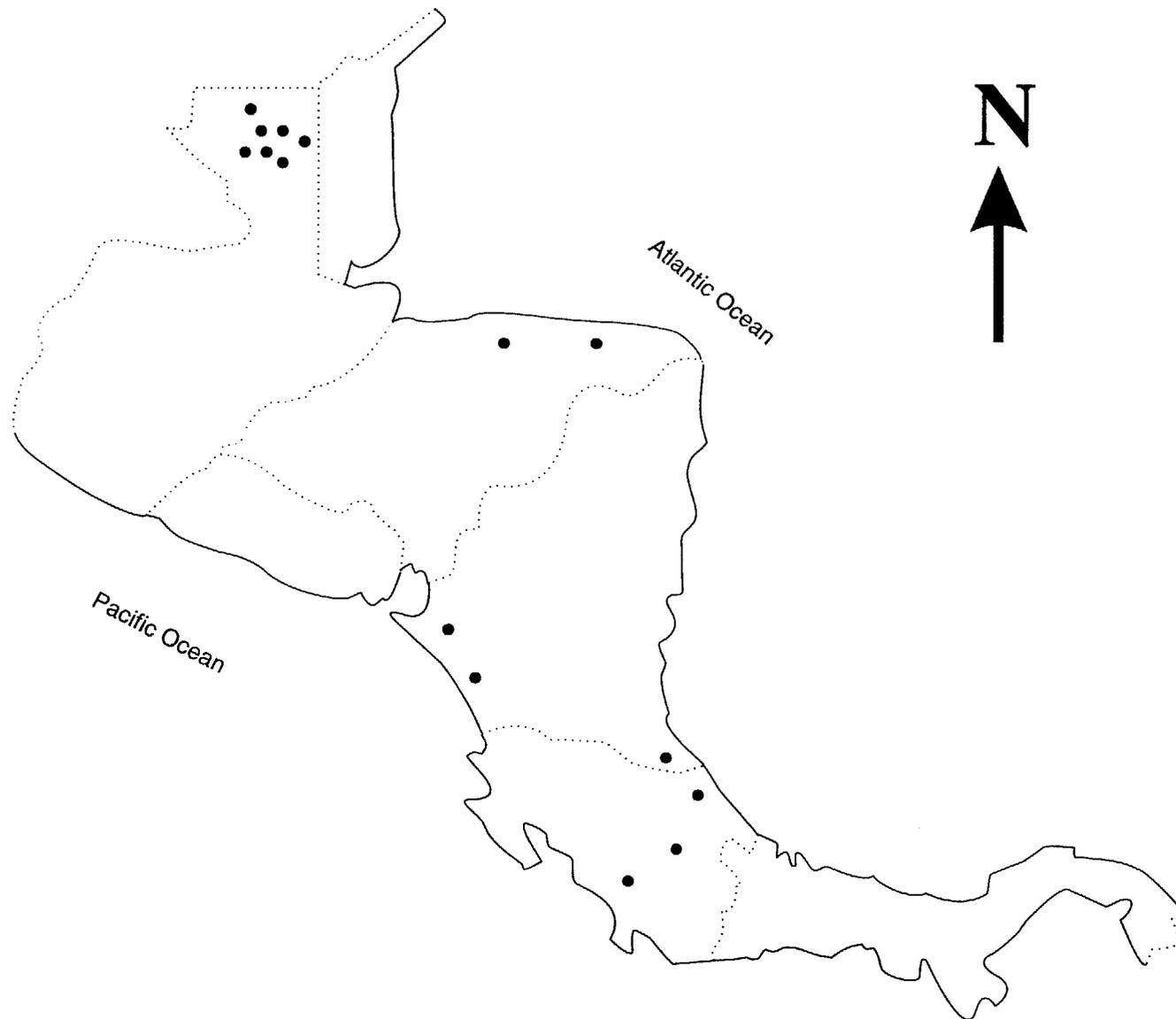
¹. Studies produced under MSI monitoring and evaluation contract (see bibliography).

². Sources for this section: CATIE/RENARM *Produccion en Bosques Naturales* semiannual reports; work plan and profile of activities and budget 1995.

- ◆ Project personnel developed pilot and demonstration projects with private or public landowners on 19 sites in five countries, totaling more than 19,000 hectares (two additional pilot projects, in Guatemala's Peten and the private Rio Bravo Reserve in Belize, encompass 50,000 and 82,000 hectares, respectively.
- ◆ In 93 study plots in four countries, forest growth, mortality, and regeneration are under continuous study as various silvicultural treatments are applied. These plots will continue to be the focus of long-term or permanent studies, monitoring forest dynamics as well as specific indicators. In Guatemala and Nicaragua, these plots are the first in their respective forest types to be established for long-term repeated measures. Plots have recently been established in Honduras and Belize as well.
- ◆ A data base tracks information from pilot, demonstration, and study plots in Guatemala, Nicaragua, and Costa Rica. This computer program continues to be updated and refined and serves as a valuable tool for monitoring changes in forest composition and dynamics resulting from management and silvicultural interventions. In this way, it is helping to guide future management and silvicultural decisions.
- ◆ 189 landowners, forest technicians, and students have received training in natural forest management. In total, more than 400 landowners have benefitted from natural forest management technical assistance. More than 60 NGOs, government agencies, and community groups have collaborated in pilot and demonstration projects, or received information. These individuals and organizations are the base of an extension network that will continue to disseminate and promote production from natural forests well beyond the life of the RENARM project.
- ◆ 25 technical reports and 2 audiovisual presentations on research and demonstration activities were produced. One important publication is "A Model for Simplifying Management Plans for the Natural Broadleaf Tropical Forests of the Region." This publication was unanimously endorsed by the Central American Forest Council, which will support follow-up activities including development of individual country guidelines and validation activities in pilot management areas.

Through RENARM's MAYAFOR project, relationships have been established among similar projects in Belize, Guatemala, and Mexico. Farmers and technicians meet to share management strategies and results, and training courses have included practitioners from the three countries, enriching the course content by providing diverse examples from the region.

Figure 4. Locations of Research and Demonstration Sites of the RENARM/Production from Natural Forests Project in Central America



The tree crop dissemination program³ (MADELEÑA III) has refocused an existing CATIE research program to emphasize technology transfer and training, working with extensionists and local residents to promote cultivation of fast-growing trees to provide poles, posts, and saw logs, with fuelwood as a by-product. RENARM inputs are complemented by support from FINNIDA. Results include:

- ◆ More than 100,000 farmers throughout the region have participated in tree planting and cropping as a result of this program.
- ◆ A far-reaching extension network has been created, including 283 demonstration plots, 43 information centers participating in computerized GIS and bibliographical information systems, and 31 counterpart and liaison institutions.
- ◆ Results of tree cropping have been monitored in 500 experimental sites.
- ◆ More than 200 technical publications have been produced.
- ◆ More than 8,000 farmers and technicians have received training in 61 courses and 304 workshops, seminars, and in-service training events.

The watershed management program⁴ drew on an existing CATIE program of research into watershed management techniques, and sought to actually rehabilitate two watersheds in each Central American country, assisting national institutions in understanding and applying appropriate technology, and creating a permanent program within CATIE where students could earn masters degrees in watershed management, and technical assistance could be provided throughout the region. The program succeeded in:

- ◆ applying land use planning techniques and demonstrating successful agricultural and erosion control technology for sustainable hillside agriculture on five watersheds in four countries. Including projects at the "microcuenca" level, about 15 management plans have been developed and implemented.
- ◆ establishing a Central American GIS network to provide standardized procedures for planning, monitoring, and evaluation of projects, which is functioning in 7 institutions with watershed management responsibilities throughout the region.
- ◆ providing training and technical assistance to some 750 professionals and technicians in 35 courses and seminars, and strengthening 14 institutions with watershed management responsibilities. 27 students received or are completing degrees.
- ◆ producing 28 technical publications and 11 studies, as well as bulletins and extension materials, for distribution throughout the region.

³. Sources for this section: CATIE's MADELEÑA 3 Operating Plan for 1995 and SARs.

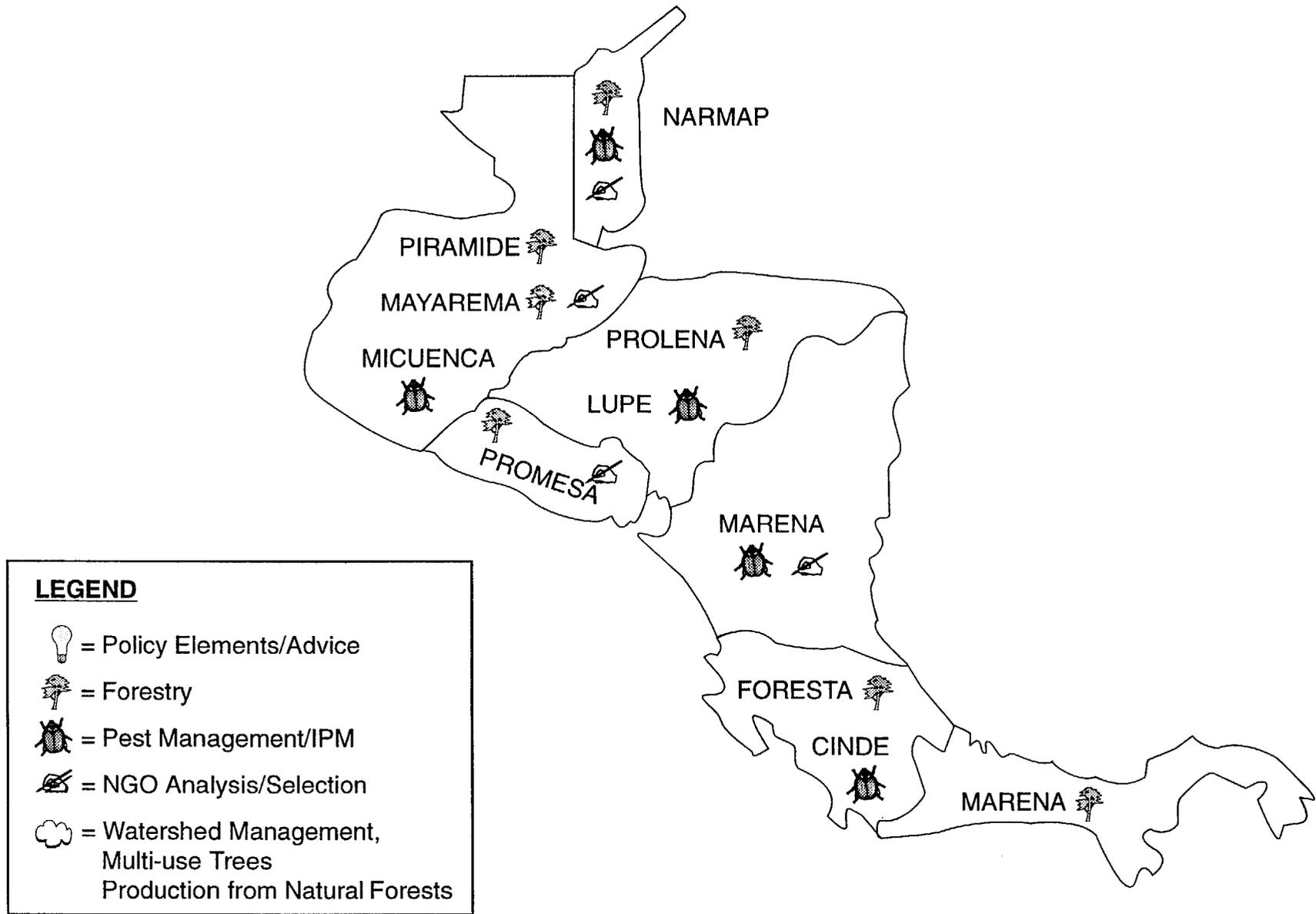
⁴. Sources: CATIE/RENARM *Manejo de Cuencas Hidrográficas* work plan for 1995 and SARs; RENARM midterm evaluation.

VI. Conclusions

While it is possible to see RENARM as the sum total of its various activities, this carries a risk of "not seeing the forest for the trees." The accomplishments of the implementing NGOs, educational institutions, government agencies, and companies involved in the project over the past six years are many, and they have made permanent changes in Central America, and in Central American's perceptions of natural resource issues and ability to address them. This report attempts to give an idea of those influences; the very difficulty of compiling them concisely and graphically is an indicator of their magnitude.

At the same time, RENARM has been a laboratory in which both USAID and the implementing institutions have produced knowledge and strategies for the future. These are discussed more fully in a separate report, "Impacts and Lessons Learned." But some bear highlighting here. RENARM produced some models of regional and inter-institutional collaboration and coordination, some successful, others not. The PACA consortium demonstrated many of the limits and constraints involved in trying to "marry" conservation and development NGOs, as well as the limits AID faces in attempts to influence the agendas of strong existing organizations. Still, PACA profoundly changed both participating organizations, and probably made them individually more influential and effective in supporting sustainable resource use in Central America. The Paseo Pantera consortium developed a regional vision, and graphically showed the biological, legal, and resource grounding for a regional corridor, but also -- especially through its ecotourism project -- highlighted the problems that arise when country-by-country political realities are added to the picture. RENARM leaves a legacy of strengthened institutions, local and international, some that it can take credit for directly, some serendipitously. It is important when considering RENARM's products to look not just at the breadth of activities, but also at the depth of change.

Figure 6. Bilateral Projects Receiving RENARM Technical Support



VII. Summary Tables

Table 1. Environmental Education

Project Paper EOPS	Actual
<p>Six year EOPS:</p> <p>Heightened public awareness of environmental concerns</p>	<p><u>Regional level activities and outcomes</u></p> <ul style="list-style-type: none"> ◆ Press/slide/video campaign for extension of Rio Plátano reserve (Honduras/Nicaragua) ◆ Press coverage of regional biotic corridor concept ◆ Multi-use trees & natural forest management -- calendars & posters, videos, radio & TV spots, school curricula ◆ Prizewinning IPM book ◆ Bio-control of pests posters & stamps
<p>Ten year EOPS:</p> <p>50% of people reached by environmental message</p> <p>Environmental topics in public school curriculum</p>	<p><u>National level activities and outcomes</u></p> <p>Belize: "Rambo sez" radio spots by Belize Zoo; school presentations</p> <p>Guatemala: Radio & cable TV programs, national fair, 60-member EE network, 145 teachers trained in EE</p> <p>Honduras: "Vamos contra los incendios" forest fire campaign in radio & other media; EE manuals from Ministry of Education placed in schools & 151 teachers trained; national agroforestry fair; promotion of organic fertilizers & community nurseries in coffee-growing regions</p> <p>El Salvador: EE assessment</p> <p>Costa Rica: Multi-media campaign for fire control; Guanacaste video, national park field days; "Let's Understand Pesticides" campaign</p>

Project Paper EOPS	Actual
	<u>Local level activities and outcomes</u> Multi-media campaigns and workshops: Toledo District, Belize; Cusuco area, Honduras; Tempisque area, Costa Rica; Chilasco/Sierra de las Minas, Baja Verapaz & Cerro San Gil, Guatemala School curricula: Bay Islands, Honduras (primary school curriculum); Tempisque, Costa Rica (painting contest). Environmental education centers: strengthening of Belize Zoo, nature trail & visitor center at Cusuco Park, Honduras; 3 environmental resource centers in Bay Islands, Honduras; Guide training center, Peten, Guatemala
	<u>International level activities and outcomes</u> Magazine article series on Central American biotic corridor & ecotourism U. of Idaho environmental education & interpretation handbook, English/Spanish

Sources: PACA SARs, "Accomplishment by RENARM of Objectives from the Project Paper Logical Framework"; "Evaluation of the Environmental Education Component of PACA"

Table 2. Protected Areas and Biodiversity Conservation

Country	Protected Area	Major Activities	Implementor	Impact/outcomes
Belize	Bladen Nature Reserve	NZ protection, BZ mgmt, EE	PACA, BCES, PFB, BAS, BZ	REA, mgmt plan, inst. strengthening
	Barrier Reef	Research, planning	Paseo Pantera, GOB Department of Fisheries	development/imp. of resource mgmt. plans, proposal for W. Heritage Site or Bios. Res., resource mapping
	Gallon Jug private reserve Chiquibul Vaca Mts.		Paseo Pantera	GIS mapping
Honduras	Cusuco-Merendon	NZ protection, BZ mgmt, EE	PACA, FEHPF, FUNBANHCAFE, INHESCO, ASOMA	REA, institutional strengthening, reactivation of inter-institutional commission, analysis of land tenure, participatory community assessments, fire prevention training, env. education
	Río Plátano-Tawahka Sumo Reserves	EE & awareness, policy development	Paseo Pantera, Cultural Survival	extension of boundary to border; coordination with Bosawas project/Nicar.
	Bay Islands	EE, land use planning	Paseo pantera, Peace Corps, BICA	Land use/resource management plan produced; buffer zone training workshop, EE teachers manual & workshops, resource centers, guidebooks, surveys
	La Muralla	Resource inventory, operational planning	Paseo Pantera	data collection, op. plan
Guatemala	Sierra de las Minas	NZ protection, BZ mgmt, EE	PACA, Defensores, FUNDAECO, FUNDEMABV	REA & mapping, institutional strengthening, ranger training, land acquisition & mgmt, information mgmt, infrastructure (cabins), training in fire protection, agroforestry, EE; school reforestation program. social needs assessment
	Maya Biosphere Reserve	Census	Paseo Pantera	data gathering, infrastructure (field houses)
	Tikal NP	planning, mapping	PP	operational & public use plans

Country	Protected Area	Major Activities	Implementor	Impact/outcomes
Costa Rica	Tempisque, Palo Verde- Barbudales, Barra Honda	NZ protection, BZ mgmt, EE	PACA, CCIIG, NEOTROPICA, AGUADEFOR	*REA, institutional strengthening, fire prevention *wetland mgmt plan & scientific advisory comm. established, Palo Verde NP. * legal training * EE (radio programs)
	Tortuguero	BZ mgmt	Paseo Pantera	*park expansion; turtle research & conference; research center/visitor center constructed
El Salvador	Barra de Santiago corridor		PACA, Paseo Pantera	fire control training, management planning
Nicaragua	Bosawas, Mosquitia region	PA establishment	PACA, Paseo Pantera. Cultural Survival	Creation of large protected area on border with Honduras, binational coordination. assistance to bilateral projects supporting PA. Inst. strengthening with indigenous NGOs
Panama	Bastimentos Marine Park	mgmt planning, research	Paseo Pantera	mgmt planning workshops, dissemination of results
	El Cope	research	Paseo pantera	status & needs assessment
Regional	Selva Maya/MAYAFOR (Caracol in Belize, Tikal in Guatemala, Calakmul in Mexico) Coral Reef	Ecotourism, park management, legal issues monitoring protocol	Paseo Pantera, TNC, CI, MSI	community forestry, eco- marketing, EE, GIS mapping

Sources: PACA and Paseo Pantera SARS & closeout plans; midterm external evaluation; "Probable Effects and Impacts of RENARM"; verification by implementing organizations.

Table 3. Human Resources and Training

Long-term training (numbers indicate men/women training participants)				
Subject Area	BS degree	MS or PhD	Fellowship or in-service	Comments
TNC Fellowships			14 total	14 Fellows (key Central American NGO staff) have received or are currently receiving long-term on-the-job training
Watershed management (CATIE)		25/4		125/80% of planned LOP
IPM (CATIE)		47/11		118/110% of planned LOP
IPM/EAP	46/15	11/2 MS 3/3 PhD		275/200% of planned LOP (MS level) 75/300% (PhD) 121/125% (bachelors)
Natural forest management		8/1		114/50 % of planned LOP
Environmental education				14 persons enrolled in U. of Idaho masters program
Tree Crop				(thesis research) 59/14 or 236/233% of planned LOP
TOTAL LONG TERM TRAINING	46/15	94/21	14	147/43

Short-term training						
I. Natural Resources Policy and Technical Support						
One or more workshops of 20-40 participants conducted in all 7 countries						
II. Environmental Awareness, Education, and Biodiversity Conservation						
Total short-term training participants for component II (PACA) are estimated at 5,000+. Documentation can be provided on 1,500 to 2,000 training participants per semester during the final years of the project.						
III. Sustainable Agriculture and Forestry						
Watershed management	technicians 205/40	GIS training 96/12	Planning 394/55	WSM 105/26	techsuper 32/8	total 832/141 or 146/99 % of planned LOP
Tree crops	technicians & farmers 7258/807	620% of planned LOP				

IPM	technicians in-service 40/18	technicians (courses) 3635/1200	external 1336/571	total technicians 5011/1789 499/328% of planned LOP	farmers 9611/4443 641/889% of planned LOP
Natural forest management	technicians 138/34	workers 96/10	property owners 472/52	technical training represents 418/550% of planned LOP; property owners exceeds projected LOP by 5,000%	
Pest management	EAPPPM 3239/1193	PC & Count 2111/808	med 2880/320	EAP PPM achieved 216/239% of planned LOP PC & count 402/462% medical 47/16	
<p>Totals, Component 3: 11,427/3975 extension workers trained, 17,341 end-users, 2880/320 medical staff. Not included in above: Zamorano IPM training, whose hillside IPM courses reached 4,500 extensionists and farmers in 5 countries; IPM short courses with 8,545 participants overall, and IPM workshops, 1,369 extensionists. Total training participants, Component 3: Approximately 62,500. Total all components: 64,600.</p>					

Publications: A Partial Listing

Policy

"The Green Book" Vol. I, II, III, IV

Sustainable Agriculture and Forestry

- ◆ CATIE watershed management program produced 28 technical publications and 11 studies, as well as bulletins and extension materials, for distribution throughout the region.
- ◆ MADELEÑA-3 produced more than 200 technical reports.
- ◆ Production from Natural Forests project produced 25 technical reports and 2 audiovisual presentations on research and demonstration activities.
- ◆ Zamorano produced 406 documents and technical reports.

Pesticide Management

Zamorano Safe-Use manuals (complete off-the-shelf training packages)

- ◆ Basic Safe-Use Course
- ◆ Train-the-Trainers Course
- ◆ Homemakers Course
- ◆ Farm Managers Course

INCAP Correspondence Course Manuals for Physicians and Health Paraprofessionals

"Central American Pesticide Residue Laboratory Manual"

Paseo Pantera

"The Natural and Cultural History of Central America." In press, Yale University Press.
(Spanish/English)

"Adventuring in Central America" by David Raines Wallace. In press, Sierra Club Books.
Spanish publisher being sought.

"Nature Conservation and Nature Tourism in Central America" (Spanish/English) In press,
UNEP.

"Biodiversidad y Desarrollo en Mesoamerica" by Mario Boza. In press.

PACA

"Evaluation of the Environmental Education Component of PACA," by Allan J. Hruska,
December 1994.

Cultural Survival

"Cuidando los Regalos de Dios"

"The Spirit of the Kuna Yala" (film)

"Territorios Indios de Costa Rica," by Marcos G. Berger and Ruben C. Castro

Monitoring and Evaluation studies and reports: MSI

"Historical Overview of RENARM Planning," by Roger Popper, July 1991.

"Probable Effects and Impacts of RENARM," by Roger Popper, April 1993.

"RENARM and the USAID Bilateral Missions," September 1993.

"Using Multi-NGO Consortia in Wildlands Projects: Lessons for RENARM," by Mark Renzi, Leslie Lannon, and Hilary Lorraine, January 1994.

"RENARM, USAID, and Central American NGOs: Voices from the Field," December 1993.

"Evaluation of the Maya Biosphere Project," by Dr. Craig MacFarland, Juan Carlos Godoy, Dr. Stanley Heckadon, Dr. Roger Popper, and Jaime Posadas, August 1994.

"Knowledge and Beliefs Regarding Agricultural Pesticides in Rural Guatemala" by Dr. Robert Klein and Dr. Beatriz Hernandez, August 1994.

"Impact Evaluation: Course on Diagnosis, Treatment and Prevention of Acute Intoxications with Pesticides" by Karla Andino, Mario Bustamente, Beatriz Hernandez, Julio Catalan, Roger Popper, Luis Rodas, Ronald Lopez, and Armando Zuchini, November 1994.

"The Paseo Pantera Ecotourism Component of RENARM," by Ruth Norris, May 1994.

Central American NGOs Involved in the RENARM Project

(Partial list)

Regional

Central American Commission for Environment and Development
Tropical Forestry Action Plan for Central America
IUCN
Instituto Interamericano de Cooperación Agrícola

Belize

Programme for Belize
Belize Zoo and Tropical Education Center
Belize Center for Environmental Studies
Toledo Ecotourism Society
Belize Audubon Society

Costa Rica

Asociación de Conservación y Desarrollo de San Miguel
Cámara Costarricense Forestal
Comisión de Desarrollo Forestal de San Carlos
Coopemaderos R.L.
Coopemangle R.L.
Organización de Estudios Tropicales
Fundación para el Desarrollo de la Cordillera Volcánica Central
Fundación Neotrópica
AGUADEFOR
CCIG
CEDARENA

El Salvador

Guatemala

Asociación de Rescate y Conservación de Vida Silvestre
Centro Maya
Centro Universitario del Petén - Universidad de San Carlos
Comité San José Bio-Itzá
PROPETEN
Fondo Peregrino
Centro de Estudios Conservacionistas
IDEADS

Defensores de la Naturaleza
FUNDAECO
FUNDEMABV

Honduras

Asociación de Madereros de Honduras
Centro Universitario Regional del Litoral Atlántico
Centro de Manejo, Aprovechamiento y Pequeña Industria Forestal
Cooperación para el Desarrollo de Países Emergentes
Centro de Utilización y Promoción de Productos Forestales
Fundación Ecológica Hector Pastor Fasquelle
FUNBANHCAFE
INHESCO
ASOMA

Nicaragua

Asociación del Asentamiento Las Maravillas, El Castillo, Rio San Juan
Centro para la Investigación, la Promoción y el Desarrollo Rural y Social
Fundación del Rio

Panama

Asociación Nacional para la Conservación de la Naturaleza

Activity	Mission	Organization	Amount Budgeted	Actual Obligations	Expenses as of 9/30/95
<u>Policy Analysis</u>					(to be calculated and filled in)
MAYAFOR Workshops	AID/W	MSI	922,000	150,000	
<u>NGOs Activities</u>					
Env. Education Inventory	USAID/El Salv.	PACA	4,000,000	1,462,375	
Environmental Policy	USAID/El Salv.	PACA			
Workshop on Turtle Escape Devices	USAID/Honduras	USDA PASA			
Technical Assistance to COHDEFOR	USAID/Honduras	Paseo Pantera			
Resource Inventory on flora & fauna and operational plan for La Muralla	USAID/Honduras	Paseo Pantera			
MAYAFOR (Special Studies & TA)	AID/W	Paseo Pantera			
MAYAFOR (Info exchange, small grants program, TA)	AID/W	PACA			
<u>Plant protection</u>					
IPM program	USAID/Guat.	CATIE	1,000,000	1,184,985	
Training	USAID/Costa R.	Zamorano			
Melon IPM	USAID/Nicarag.	Zamorano			
Nicaragua IPM Coffee Production Program	USAID/Nicarag.	CATIE			
Training in IPM for local technicians & farmers	USAID/Costa Rica	Zamorano			
Training	USAID/Costa R.	Zamorano			
Training in Safe Pesticide Handling	USAID/Belize	Zamorano			

Activity	Mission	Organization	Amount Budgeted	Actual Obligations	Expenses as of 9/30/95
<u>Watershed Management</u>					
Preparation of social soundness analysis and MIS GIS maps	USAID/Costa Rica	CATIE	400,000	24,683	
<u>Tree Crop Dissemination</u>					
Fuelwood study	USAID/El Salvador	CATIE	2,600,000	67,000	
<u>Pesticide Management</u>					
IPM	USAID/Belize	CATIE	0	108,934	
<u>Production from Natural Forests</u>	USAID/Belize	CATIE	0	109,158	
<u>Monitoring and Evaluation</u>	USAID/Guat.	MSI	0		
CNRM Project on M & E System					
TOTAL			10,922,000		