GUATEMALA: ASSESSMENT AND ANALYSIS OF PROGRESS TOWARD SO5 GOALS IN THE MAYA BIOSPHERE RESERVE

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ACRONYMS

ACOFOP	Asociación de Comunidades Forestales del Petén
AFISAP	Asociación Forestal Integrado San Andrés Petén
ARD	Associates in Rural Development
ASOREMA	Asociación Nacional de ONGs para la Protección del Ambiente
BANDESA	Banco de Desarrollo Agrícola
BZ	Buffer Zone
CATIE	Centro Agrónomo Tropical de Investigación y Enseñanza
CDC	Conservation Data Center
CEAP	Comisión de Educación Ambiental en el Petén
CECON	Centro de Estudios de Conservación (Universidad San Carlos)
CEMEC	Centro de Monitoreo y Evaluación (de CONAP)
CI	Conservation International
CISEA	Comisión Inter-Institucional de Seguimiento a la Estrategia de la Educación Ambiental
COADAP	Cooperativa de Apicultores del Petén (Centro Maya creation)
CONAMA	Consejo Nacional de Medio Ambiente
CONAP	Consejo Nacional de Areas Protegidas
CONRED	Comisión Nacional de Reducción de Desastres
CUDEP	Centro Universitario del Petén (Universidad de San Carlos)
EMAPET	Empresa Municipal de Aguas de Petén
EPIQ	Environmental Policies Indefinite Quantities Contract
FARES	Foundation for Archeological Research and Environmental Studies
FMP	Forest Management Plan
FMU	Forest Management Unit
FONTIERRA	Fondo de Tierra
FSC	Forest Stewardship Council
FYDEP	Comisión para el Fomento y Desarrollo de Petén, Peten Management Unit
GIS	Geographic Information System
GoG	Government of Guatemala
GTZ	German Government Cooperation Agency

IDAEH	Instituto de Arqueología e Historia
IDB	Inter-American Development Bank
INAB	Instituto Nacional de Administración de Bosques
INACOOP	Instituto Nacional de Cooperativas
INGUAT	Instituto Nacional de Turismo
INTA	Instituto Nacional de Transformación Agraria
IRG	International Resources Group
JOCV	Japanese Overseas Volunteers
KfW	Kreditanstalt fur Wideranfban (German Development Bank)
MAGA	Ministerio de Agricultura y Ganadería
MBP	Maya Biosphere Project
MBR	Maya Biosphere Reserve
MIS	Management Information System
MUZ	Multiple Use Zone
NASA	National Air and Space Administration
NPV	Naturaleza para la Vida
NTFP	Non-Timber Forest Products
OMYC	Forestry Concession below Dos Lagunas
OCA	Organizational Capacity Assessment
PAF	Plan Anual Forestal
PDS	Programa de Desarrollo Sostenible
PINFOR	Programa de Incentivos Forestales
P/L	Profit/Loss Statement
PMS	Programa de Manejo Sostenible (GTZ program)
PNSL	Parque Nacional Sierra del Lacandón
PPM	Parcelas Permanentes de Medición
POA	Plan Operativo Anual (Annual Operating Plan)
PROARCA	Proyecto Ambiental Regional Centroamericano
PRONADE	Programa Nacional de Autogestión para el Desarrollo Educativo
PSC	Personal Services Contract
PVO	Private Voluntary Organization
RAINPEG	Regional Archaeological Investigation of Northern Peten, Guatemala
RAP	Rapid Assessment Program

RENDRIA	Red Nacional de Formación e Investigación Ambiental
SARN	Sección de Ambiente y Recursos Naturales
SCAF	Sociedad de Comunidades Agroforestales
SEGEPLAN	Secretaría General de Planificación
SEMARN	Secretaría de Medio Ambiente y Recursos Naturales
SEPRONA	Servicio de la Protección a la Naturaleza
SIGAP	Sistema Guatemalteco de Areas Protegidas
TFAP	Tropical Forestry Action Plan
TNC	The Nature Conservancy
TR&D	Tropical Research and Development
UTPM	Unidad Técnica de Planificación Municipal
WCS	Wildlife Conservation Society
ZAM	Zona de Amortiguamiento (Buffer Zone)
ZUM	Zona de Uso Múltiple (Multiple Use Zone)

Executive Summary

Executive Summary

From mid-July through the third week in September, 2000, a team of multidisciplinary specialists from Chemonics International, through the BIOFOR IQC, conducted an assessment of SO5 activities to provide the Mission with recommendations for a new program strategy and results framework. At approximately the same time, another team from International Resources Group (IRG), through the EPIQ IQC, conducted a separate but closely related assessment, focusing especially on environmental policy and the Guatemalan Protected Areas System Network (SIGAP). Both teams studied project documentation and interviewed partners, stakeholders, clients, and personnel from national and international agencies in order to assess and analyze progress toward the Mission's SO5 goals and provide recommendations for a new project strategy and results framework.

The Chemonics and EPIQ teams worked closely together to produce a coordinated and complementary set of recommendations for the new environmental sector strategy and results framework that are included in this report. The Chemonics team took the lead in the development of these documents and the preparation of this report. The EPIQ team authored the pieces on environmental policy in Section II *Summary of Analyses, Conclusions and Recommendations,* Section III *Proposed Strategy*, and Section IV *Results Framework Critique*. The rest of the report—including the annexes, which provide more detailed findings and recommendations—was authored by the Chemonics team. Per their agreement with USAID/G-CAP, IRG will also provide a separate report with further details and analysis as their work progresses.

The Chemonics and EPIQ teams also exchanged findings and coordinated with a third consulting team from the Academy for Educational Development's GreenCOM project. The GreenCOM team was asked to provide an assessment of the Maya Biosphere Project's (MBP) educational strategy. The GreenCOM team will submit its results in a separate report per their agreement with USAID/G-CAP.

This Executive Summary is divided into three parts: Assessment Findings, Proposed Strategy and Results Framework Critique.

Assessment Findings

The MBP can be credited with five main achievements over the last decade:

1. Helping to gain public and government recognition and acceptance of the Maya Biosphere Reserve (MBR), its external boundaries, its internal zoning scheme, and the various management regimes employed therein.
2. Slowing the rate of deforestation within the MBR.
3. Promoting and strengthening coadministration agreements between the Government of Guatemala and environmental NGOs.
4. Creating an incipient community of environmental NGOs in the Petén.
5. Creating and legitimizing community forest concessions.

Major observations by management zone and themes, as outlined in the Chemonics and EPIQ Teams' scopes of work include:

Protected Areas and Biodiversity

- There are no measurements for conservation of biodiversity in the MBR, though it is an explicitly stated component of the SO5.
- The original borders of the two main parks, Laguna del Tigre and Sierra del Lacandon, are indefensible with currently allotted resources.
- The central and eastern portions of the Reserve—which are the least altered by human activities and which may be the most biologically diverse—have received very little attention or investment from the MBP.

"Buffer Zone"

- The "Buffer Zone" (BZ) does not buffer; it is a "Service Corridor" of intensive human settlement with important economic and social interactions to the rest of the MBR.
- Municipal governments have never been significantly involved in the MBP and this has led to a loss of local control over significant revenue sources.
- There is no clear evidence that continued promotion of sustainable agriculture activities in the BZ is the best way to contribute to conservation of forest cover or biological diversity in the Reserve.
- Though land titling in the BZ is an appropriate strategy, its continuance should be based on the complementarity of these activities with ongoing programs of other donors.
- The root cause of agricultural encroachment in the MBR is local population growth through increased birth rates and immigration from other areas of the country. Without addressing this cause, continued invasion of the Reserve by settlers in search of agricultural land is a virtual certainty.
- The BZ is still the largest source of timber, fuelwood and polewood in the Peten. Thus, the project should continue to promote and expand its activities related to sustainable forest management in this zone.

Community Forestry Concessions

- The forests of the Multiple Use Zone remain intact due to the control of illegal settlement, control of illegal logging, reduction of forest fires and the technically correct management of the forest.
- Forests produce social and economic benefits due to the joint production of forest products, especially wood, by the communities. These benefits include revenues to the community members, revenues for joint community projects, a change of attitude of the members of the community about the forest and a strengthened community identity.
- The organizational and technical infrastructure that is needed to advance is now in place, specifically the technical capacity in the NGOs, and the productive and organizational capacity at the level of the community. What is still lacking is the organizational capacity among concessions and coops to function as independent and viable business enterprises.

- Presently, financial viability of the forest concessions and cooperatives seems promising as indicated by high revenue/expense ratios and net present values. However, a serious decline in the financial conditions related to use of the forest is likely to cause a drastic degradation of the biophysical environment as well.
- Current partners do not have the capacity to systematically evaluate or report to USAID the broader environmental impacts of concession activities

Project Partners and Project Management Structure

- To increase its effectiveness, the MBP needs to expand stakeholder participation to include municipalities, more agencies of the Guatemalan government, the private sector, other donors, and local peoples.
- The National Council for Protected Areas (CONAP) lacks institutional stability and has a broad mandate and jurisdiction that are out of proportion with its financial, administrative, and human resources. It is most effective as a coordinating, rather than an executing body.
- International NGOs have played an important role in the MBP, but it no longer makes sense for them to be involved as conduits of funding to local NGOs or project executors.
- The environmental NGO community in Guatemala is still a relatively weak and divided sector. Local NGOs need broad-based, institutional strengthening to increase their effectiveness as a group and to expand their role and effectiveness in the analysis and formulation of environmental policies.
- USAID and its partners have developed a good overall management structure/process with the launching of the integrated work plan and team charter. What has been badly lacking is an adequate system, both within USAID's SO5 and the MBP as a whole, for the management of all types of project-related information: financial, reporting, administrative, ecological, or socioeconomic.

Environmental Policy Analysis

- There is no coherent set of policies and guidelines that provide a legal framework and enabling environment in which to carry out biodiversity conservation and management programs.
- National-level policy issues such as poverty, unclear land tenure and property rights, population pressures, weak regulations and enforcement systems, and a lack of fiscal and other incentives to conserve the natural resources directly affect the operations of SIGAP and CONAP but are beyond their authority and responsibility.
- Natural forest management and related forestry activities do not generate sufficient income to compensate or substitute for income that landowners currently receive from traditional economic activities in and around protected areas. Hence there is little incentive to participate in biodiversity conservation and protection programs.
- SIGAP does not have a set of operational policies that clearly define roles and responsibilities of the stakeholders (national-level agencies, NGOs communities, local governments) involved in protected areas management.
- CONAP lacks an organized policy and planning unit that can generate the needed operational policies and provide strategic planning capability for the institution.

Environmental Education

- Both CI/ProPetén and CARE have done some good work in the area of formal education; however, the remaining environmental education efforts under the project have not added systematically to formal education.

Minority and Gender Issues

- No specific ethnic minority has been systematically repressed or excluded in the Petén.
- Aside from the traditional gender bias in Guatemalan culture, there is evidence that women and men are being treated equally with regards to pay under project-sponsored activities.

Proposed Strategy

Based on assessment findings, we present an overall project strategy based on the principles of consolidation, focus and management, and we recommend that the SO5 strategy be focused on the following four themes:

1. Conservation of biodiversity in core areas of national parks.
2. Consolidation of community forestry concessions.
3. Integrated development of the service corridor.
4. Improved environmental policies.

With the exception of the policy theme, we also recommend that USAID continue to concentrate its limited managerial and financial resources on the Maya Biosphere Reserve and resist the temptation to undertake new programs elsewhere in the Guatemalan System of Protected Areas.

We believe that improved management support is critical to the future success of the Maya Biosphere Project, and we recommend that this new strategy be supported by a revision of the Results Framework and its impact indicators and the implementation of a simpler, more efficient project management structure that would better respond to the proposed strategic priorities. We suggest that this structure be based on contracting a project management organization that would have overall responsibility for institutional strengthening, disbursing and monitoring project funds, coordinating with other donors and stakeholders, and providing specialized technical assistance not available in the current mix of partners.

Results Framework Critique

The results framework and associated documents (performance monitoring plan, customer service plan, R4) are key documents in guiding the overall strategic objective. Based on our analysis, we believe that the SO5 team was unable to make a smooth transition from the use of the "Logical Framework" to the "Results Framework." The results framework and associated documents suffer from a number of problems, including overly complex results, lack of logical structure and faulty logic, missing information, imprecise Intermediate Results (IRs), and overly aggregated IRs and indicators. We also found that there is no good system for managing financial, technical or managerial information related to the project, either within USAID's SO5 or the MBP as a whole. Because of these problems, the results framework has not served as a

useful management tool capable of measuring the project's impacts or effectiveness. We make numerous recommendations to overhaul the results framework and develop a management information system so that these become useful management tools to USAID and its partners and help to improve the quality and effectiveness of project results.

SECTION I

Background

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Background

Project Description

The Maya Biosphere Project (MBP) officially began in 1990 as the major contribution to USAID's environmental strategic objective. From the project's inception, USAID's main Government of Guatemala (GoG) counterpart has been CONAP (National Council for Protected Areas), though a separate agreement was also signed with CONAMA (National Council for the Environment).

In 1992, USAID signed three separate Cooperative Agreements with CARE, Conservation International (CI) and The Nature Conservancy (TNC) to work on distinct components of the MBP: environmental education, enterprise development, and park protection, respectively. As the project progressed, two other international NGOs became involved: Rodale and Centro Agrónomo Tropical de Investigación y Enseñanza (CATIE). A number of local NGOs were either created—Cänan K'aax, Naturaleza para la Vida, and Centro Maya—or attracted to the area as a result of project activities, such as Defensores.

Currently, the project consists of four separate cooperative agreements (expiring the summer of 2001) with CI, CARE, TNC, and Rodale, all international NGOs; and three letters of implementation: one letter with CATIE/CONAP (expires late 2000); a second letter with CATIE/Guatemala for serving as a fiduciary-administrative agent for grants to Naturaleza para la Vida (NPV) and Centro Maya; and a third letter with Fondo de Tierra (FONTIERRA) to assist project partners[1] with resettlement activities. Four local NGOs participate in the project and receive money through their international counterparts: Defensores through TNC, Cänan K'aax through CI, Centro Maya through Rodale and CATIE/Guatemala, and NPV through CATIE/Guatemala.

Local NGOs have gradually assumed more responsibility for implementing project activities. The principal strategies employed by project partners include promotion of sustainable agriculture and forestry; land titling; enterprise development; parks protection; and resettlement. The entire life-of-project budget to date has reached approximately US$40 million, which includes counterpart contributions from CONAP and NGOs, and a special disbursement of funds from the Peace Accords.

In 1997, the MBP began work with all CONAP partners to implement planning and reporting to facilitate coordination and priority-setting. In 2000, the team charter was created to promote dialogue and shared vision among partners. The team charter and integrated work plans have become positive features of the MBP's organizational and management structure.

[1] Project partners include CONAP, TNC, CI/ProPetén, CARE, Centro Maya, NPV, Defensores, and CATIE.

As of this writing, the Portillo government is entertaining a proposal to combine CONAP with several other government agencies and elevate them to the ministerial level in a new Ministry of Environment. Though this is a potentially positive development, it does create a climate of uncertainty for USAID's main counterpart and, to a certain extent, for the Maya Biosphere Project.

Purpose of this Assessment

With the approaching tenth anniversary of the Maya Biosphere Project (MBP), USAID/G-CAP contracted Chemonics International, through the BIOFOR IQC, to undertake an assessment of the project and develop recommendations for a new strategy over the next eight-year period (through the end of the current five-year plan through 2003 and for the upcoming five-year plan from 2004 to 2008). In addition to this assessment, the Mission also requested that the Chemonics team conduct a complete review of the SO5 results framework, its indicators and associated documents.

As a guide for the assessment, the Scope of Work (SOW) emphasized four primary elements: 1) examination of project partners and the interventions they employ in each of the Reserve's three main management zones (buffer zone, multiple use zone, and parks); 2) the longer-term direction of support to community forestry concessions; 3) the project's activities and strategy for park protection in Sierra del Lacandón and Laguna del Tigre National Parks, including the problem of human settlements and; 4) the past and future role of the MBP activity in the formulation and adoption of environmental policies. See Annex C for Chemonics' BIOFOR scope of work.

Just prior to the Chemonics assessment contract, the Mission contracted IRG, through the EPIQ IQC to provide core management, and long- and short-term technical assistance to SO5's Intermediate Result 2: *Policies Affecting the Environment are Improved and Applied*. Among the tasks to be performed under the EPIQ contract was *Task 5: Support to USAID Management*, which includes "Technical assistance…to assess options and prepare background documents and analyses [that] USAID/G-CAP may use to design a Strategy for a new environmental program." EPIQ was charged with identifying and assessing an expanded environmental policy agenda and strategic priorities. See Annex D for the EPIQ scope of work.

The assessments carried out by the two teams were complementary in that Chemonics was asked to focus exclusively on the Maya Biosphere Project (IR1) and (IR3), while the IRG EPIQ team was asked to address the broader issue of environmental policies (IR2) in both the MBR and throughout Guatemala's Protected Areas System (SIGAP).

In order to take advantage of the synergies between the Chemonics and EPIQ teams and produce the highest-quality, most realistic strategy, USAID requested that both teams work together to produce a single report that would include a draft strategy, results framework, and assessment. This report, with contributions from both Chemonics and IRG, fulfills that request.

Team Composition and Activities

The Chemonics assessment was carried out by a team of five interdisciplinary professionals with extensive experience as both managers and evaluators in similar natural resource management

programs in Latin America, Asia and Africa. Three of the team members carried out the overall assessment and strategy, while two members focused on the issue of community forestry concessions.

Members of the Chemonics team were in Guatemala from mid-July through late-September. They interacted closely with the SO5 Team and its partners, as well as other consulting teams. Activities included:

July 17 through July 26—The first 10 days were spent reviewing USAID documents, reviewing the SOW with the SO5 Team, initial interviews with partners, planning of logistics, and attending a workshop on human settlements.

July 27 through September 2—Fieldwork in the Petén, including interviews with partners and visits to field.

August 14—Presentation of initial findings to USAID (Chemonics and IRG, Guatemala City).

August 25—Presentation and discussion of initial findings to SO5 expanded team (Chemonics and IRG, Flores).

September 3 through September 16—Preliminary analysis and writing in Guatemala City. Continued interviews with partners.

September 14—Presentation to USAID of findings and recommendations (Chemonics and IRG, Guatemala City).

September 17—Presentation of findings and recommendations to SO5 expanded team (Flores).

September 19 through 23—Continued analysis and writing.

The EPIQ/FIPA team consists of four long-term staff based in Guatemala City. They have extensive experience with local and international agencies in economics, agriculture, natural resources and policy.

Interaction with Other Consultants

The Chemonics team worked closely with the EPIC IQC team to exchange findings and recommendations and to provide USAID with recommendations for an integrated and coordinated strategy and results framework as detailed in this report. The EPIC IQC team has made contributions to Sections II, III and IV of this report and will be submitting their own separate report on the policy analysis aspects of this strategy.

The Chemonics team also overlapped with a two-person team from GreenCOM that spent approximately two weeks in the Petén, analyzing the environmental communications aspects of the MBR. The Chemonics team shared findings and recommendations with this team as well.

Though this report includes considerable information on environmental education, we focused exclusively on formal education (as contrasted with "environmental communications") and we have deferred to them on matters related to environmental communication. GreenCOM's recommendations are not included in this report but will be covered, instead, in a separate document, which they will submit directly to USAID/G-CAP.

Organization of this Report

This report is organized into five principal sections as follows:

I. Background
II. Summary of Analyses, Conclusions, and Recommendations
III. Proposed Strategy
IV. Results Framework Critique
V. Annexes A through F

Because of the vast scope of this assessment, and in order to provide the reader with a quick, overall impression, we have included a *Summary of Analyses, Conclusions and Recommendations* in Section II, organized by management zone and major themes as detailed in the scope of work. Further findings and analysis in support of these recommendations are provided in the annexes.

We have included the *Proposed Strategy* and *Results Framework Critique* as separate sections of this report because of their crucial role in this assessment. The Proposed Strategy is presented first with an overall summary and then a more detailed description by major management zones and themes. A Gantt chart of specific tasks is in Annex B, *Implementation Plan*, to assist USAID in developing a work plan to implement the new strategy. Section IV, *Results Framework Critique*, makes recommendations for changes.

SECTION II

Summary of Analyses, Conclusions, and Recommendations

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Summary of Analyses, Conclusions, and Recommendations

Here we summarize the teams' analyses, conclusions and recommendations. The summary is organized according to the main management zones of the Maya Biosphere Reserve (MBR), as well as the principal themes that the teams were asked to address in the scopes of work. Further details are found in the annexes.

A. Protected Areas and Biodiversity

Biodiversity, as a concept, does not appear to be well understood, and the results framework, R4 and other USAID documentation perpetuate these misconceptions. For example, these materials talk about the "high biodiversity" of the MBR's "rainforests." However, MBR forests are not rainforests, nor are they particularly diverse, even compared with other areas in Guatemala (Sierra de las Minas). Perhaps as a result of these types of misconceptions, the MBP has never adequately measured biological diversity.

USAID/Guatemala's SO5 is "Improved Natural Resources Management and Conservation of Biodiversity in Priority Areas." Despite this explicit objective, the project has never included any systematic, *direct* measure of biodiversity. Instead, USAID chose to measure biodiversity using the presumed proxy of forest cover saved. In a sub-grant through Conservation International (CI) NASA and the University of Maine produced satellite imagery of changes in forest cover in the MBR and compared data to historic trends and projections. This data is then taken to be the SO-level indicator of biodiversity. While there is some relationship between forest cover and biodiversity, this measure is not an appropriate indicator of biodiversity conservation. Furthermore, it has its own set of methodological problems because it is based on future projections of historical trends and because all forest cover saved is presumed to be the result of Maya Biosphere Project (MBP) activities. Lack of baseline biological data prevents any meaningful measures of biodiversity conservation or the impact of project interventions.

Recommendation

1. Eliminate biodiversity from SO5 or begin measuring it using the rapid ecological assessment methods of CI and TNC (especially for lesser-known areas of the Reserve) and implement a Monitoring and Evaluation system for biodiversity following the proposals of Imbach, Mendez, and Corrales.

Parks. Virtually all of the MBP's investments in park protection have gone into two parks in the western half of the Reserve: Sierra del Lacandón (PNSL by its Spanish acronym) and Laguna del Tigre (PNLT). These so called "nuclear zones" were meant to function as areas of strict protection for biodiversity, but they have been heavily influenced by human activities for at least the last several decades.

When the MBR was created in 1990 there were already human settlements in both parks, and Laguna del Tigre had a petroleum concession in production.[1] Petroleum development and logging had created a significant road network in the Buffer Zone between the two parks, along what is now the border of the PNSL and into the PNLT and the Biotopo Laguna del Tigre. These roads then encouraged further settlement by swidden agriculturalists. These parks also have a long history of lawlessness: they were a guerilla stronghold during the civil war and more recently, they have become important staging areas for trafficking drugs and illegal immigrants. With the signing of the cease-fire in 1992 and the Peace Accords in 1996, the Government of Guatemala (GoG) resettled communities within Sierra del Lacandón National Park that had fled to Mexico during the period of civil strife.

Recent satellite data for PNSL and PNLT demonstrate continued heavy impacts from deforestation and forest fires. Resettlement of communities to areas outside the parks has been slow and costly, and is unlikely to proceed at a more rapid pace anytime in the near future due to lack of political will.

The original park and Reserve boundaries were drawn without regard to existing human settlements and the complex social, political and economic forces described above. However, these are the realities within which the MBP's park protection efforts have had to function. Managing these parks within their originally prescribed boundaries has become virtually impossible. Given the limited resources that are available, it makes more sense to protect those areas within the parks that are known to be of high biological value.

Recommendations

1. Define ecologically important "core areas" within each of the two parks and focus management effort and resources on preventing any deterioration of these areas.
2. Explore the possibility of establishing community concessions within non-core areas.

Western Bias. As mentioned above, in the 10 years since the project was started, virtually all park protection activities have been centered on PNSL and PNLT, which are located in the western half of the MBR. Though these are the two largest parks, they are also the most heavily intervened in terms of human influences. In contrast, the forests in the eastern and central portions of the MBR, including those in the Multiple Use Zone (MUZ), are relatively undisturbed. Together with large protected areas in Mexico (Calakmul Biosphere Reserve) and Belize (Gallon Jug and Río Bravo), the forests of the eastern MBR constitute the largest tract of contiguous forest in Mesoamerica. This eastern part of the MBR may also harbor more biodiversity than the western half, if for no other reason that it has been less disturbed (fewer roads, more buffering from concessions in the MUZ).

[1] Basic Resource's concession is actually inside the Biotopo Laguna del Tigre-Río Escondido, which is completely surrounded by Laguna del Tigre National Park.

Recommendation

1. Begin looking for investment opportunities in the central and eastern portions of the MBR (particularly in the Mirador-Río Azul and Naaxtun Dos Lagunas protected areas complex) and gradually shift the emphasis of the MBP part protection activities to this region.

B. The Buffer Zone

A Service Corridor Perspective. The Buffer Zone is a 15 km wide band along the southern portion of the MBR boundary where, according to the founding legislation of the Reserve, only activities compatible with conservation are permitted. USAID and its partners perceive this zone to be a barrier to agricultural frontier's continuing northward advance. In reality, however, the Buffer Zone does not buffer at all.

The Buffer Zone is an area of concentrated population with almost 50,000 inhabitants and a population density of 8 persons/km^2. The zone has an international airport with regular flights to Mexico and elsewhere, and it has a major east-west running highway and secondary road network with connections to Belize, Mexico, Guatemala City and Puerto Barrios. This road network facilitates the regular flow of forest and agricultural products throughout the region.

Flores—the departmental capital and most important town in the Petén—is located in the Buffer Zone, as are four other municipal seats—San Benito, San José, San Andrés and Melchor de Mencos, a large town on the border with Belize. The Buffer Zone includes six sawmills and other small forest-product transformation business. It boasts two universities and an air force and army base. In short, the Buffer Zone was misconceived by the Reserve's designers and does not really serve the function for which it was originally envisioned. It is a zone of intensive development and population growth, with important economic and social interactions to the rest of the Reserve.

Recommendations

1. Recognize the Buffer Zone for what it is and rename it to more accurately reflect what it is. We suggest "Service Corridor."
2. Develop strategies that better exploit the characteristics of the Service Corridor (detailed below) and draw people away from parks and other areas of the Reserve by making it a more desirable place to live through improved provision of municipal services, tourist services, transportation, and education.

Municipal-MBR Relations. Since the inception of the MBP, municipal governments were not included in any substantial form. As a result, the MBP lost potentially valuable allies and stakeholders, and this omission created confusion and conflict over jurisdiction of land and other resources, which, in turn, has had a significant fiscal impact on municipalities within the Reserve.

When the MBP was created in 1990, its boundaries were superimposed over pre-existing human settlements, traditional management regimes, oil and logging concessions, and five

municipalities: La Libertad, San Andrés, San José, Flores, and Melchor de Mencos. The citizenry and *ejidal* lands of these municipalities were incorporated, with one fell swoop, into the MBR, and thus, local governments lost control over tax revenues from these lands, as well as the wood and other forest products they generated. In some cases, municipalities were subsequently asked to assume the fiscal burden of taking in communities that were resettled from the parks.

Though there have been some modest efforts by NGO partners to work with municipalities, they are not of the seriousness or scale needed to have a real impact. Fortunately, a number of other donors have been doing some good work with municipalities, most notably the German Cooperation Agency (GTZ) with its Sustainable Natural Resources Management Project (PMS by its Spanish acronym) focused on *ejidal* lands, the World Bank-financed cadastral program, and the Spanish Cooperation's municipal strengthening sanitiation project.

Recommendations

1. The USAID SO5 team should meet with the directors of GTZ\PMS, Spanish\MSP, and World Bank\Cadastral programs in the Petén to exchange program ideas, goals, and methods and to explore possible synergisms. If the regional director of the National Council for Protected Areas (CONAP) has not done these kind of interorganizational public relations, then he should be encouraged to accompany USAID and make this a team effort.
2. The problem of overlapping jurisdiction (between CONAP and municipalities) for management of *ejidal* lands, the taxable population base, and timber and non-timber forest products should be analyzed so that local governments have some way of recapturing these lost benefits/revenues.
3. There should be a workshop with the mayors—and their Municipal Planning Technical Unit (UTPM) and Environment and Natural Resources (SARN) personnel—to explain the biosphere concept, discuss areas of overlapping jurisdiction, and explore possible solutions and areas of cooperation.
4. Any resettlement activities should be coordinated with mayors and made part of their municipal planning process so that the social and physical infrastructure needs of settlers do not become a burden upon municipal governments.

Sustainable Agriculture and Agricultural Encroachment. Two project partners (CARE and Centro Maya) employ as one of their main strategies the promotion of sustainable agriculture in the Buffer Zone. These NGOs provide technical assistance to farmers in activities such as introduction of alternative crops (including some perennials such as fruit trees), improvement of soil fertility with velvet bean, intercropping corn with beans and squash, and rearing of small animals such as goats, pigs, and chickens.

The purpose of these activities, according to Intermediate Result 1 of the SO5, is to encourage people to adopt more sustainable and environmentally sound practices. The theoretical argument is roughly this: increasing the productivity of agricultural practices relieves pressure on forests and other natural resources by halting the further expansions of Buffer Zone inhabitants into the MBR.

The implementation of this strategy by project partners has suffered from a number of problems. They have done very little to develop markets and work on commercializing existing or alternative crops. They have also applied their interventions with little regard to specific ecological, economic, and social circumstances and with few meaningful impact indicators to measure the effects of their interventions, or the overall effectiveness of the strategy. Finally, they have missed the opportunity to link this support with a direct environmental message and personal commitment on the part of the recipients to protect the MBR.

Though sustainable agriculture activities may fulfill an intermediate result of the MBP, they may not represent the most immediate or cost-effective way of conserving forest cover or biological diversity in the Reserve (Shriar, 2000). The root cause of agricultural encroachment is local population growth through increased birth rates and immigration from other areas of the country. Without addressing this terminal cause, continued invasion of the MBR by settlers in search of agricultural lands is a virtual certainty.

Recommendations

1. As an exit strategy, the sustainable agriculture activities of CARE and Centro Maya should be linked to the Mission's SO4 and to Ministry of Agriculture (MAGA) by no later than the end of 2001.
2. USAID should ensure continued support of the census first undertaken by CARE and currently under revision. CARE Austria funded this vitally important work, but the Chemonics team was told that their budget was cut substantially and that it would be doubtful that they would have the funds this year to do the work as planned. The estimated cost of the census in about US$15,000.
3. The MBP should explore linkages with ongoing programs of the GoG, USAID's SO4, and other donors in the area of primary health care, education, and family planning.
4. USAID and its partners (through the CARE census and perhaps through a grant/contract with another organization) should seek to better understand and quantify the reasons for the magnitude of spontaneous migration to the Petén. They should then work with GreenCOM and others to develop messages and strategies that 1) explicitly recognize the linkage between population growth and park protection; and that 2) discourage further migration to the Petén.

Land Titling. In late 1996, CARE started working to assist farmers in obtaining title to lands in the Buffer Zone. This has been a multi-step process involving identification of lands and existing claims, mapping of lands, documentation and resolution of conflicts, and ultimately, registration of lands with municipal authorities. About 1998, FONTIERRA, the GoG agency charged with purchasing land for resettlement of returnees and displaced persons, began receiving USAID funds to assist project partners in land titling and resettlement activities.

It is assumed that by obtaining secure tenure, farmers are able to adopt a longer-range perspective that allows them to be better stewards of the land. Only about 20 percent of the Buffer Zone has been or is being titled. CARE's land titling efforts have encountered a number of obstacles: creation of a secondary land market; illegal and multiple registration of lands under fictitious names by private subcontractors; and a backlog of claims in FONTIERRA. As with

sustainable agriculture activities, there is also no direct link made between titling activities and the obligation of farmers to help conserve the Reserve.

We heard one troubling anecdote that there may be instances where persons who have been given title to land through this program sell their legally registered claim, and then either purchase or squat on a piece of land within the Reserve. Clearly, this defeats the entire purpose of the program, but unfortunately, there is not enough monitoring information to confirm or deny this anecdote, or to really know how widespread the practice may be.

Still, a certain amount of land speculation, irregularities, and even illegalities are inevitable in any land titling program. On the positive side, land titling may mitigate some of the agricultural encroachment into the Reserve and it should provide a disincentive to further migration into the Service Corridor by locking up available land (though it is conceivable that it could have the opposite effect initially).

Land titling is an appropriate strategy for the next several years to stabilize land tenure in the Service Corridor, and it should contribute to improved stewardship, particularly if woodlot management activities (see below) are linked to land titling as further incentive to increase income. However, land titling activities should be coordinated and perhaps adjusted to complement ongoing activities of other donors such as GTZ and World Bank. Also, it is important to keep in mind that land titling by itself cannot be expected to relieve the pressure of agricultural encroachment on the remainder of the MBR; population is still the root cause of this problem.

Recommendations

1. USAID's SO5 team and CARE should meet with World Bank, GTZ, and Spanish Cooperation to discuss and coordinate their land titling programs. Any necessary modifications should be made to achieve maximum complementarity.
2. Develop a strategy that prioritizes and gradually phases out land titling activities in the next five years or so. This should be done through close USAID oversight and support of the Buffer Zone strategy currently being undertaken by CARE, and with close involvement of other members of the Expanded SO5 Team.
3. Develop better monitoring of and impact indicators for land titling activities to assess their effectiveness as an overall strategy.

Woodlot Management. It is thought that the majority of commercial timber, as well as fuelwood and polewood, still comes from the Service Corridor. Most forests in the Service Corridor are on privately held lands, belonging either to individuals or collective enterprises such as agricultural coops or municipal *ejidos*. On many coops, in fact, both forms of ownership exist: small, woodlots on parcels owned by individuals, as well as collective forests managed by members.

The MBP, through the work of Centro Maya, has been addressing the issue of sustainable forestry production in coops and on parcelized community holdings in the Service Corridor. Part of this effort has been to coordinate producers in the area to the south of the PNSL for national and international marketing of their timber production, with the result that these producers were

able to increase the price they were obtaining for their product by 50 percent. This is an excellent example of the woodlot management being successfully combined with marketing and organizational assistance from NGOs.

In the Service Corridor, the National Forestry Institute (INAB) provides a number of financial incentives for reforestation, as well as extension services, not offered by CONAP (the Park Service). In an interesting case of resourcefulness, the mayor of La Libertad has combined these INAB incentives with activities carried out under the SARN (of the Ministry of Agriculture) in order to better manage his *ejido* lands.

Many important synergies between similar activities taking place in different zones of the Reserve. The relationship between forestry activities in the MUZ and Service Corridor is a case in point. A steady flow of certifiable timber from the Service Corridor is important for the entire forest products industry. It encourages competition and improved service, investments in mills and value-added processing, longer-term investment horizons, and it reinforces the concept of certified timber.

Recommendation

1. Sustainable forest management in the Service Corridor should be promoted and expanded. It should take the form of woodlot management (improving forest management on small, privately held parcels of forest), as is currently being done by Centro Maya and Sociedad de Comunidades Agro-Forestales (SCAF). These efforts should also be expanded to include large land holdings that also have woodlands and they should be coordinated with INAB so that management and reforestation incentives are included but not at an additional cost to the MBP.
2. The proposed business development for concessionaires should include forest producer groups in the Service Corridor and the MUZ such as SCAF and the Asociación de Comunidades Forestales del Petén (ACOFOP).

C. Forest Concessions

In order to promote the sustainable management of the MUZ of the Maya Biosphere Reserve, CONAP, starting in 1994, followed a policy of allocating the management of the MUZ as concessions to neighboring community groups and to the forest industry. By the end of 1999, CONAP had signed concession contracts for almost the entire MUZ, except for two Forest Management Units. At the same time CONAP created the mechanism for regulating the management of the forests of the cooperatives and of private owners in the Buffer Zone to meet international certification standards. Three types of entities manage forests in the MBR:

- Community groups
- Industries
- Cooperatives or collectively organized small-holders

These first five years have seen impressive advances in the management of the forests of the concessions and the cooperatives. These organizations have served as buffers to the parks in the

MBR and have conserved forests and helped control illegal logging, fires, and settlements. They have also provided real economic and social benefits, strengthened community identity, and created an organizational structure on which to build. The challenge is to now strengthen the organizational basis of these institutions and build viable financial enterprises.

Recommendations. In keeping with our overall theme of consolidation and management, we suggest the following measures:

1. *Improve the management, administration and internal organization of the communities and emerging producer groups such as SCAF and ACOFOP.* Most communities suffer from numerous organizational, administrative and management problems. However, the necessity of working together on a common enterprise has also had beneficial effects of uniting the community and encouraging new organizational arrangements.

2. *Develop better external relationships.* Improve negotiation skills and contract management skills; encourage longer-term contractual relationships with industry or buyers.

3. *Develop products and markets to utilize secondary species.* Strategic business relationships should be developed along with the use of certification as a tool to open new markets and development of standards and monitoring for non-timber forest products.

4. *Improve the financial viability of forest management.* Phase out subsidies by gradually requiring concessions and coops to directly contract their own technical assistance. As part of their technical assistance, help these groups to attract outside capital, technologies, and expertise, and ensure that they use to their best long-term advantage the currently high volumes of mahogany and *cedro*.

5. *Improve the technical sustainability of forest management.* Improve recovery rates of mahogany, cedar and secondary species. Ask CATIE/CONAP to prepare and implement guidelines for selecting the location and quantity of permanent plots and the treatments to which they are exposed. Review the reporting process—annual operating plans(POAs), annual reports, EIAs—to determine what information is really necessary.

6. *Develop an information management system.* Require all actors who produce documents and maps relevant to the protected areas of the Petén to deposit paper and electronic copies in this center. Stop financing studies that have no clear application.

7. *Improve CONAP's administration of forest management in the concessions and cooperatives*. Develop sanctions for minor infractions and streamline monitoring between CONAP, USAID, and SmartWood.

D. Project Partners

Three principal groups of organizations are actively involved as USAID's partners in the Maya Biosphere Project: CONAP, international NGOs, and local NGOs. Since the project's inception, CONAP has served as USAID's counterpart, playing multiple roles as coordinator, executing agency, and client. Many of the international NGOs (CI/ProPetén, TNC, CARE, Rodale, and

CATIE) have also been involved from the outset of the project and were instrumental in attracting USAID investments into the MBR. Through Cooperative agreements and letters of implementation with USAID, these NGOs have directly executed project activities, provided local NGOs and communities with technical assistance and institutional strengthening, and have served as conduits of USAID funding to local groups. Four local NGOs were either created as a result of project activities—Cänan K'aax, Naturaleza para la Vida (NPV), Centro Maya—or attracted to the region as a result of project activities—Defensores. Each of these local NGOs executes project activities and maintains close links with its international counterpart. Two of these groups have also gone on to sign coadministration agreements with CONAP for the management of protected areas within the MBR.

Roles, Responsibilities, Resources and Authority. Many important stakeholders in the Maya Biosphere Reserve have not been included in any significant way in the project. Though the project originally envisioned inclusion of numerous government agencies, municipalities, and other groups, the role of these stakeholders has been weak. There also exist many opportunities to increase local participation in the project. Some of the greatest successes in the MBP have come from active involvement of local communities (community forest concessions), while some of the toughest problems faced by the project stem from the absence of this type of involvement (human settlements in parks).

As USAID's main GoG counterpart, CONAP has a broad mandate and jurisdiction that are out of proportion with its financial, administrative and human resources. CONAP has achieved its greatest successes when it has realistically confronted its limited resources and developed innovative solutions to meet its mandate. The two shining examples of this type of creative pragmatism are community forestry concessions and coadministration of parks. Neither of these success stories involved garnering more funds for the institution. Instead, they were based on CONAP assuming a leadership role and forging strategic alliances with NGOs and local communities.

Amendment No. 6 of the Project Grant Agreement between USAID and CONAP specifies as a "Conditions Precedent" (pg. 5, par. c) the decentralization of decision-making authority for project funding activities to CONAP/Region VIII (Petén).

Though the involvement of international NGOs in the MBP has been important and constructive, the two primary roles they have played in the past—as implementers of project activities and conduits of USAID monies—no longer make any sense. At this phase in the project, local NGOs and other groups should be implementing the bulk of project activities for reasons of sovereignty, sustainability and cost-effectiveness.

Recommendations

1. Broaden stakeholder participation in this next phase of the project to include municipalities, the private sector, and other government agencies that were not included from the start. When it may not be feasible to include some of these actors at the actual operational level (the Expanded SO5 Team), look for ways to include their perspective and input.

2. USAID should continuously look for new ways to include local communities in all phases of project activities. Specific measures include:
    A. Inviting local communities to directly participate in the Expanded SO5 Team.
    B. Improving M&E to ensure that NGOs accurately represent the needs and interests of local communities.
    C. Encourage and support the formation of more grassroots groups, which in many cases (but certainly not always) better represent community interests.
    D. Involve local communities in demarcation of the external boundaries and internal zoning of protected areas and in the policing of these areas.
3. CONAP should place more emphasis on coordinating and leading, rather than on executing.
4. The SO5 team should review the "…written proof that such agency [CONAP] has designated a Petén-based representative with clearly established decision-making authority for project-funded activities." The team should then review with CONAP personnel the lines of authority for making financial and managerial decisions related to USAID-funded components of the MBP, and come to agreement on what to do when those lines of authority are not or cannot be followed.
5. After the expiration of existing cooperative agreements and letters of implementation, USAID should channel funds to local NGOs and other groups through one single organization so transaction costs (overhead) are not unnecessarily duplicated and so local institutional capacity is strengthened.

Institutional Strengthening of NGOs. Though a number of local NGOs have been created as a result of the MBP, there has been relatively little emphasis on institutional strengthening of local NGOs and other groups. Among both local and international NGOs, there is still little sense of belonging to a community of environmental NGOs that speaks with one voice and shares a common sense of purpose.

Compared to NGOs working on social, economic, and other issues, environmental NGOs appear to be the weakest and most divided sector. NGO rivalries and lack of coordination have at times led to wasted resources and work at cross-purposes. Curiously, the same NGOs that are concerned with protecting the diversity of the natural world have little appreciation of the diversity that exists within the NGO community itself.

Recommendations

1. Eliminate channeling of financial resources to local NGOs through multiple international NGOs and, instead, provide broad-based institutional strengthening of local NGOs and grassroots groups that fosters a common sense of purpose and breaks down traditional rivalries.
2. Whenever possible, use local NGOs from other sectors to provide institutional strengthening and technical assistance to local project NGOs.

Technical Assistance and Training. Technical assistance (TA) and training (including agricultural extension) are not regularly evaluated as they should be. None of the NGOs we interviewed could easily deliver a list of training or TA that they had received or provided, along

with accompanying evaluations. This type of evaluation is of course critical to determine the relevance and effectiveness of TA and training provided under the project.

Recommendations

1. At a minimum, training and TA offered by NGOs and to NGOs must be systematically evaluated.
2. Project NGOs should be encouraged to seek training and TA from their colleagues and from NGOs from other sectors. This would help increase the cost-effectiveness of providing TA and training and it would help foster cooperation among these groups.
3. USAID and project NGOs should experiment with fee-based TA and training whereby NGOs and other groups make their own decisions about what type of assistance they need and who should provide it.
4. Use Guatemalan NGOs from other sectors to provide TA and training whenever possible.

NGOs and Environmental Policy. Local NGOs have played almost no role in analyzing and formulating environmental policies. It is important that they develop and exercise this capacity in order to provide a system of checks and balances, offer an alternative vision to the government's, and finally, to help make environmental policy formulation and decision-making more rational and less partisan.

We did not observe any significant independent analysis of governmental environmental policies by local NGOs, even when there is a pressing need for this type of analysis in such areas as petroleum development and human settlements. TNC is doing some environmental policy work (studies on the economic costs of resettlement and another on park tariffs and fees) under the aegis of the MBP, but it is important that local NGOs assume responsibility for this type of work.

Though some local groups clearly have the capacity to provide rigorous analysis on important issues, there still appear to be a missing link, in the sense that that information is not then broadly disseminated and used to effect changes at the political level.

There are good, local models in Guatemala of NGOs in other sectors that have been able to play this role. For example, the Inter-institutional Commission for an Environmental Education Strategy (CISEA), has been influential in many policy decisions related to social and economic issues and its commentaries are regularly featured in the Guatemalan press.

Recommendations

1. In the long run, USAID should seek to develop an independent policy analysis capability within the environmental NGO community. The vehicle would probably have to be some type of forum or umbrella group that is representative of majority interests. The Expanded SO5 Team might serve as a breeder for this type of activity.
2. If IRG's work on consensus-building fora for specific issues such as resettlement and petroleum reveals that there are significant and irreconcilable differences between the government's point of view and those of the NGO community, then local NGOs should seek to develop and disseminate a parallel policy analysis.

E. Project Management

The Team Charter was signed in May 2000, by USAID, CONAP, and project NGOs to promote dialog and teamwork among project partners. By joining, its members agree to a common purpose, vision and shared principles. Charter members have regular meetings at least once a quarter, plus a semi-annual retreat to discuss accomplishments, lessons learned, and new activities. This Expanded SO5 Team also includes working groups organized by management unit (Sierra de Lacandón National Park) that have helped to foster teamwork and address problems of common concern.

With the strong support of USAID, the Team Charter has quickly become a workable and useful organizational structure that appears to be the preferred forum for discussing issues of concern. Though still done at the behest of AID, Charter members meet frequently and in fact, the Chemonics team's formal presentations to NGOs took place through presentations to the Charter.

All project partners we interviewed agreed that the Team Charter had been a very useful mechanism and that it had helped to promote cooperation, teamwork and planning.

Recommendations

1. USAID should continue to convoke and coordinate the Expanded SO5 Team, keeping in mind a focused agenda, concrete results, and consistent follow-up.
2. The Team Charter should be used to institutionalize other activities such as periodic review of the results framework and master plan for the MBR, administration of a small grants program for research (see Protected Areas and Biodiversity under Proposed Strategy), better management of information, and serving as an incubator to analyze and formulate policies.
3. USAID should continuously look for mechanisms to increase ownership of the Team Charter by its members, so that eventually, local NGOs have a strong interest in and take responsibility for convoking and coordinating the meetings themselves.

The Integrated Work Plan and Reporting. Since 1997, project partners have followed an integrated financial/work plan (IFW)[2] coordinated by CONAP. This system was meant to provide better overall coordination of activities within the MBP and a standard reporting style to facilitate the SO5 team's reporting of R4 information to USAID/Washington. Partners periodically meet to review the plan and divvied the activities among themselves according to priorities and specialties. Each partner then submits a work plan to CONAP using a standard format (in an Excel spreadsheet). CONAP approves each of these work plans and sends an integrated version of the document to USAID on behalf of all partners.

Partners also use a slightly different version of Integrated Financial/Work Plan for semi-annual and annual reporting. This version is modified to indicate what percentage of the result has been completed and includes an additional column for narrative comments. The holders of the cooperative agreements with USAID are reporting for their local NGO counterparts (TNC for Defensores and CI reports for Cänan K'aax).

[2] We refer to the integrated financial work plan as the IFW since it contains significant budgetary information.

The IFW provides a good structure and procedure for planning and reporting. In conjunction with the Team Charter, it has contributed to teamwork and common goals among partners. However, it does have certain problems, some of which stem from the fact that it can only be as good as the information on which it is based (the entire results framework and particularly the objectives and indicators).

We observed that some NGOs use the IFW in a boilerplate fashion, with indicators often increasing in an unrealistically, neat stepwise fashion. Project partners tend to view the reports and impact indicators as a USAID creation and imposition, of little use within their own organizations. Evidence of this is suggested in the fact that several NGOs have their own internal evaluation processes, the results of which are not reflected in the IFW. The IFW has also suffered from some procedural problems as to who should be reporting to whom and the timeliness of reports submitted to USAID.

As far as out the team could determine, CONAP, Centro de Estudios de Conservación (CECON) and Fondo de Tierra (FONTIERRA) do not appear to submit reports to USAID, even though they are receiving MBP funds and have responsibilities for executing project activities.

Despite these problems, the IFW has been an important accomplishment of the MBP and it deserves further support and strengthening.

Recommendations

1. Work with project partners to improve the results framework (particularly in the development of simple, clear and realistic objectives and useful and measurable impact indicators), which ultimately serves as the basis of the IFW.
2. Clarify reporting procedures in a special meeting of the Expanded SO5 Team and adopt a standard reporting format (we recommend that of TNC).
3. Develop reporting requirements for all organizations receiving project funds and responsible for executing project activities.
4. Revise reporting procedures to focus more on results achieved, rather than activities undertaken.

Information Management. The lack of an adequate system for managing all types of information related to the MBP (financial, administrative, ecological, socioeconomic, etc.), both within USAID's SO5 and the project as whole, has been a real hindrance to more effective management of the project.

There is a wealth of material in the form of theses, dissertations, articles, reports, books, maps, financial figures, and other data related to the MBP, yet this information is not readily accessible or freely and easily shared. Within USAID's SO5 itself, project documentation and financial information are much more difficult to access and use than they should be and nowhere is there an effective central repository for information (much less, an information management system) for data related to the MBP.

The Centro de Monitoreo y Evaluación (CEMEC) is charged with collecting, storing and managing spatial data generated from and in connection with the MBP. A recent report by Corrales (2000) recommends the creation, as soon as possible, of an integrated information system for the Guatemalan System of Protected Areas (SIGAP), which would include both spatial and non-spatial data. The University of San Carlos's Conservation Studies Center also includes a Conservation Data Center (CDC), which is responsible for collecting and managing conservation information.

Recommendations

1. In cooperation with its partners, USAID should should move immediately to implement the SII-SIGAP system proposed by Corrales.
2. USAID should develop an information management system that would help the SO5 team better manage financial, administrative and other project-related information. This should include key project documents such as the results framework, PMP, customer service plans, cooperative agreements, letters of implementation, project agreements, and quarterly financial disbursements.
3. As part of this information management effort, USAID should catalog and annotate project-related information, convert it to electronic form, and distribute it among partners and other interested parties.
4. USAID, through the Expanded SO5 Team, should seek to institutionalize the management information system recommended by Corrales and at the same time, coordinate with other national and international institutions working on similar efforts.

A New Project Management Structure. The SO5 team currently manages MBP activities through four cooperative agreements (with CARE, CI, Rodale and TNC) and three implementation letters (CATIE/CONAP, CATIE/Guatemala and FONTIERRA). SO5 staff have the responsibility of managing the cooperative agreements, reviewing financial reports and letters of credit, reviewing semi-annual and year-end reports, and gathering and analyzing data for R4 reports to USAID/Washington. All of this is done without the benefit of a good management information system.

The MBP has created three essential elements as part of its management structure that, despite some problems, have worked well and are worth strengthening and building on. They are:

1. The integrated/financial work plans
2. The reporting system that is part of this integrated planning and that is coordinated by CONAP
3.The Team Charter

We recommend a new structure that is more efficient and streamlined, one reduces USAID's management burden, but at the same time, retains and strengthens these three promising features.

Recommendation

1. Through a cooperative agreement or other mechanism, contract a Project Management Organization (PMO) to serve as overall coordinator and administrator of the MBP. This

organization would not be involved in project implementation, but instead would be responsible for the following main tasks: disbursing funds to local NGOs; M&E of local NGOs; institutional strengthening of CONAP; local NGOs and a local environmental trust; and coordination with other donors and stakeholders. Under this new structure, USAID's SO5 team would be responsible for managing only one cooperative agreement or contract with the PMO. The PMO would report directly to the Expanded SO5 Team. It would also work closely with CONAP to develop an MIS for the project and to compile and approve annual work plans.

F. Environmental Policy

During its first 10 years of existence, CONAP has focused its efforts and resources on protected area conservation activities in two areas: field-level conservation activities, and improvement of wildlife management regulations. Despite great structural hurdles and misconceptions about the nature of biodiversity conservation, strides have been made in both areas. From its inception until 1997, CONAP's activities have centered on the Maya Biosphere Reserve. Since 1997 CONAP has begun to expand its conservation and management activities to other protected areas in Guatemala.

The socioeconomic context within which CONAP has had to operate is both complex and evolving. Structural inadequacies, outside of CONAP's control and authority, play a key role in how successful conservation efforts can be. Additionally, the lack of policy and legal frameworks has hindered progress toward sustainability of protection and conservation programs. Among the structural issues identified in the assessment are:

- The high incidence of poverty throughout Guatemala, and the lack of alternative economic opportunities in lieu of the current intensive and unsustainable use of natural resources as a main source of income.

- Current policies, regulations and fiscal incentives favor agriculture above all other land uses, thus stimulating the occupation and over-cultivation of land that is unsuitable for intense agricultural use. Additionally, high population growth rates continue to increase the demand for agricultural land.

- Lack of access for small farmers to reforestation and natural forest management incentives.

- Lack of economic valuation and value placed on environmental services, wildlife species, and ecosystems.

- Natural forest or resource management presently does not generate sufficient income to make an attractive alternative to traditional resource-based income-generating activities.

- Lack of a coherent policy regarding human settlements in the Maya Biosphere has created conflicts between the needs of the settlers and conservation goals.

- Lack of a national policy regarding oil exploration and extraction in protected areas. Given the potentially harmful nature of this activity in protected areas, this policy is urgently needed.

Within the structure of the SIGAP, the assessment found that co-administration of protected areas agreements have been negotiated on a case-by-case basis, without a policy that guides and defines co-administration. Additionally there are few incentives to attract local organizations and local participation in the management of these areas.

Although the assessment found that Guatemala has an explicit policy for community and local forestry concessions[3], this policy has not been codified into regulations that govern the implementation of the policy. Additionally there is no official designation of zones and land uses in and around protected areas. Again this has often led to conflict between land uses.

The assessment also identified a need for more open and transparent administration and management of protected areas. Public participation in the policy-making process must be extended to stakeholders, especially to local governments and community groups.

In its assessment of the institutional capacity of the CONAP and the SIGAP, the EPIQ team identified several areas that require strengthening to improve the GoG's ability to develop and implement the necessary structural and operational policy changes that will enable a more integrated approach to natural resources management and biodiversity conservation.

Recommendations

1. It is recommended that a policy and strategic planning unit be established within CONAP to provide policy development and analysis capability to the SIGAP.
2. With respect to policy development, the EPIQ team has identified approximately 25 national policy issues that affect biodiversity conservation and natural resources management. Of the 25 identified policy areas, the critical policy areas that should be addressed in the next strategy period include:
    a. A national policy on human settlements in protected areas.
    b. A national policy on oil exploration and extraction in protected areas.
    c. A unified policy, strategy and regulations for developing and implementing co-administration of protected areas agreements.
    d. The regulation of community and local forestry concession.
    e. Strengthening civil society participation and decentralization of authority and responsibilities to municipalities in the administration of natural resources.
    f. Strengthen the institutional capabilities of the environmental sector, both governmental and non-governmental, to analyze, develop, implement and evaluate, and to advocate policies and to propose actions.

[3] The protected areas law specifies concessions as an instrument of protected areas management. This instrument is also mentioned in the policy on the protected areas system, CONAP's Strategic Plan, and the National Strategy on Biodiversity.

g. Develop a set of economic policies and instruments (credit, environmental services payments, entrance fees, user fees) that provide incentive for sustainable natural resource use and biodiversity conservation.

G. Environmental Education

The comments in this section are limited to observations and recommendations for the formal educational aspects of the MBP. We defer to the GreenCOM team to advise on the communication aspects of the MBR since they were brought in specially for that purpose.

Environmental education has been an important component of the MBP from the beginning. CARE began with on an environmental communications program in 1992 and then later worked with the Ministry of Education on a primary school program called EDUCAREMOS. CARE also assisted in the development of college-level program in environmental education at CUDEP (the local, Petén Branch of the University of San Carlos). CI/ProPetén also made important contributions to environmental education through their support of a teacher's preparation program in environmental education at the "normal school" in San Andrés. However, the remaining environmental education efforts under the project have not added systematically to formal education.

In June of 1999, the Ministry of Education and the National Council on the Environment (CONAMA) officially approved a regional educational strategy for the Petén that had been developed by a joint governmental and non-governmental commission, CISEA. We believe this plan—if and when it is implemented—is the best mechanism for ensuring a coordinated, strategic approach to formal environmental education activities within the MBP.

Recommendations

1. An IR package should be added to the results framework that includes both environmental education and communication of environmental themes to assure that these two sets of activities are coordinated and are complementary.
2. Only environmental education activities that are incorporated into the Ministry of Education strategic plan for Petén should be funded. Environmental communication activities (everything else that is not formal education) should be supported as recommended by GreenCOM.
3. If the Ministry of Education/CISEA plan is not implemented, then the MBP should focus, instead, on communication and non-formal education rather than formal educational efforts that are not coordinated with the plan.

H. Minority and Gender Issues

The modern social and cultural development of the Petén has been such that no specific ethnic minority has been systematically repressed or excluded. The probable reason is that the Petén has been a mixing bowl of migrant populations without any one economically or socially hegemonic population. In the case of the Maya Itzá, they were able to negotiate a municipality with the "dominant" Petenero society in the 1800s, which still serves as their base today.

With regard to gender issues, the traditional gender bias in the cultural base continues, but there are signs that some of the groups compensate women equally for wage work, and although late in starting, the MBP has begun a program of gender awareness.

Recommendation

1. Continue to implement the SO5 gender strategy for increasing the participation of women in the MBP, but also include in the proposed workshop the staffs from those municipal governments that have community development or gender offices.

I. The Results Framework

The results framework is the key document in guiding the overall strategy of the MBP. In its current form, it has not served as a useful management tool for a project as complex and large as the MBP because it suffers from lack of clarity, poor organization, faulty logic and other problems. As a result, it has been difficult to measure the real impact and effectiveness of project interventions and strategies.

The MPB also lacks a good system for managing the information it generates and then using this information to provide feedback on the effectiveness of the project management and project interventions. This has also been a critical missing element for the successful use of the results framework as a management tool.

Recommendations

1. Start using the results framework as a management tool, by working closely with partners, to improve its quality, clarity, organization, and utility. This should include, among other things, elimination of compound goals, improvement in the logical flow of sub-IRs, development of realistic and measurable impact indicators, and disaggregation of impacts by management zones.
2. Improve the management of technical, managerial, and financial information within the SO5 team and among project partners.

SECTION III

Proposed Strategy

SECTION III

Proposed Strategy

This section provides a description of a new strategy for the SO5 in the coming eight years. It is organized to provide first, an overview of the entire SO5 strategy, then a detailed list of strategic recommendations by theme, with specific, sequential tasks that can serve as the basis for developing a work plan. An implementation plan in Annex B provides an overall view of the tasks, resources and scheduling that are required to execute these strategies and other recommendations made in this report.

A. New Strategic Vision

In the course of our review of project-related documents, we did not encounter a single, consistent and commonly used narrative articulation of the SO5 strategy. We suspect that as the project evolved and the Mission went from using a "Logical Framework" to a "Results Framework," the piecemeal addition of activities made for more of an amalgam of activities, rather than a really cohesive strategy.

The new strategy we propose does not involve a radical overhaul of the results framework or project activities but instead amounts to a change in emphasis and some organizational management changes. Though we do propose eliminating some activities and adding others, much of what we recommend is a reallocation of financial, human and other resources to areas where they can be more effectively applied through a simplified management structure. It is important to note, too, that many of the new strategies and activities recommended are based not on application of additional financial resources, but rather a greater leadership and coordinating role for USAID and its partners.

Guiding Principles. SO5 activities will be facing significant budget cuts over the current levels of spending, and USAID will be asking its partners to do more with less. In light of this fact, we propose three simple principles to guide this new strategic vision:

> *Consolidation.* Build on existing successes. Do not abandon what is working or what needs more time and attention before it can be made to work correctly.
>
> *Focus.* Focus on concrete results that can be realistically achieved. This may mean restricting activities to more specific geographical or thematic areas or eliminating activities that do not work or have outlived their usefulness. It may also mean reallocating resources where they stand the greatest chances of achieving a positive impact or simplifying systems and procedures to save time and money.
>
> *Management.* Improve management of the project, the SO5 team, and the partners by creating and strengthening tools, systems, procedures and institutions and by streamlining management authorities.

An Immediate Choice. With the revision of the SO5 strategy, USAID is faced with an immediate choice about how to allocate SO5 funds between the Maya Biosphere Reserve (MBR) and other areas of the National System of Protected Areas (SIGAP). Given the findings of this assessment team; the availability of future funding; the organizational transition of USAID's Government of Guatemala (GoG) counterpart, and the fact that the Maya Biosphere Project (MBP) has been the main environmental activity of the Mission, we strongly recommend that USAID avoid the temptation to undertake new programs elsewhere in the SIGAP and that it continue to concentrate its limited managerial and financial resources on the MBR. Without further commitment by USAID, for at least another five years, the potential promise of the project's successes to date is unlikely to be realized and the future of the largest tract of tropical Mesoamerican forest will be placed in jeopardy.

The one exception we see to remaining focused on the MBR is in the area of policy formulation (IR2) where the experiences of the MBP are relevant to other areas in the country and where application of these experiences beyond the MBR would not require much additional financial commitment. In fact, many of the institutional and policy reforms undertaken within the context of the MBR would necessarily have national repercussions.

Four Main Themes. Once this initial decision on geography is finalized, we believe USAID's SO5 strategy should focus on the following four themes:

1. Conservation of biodiversity in core areas of National Parks. NGO coadministrators in Parque Nacional Sierra del Lacandón (PNSL) and Parque Nacional Laguna del Tigre (PNLT) should focus their efforts on defining and protecting critical core areas within these two parks[1]. At the same time, USAID should explore further investments in conservation efforts in the Parque Nacional Mirador-Río Azul and look for opportunities to attract other sources of funding to this area. With greater geographical focus on park protection activities in PNSL and PNLT, monies previously invested in the non-core areas of these parks should gradually be transferred to conservation efforts in the eastern portion of the Reserve, thus achieving greater balance of park protection and biodiversity conservation activities throughout the MBR.

2. Consolidation of community forestry concessions. USAID should build on the initial successes of community forest concessions by shifting its support from its current emphasis on the technical aspects of sustainable forestry management to greater focus on organizing and strengthening these communities and institutions for better business management. Key elements of this strategy should include product development and marketing of secondary species, capitalizing on maximizing returns for existing stocks of mahogany and *cedro*, and training in environmental impact assessment and USAID environmental regulations. This support should be provided through organizations that have demonstrated expertise and experience in institutional strengthening, marketing, and business development.

3. Integrated development of the Service Corridor. USAID and its partners should recognize the "Buffer Zone" for what it is—a Service Corridor—and start managing it in a way that exploits the many important economic, ecological, and social linkages that it shares with other zones of

[1] By "core areas," we mean *biologically* critical areas within the parks, which may or may not conform to the "zonas nucleos" as currently defined.

the MBR. Sustainable agriculture activities should be gradually phased out and turned over to USAID's SO4 and the Ministry of Agriculture (MAGA). These monies should be concurrently reprogrammed to expand sustainable forestry activities in the Service Corridor and these activities should be linked to ongoing efforts in land titling and the National Forestry Institute's reforestation program. Pursuit of this strategy will require strong leadership on the part of USAID and the SO5 team to attract financial and other resources from other SOs and donors and to coordinate with and productively engage municipalities, the private sector, and other stakeholders.

4. Improved environmental policies. We recommend that USAID continue to provide technical assistance and institutional strengthening support to Government of Guatemala, as well as to local environmental NGOs and other local organizations to define a consensus based national environmental policy agenda, to develop and implement priority environmental policies that guide the implementation of natural resources and biodiversity conservation programs, and to strengthen the advocacy role of these institutions. To accomplish this we proposed actions that strengthen and broaden public participation in the policy process, as well as in the definition of administrative and implementation mechanisms for protected areas management and forestry concessions. Additionally, we propose that a policy and strategic planning unit be established within CONAP to provide the GoG with a long-term planning and policy analysis capability.

B. Management Support and Timing of the Strategy

Improved management of the MBP is critical to its future success. In conjunction with the strategy we are proposing, we recommend that USAID and its partners revise the results framework and associated documents (PMP, customer service plan) in order to transform them into useful management tools to guide this strategy. We also recommend that USAID improve management support for the project by streamlining the current technical assistance procurement contracting process for SO5 activities.

Revision of the results framework should begin with a participatory review with the Expanded SO5 Team—based on the critique provided in this report and perhaps with additional outside assistance—to develop realistic and measurable impact indicators and improve the overall quality, clarity and organization of these documents. An integral part of this process must be the design and implementation of a Management Information System (MIS) for the SO5 team and all project partners. An MIS has come and gone during previous MBR phases but clearly needs now to be put in place and respected by all parties.

We also recommend that USAID consider a new management structure for contracting SO5 activities that would be simpler, more efficient, and respond to current strategic priorities by providing new expertise and experience to the Project. We suggest this new structure be based on contracting a "Project Management Organization" (PMO) that would have overall responsibility for institutional strengthening, disbursing and monitoring funds to project partners, providing specialized technical assistance not available through the current mix of partners, and coordinating with other donors and stakeholders.

We do not envision any abrupt cessation of ongoing activities but rather a gradual phasing in of these suggested new priorities. Many of the proposed changes simply involve an increased focus and building upon past successes and strengths.

If this SO5 team is able to begin moving now, the process of revising the results framework and designing, developing and implementing a Management Information System is likely to take 12-18 months. If, for whatever reasons, the process ends up taking longer, then USAID should set as a minimum goal, the full implementation of a new results framework and MIS by the beginning of 2004, the start of the next five-year strategic plan. Though this process is likely to be time-consuming and frustrating (for both USAID and its partners), we believe that the development of a good results framework and MIS is critical to improving overall project management and it is the best guarantee that the SO5 team will be able to manage for results.

In order to have a new project management structure in place by the termination of existing cooperative agreements, the process of finding a contractor for this project management organization (PMO) position should be initiated as soon as possible, in conjunction with revising the results framework. We estimate that the process of drafting a terms of reference, placing the contract out to bid, and choosing a final contractor for the PMO will take somewhere between 12 to 18 months. It should be possible to have a contractor installed and up-and-running by the beginning of 2002.

Most of the proposed changes could begin with the 2002 work plan and the feasibility of many other changes should be explored starting with the 2001 work plan, perhaps even with some small-scale testing in this same year (concessions in parks). In any case, it is important that USAID continue (and in some cases begin) discussing the full range of proposed changes with its partners to give them sufficient time to look for alternative funding and make whatever adjustments may be necessary. The proposed timing for implementing these general strategies and specific recommendations is detailed in Annex B, Implementation Plan.

C. Specific Strategies by Theme

Conservation of Biodiversity in Core Areas of National Parks. The Mission's two priorities with regards to biodiversity conservation and protected areas in the MBR should be: 1) prioritizing and focusing park protection activities on priority core areas of PNSL and PNLT; and 2) gradually reallocating some of these resources to the heretofore ignored central and eastern portions of the Maya Biosphere Reserve.

National parks in the MBR are meant to be repositories of biodiversity. Unfortunately, when the MBR was created, park boundaries were superimposed over areas that had already been highly intervened. In both PNLT and PNSL, it is clear that the strategic error has been to continue to try and defend the original borders of the parks, with limited resources and without clear policies or political support.

In keeping with the overall strategy of consolidation and focus, park protection activities in the PNSL and PNLT should be reduced to concentrate on "core areas." These areas are already reasonably well defined for PNSL and with the recent completion of the final rapid assessment of PNLT, it should also be possible to begin delimiting a priority core area there as well.

The idea of establishing community concessions in non-core areas (for non-timber forest products and perhaps wood) should be assessed and tested in order to ease pressure on the most sensitive areas of the parks by providing more economic opportunities for local peoples.

The other strategic move to protect biodiversity in parks and other zones of the MBR is to begin investing, very modestly at first, in parks in the central and eastern portions of the Reserve. The forest in these areas is still relatively well protected and forms the largest, contiguous tract of Mesoamerican forest along with protected areas in Belize (Gallon Jug and Río Bravo) and Mexico (Calakmul Biosphere Reserve).

Tasks, Resources and Timing

Task	Resources	Timing
1. Define "core areas" of PNSL and PNLT.	Defensores and Cänan K'aax with help from TNC and CI and others.	Start ASAP. Complete by middle of 2001.
2. Demarcate "core areas."	Defensores and Cänan K'aax with help from TNC and CI and others.	Only when relevant conditions have been met.
3. Analyze the possibility of community concessions in non-core areas of PNLT and PNSL.	Defensores and Cänan K'aax with participation of Expanded SO5 Team and private consultants.	Start ASAP; test by end of 2001 and determine "go" or "no go."
4. Begin RAPs and baseline data collection for central-eastern portion of Reserve.	CI, TNC, WCS, FARES	Begin ASAP and complete by end of 2001.
5. Consider funding (selectively and modestly) Wildlife Conservation Society's activities in Mirador-Río Azul Park.	SO5	ASAP
6. Scout out other NGOs working in central-eastern portion of Reserve.	SO5	ASAP
7. Continued support of community forest concessions in central-eastern portion of Reserve.	SO5	Ongoing
8. Develop public education exhibits in Tikal on community forest concessions and more generally the MBP.	Expanded SO5 Team, GreenCom, INDAEH, INGUAT	By end of 2001

Consolidation of Community Forestry Concessions. As a strategy for conserving the ecological systems of the Multiple Use Zone (MUZ), forest concessions were a stroke of genius. The concessions have exceeded expectations and have provided the basis for the most sustainable aspects of the program. They are dramatically increasing the incomes of concessionaires and have reduced the incidence of forest fires, illegal logging and settlements in the MUZ. The forest concessions serve as an effective buffer for core areas and are linked to the global market for certified timber.

However, now that the concessions are in place and on a solid foundation, USAID's strategy should shift away from the technical aspects of certifying and monitoring forestry practices

towards making these concessions[2] into more productive and sustainable businesses. In order to achieve this strategic goal, concessions require training and assistance in the more sophisticated technical aspects of forest management (improved utilization, operation and maintenance of specialized equipment), basic business skills (financial analysis, negotiations, contracts), organizational strengthening (accounting procedures, development and application of bylaws, role of the board of directors), basic wood processing, and market development for lesser known species. Another key element of USAID's strategy should include training for concessions and NGO partners on the agency's own internal environmental assessment procedures to ensure proper compliance and improved environmental stewardship beyond the current focus on timber extraction. As the suggested basis for this strategy, we have outlined a three-year program of organizational development to concessions, tailored to the specific needs of each organization.[3] The goal of this program is to achieve organizational and financial self-sufficiency for all community groups that will have gone through five harvest seasons by 2004. Chemonics has already been awarded a task order for these activities under the BIOFOR IQC and a detailed plan for this follow-on work is presented in Annex A-V, Proposal for Strengthening Forest Management.

Tasks, Resources and Timing

Task	Resources	Timing
1. Provide support to community foresty concessions and their NGO intermediaries in EIA training and Reg. 216	Chemonics, Expanded SO5 Team	Through end of Q1 2001
2. Prepare SOW and TOR for bidding out support to forestry concessions under the newly proposed IR 1.1	Exanded SO5 Team	Q1 2001
3. Release RFA/RFP or use IQC	NGO and Consulting firms	Q2 2001
4. Begin 3 year enterprise development and forest industry program	Organization contracted	Q3 2001

Integrated Development of the Service Corridor. The Buffer Zone was originally conceived in the founding legislation of the MBR as an area in which there would be no activities that would have a negative impact on the parks or other areas of the Reserve. The Reserve's original designers and today's project partners still tend to view this zone as a barrier to further colonization. In reality, the Buffer Zone is a Service Corridor of concentrated public bureaucracy, tourism, infrastructure, and forest industries, important to both the parks and the Multiple Use Zone. It is not a buffer or fringe area. Accordingly, the new strategy we propose seeks to exploit this zone for what it is by encouraging further settlement and sustainable development of this area, based on the promise of improved quality of life and more economic opportunities.

[2] Although we refer to "concessions," the intent is to include all collective forestry efforts in this program. Thus the cooperatives and the parceleros along the Usumacinta river engaging in joint marketing of wood products should be included.

[3] The concessions may be in the MUZ, but the communities and the enterprises which manage them are in the "Buffer Zone" as well as the MUZ. The marketing and transformation activities take place, mostly, in the Buffer Zone.

Promoting sustainable agriculture in the Buffer Zone to try to halt the expansion of the population into the remainder of the MBR is not a proven strategy. Sustainable agriculture and agroforestry practices are soil conservation strategies and help to improve productivity but have not yet shown to directly slow expansion of the agriculture frontier. Although they are sustainable resource management practices and fulfill an intermediate result of the MBP, they will not lead to the goal of conserving forest cover and biodiversity in the other zones of the MBR. The main forces behind land invasion are population growth and migration from other areas. As an exit strategy, we recommend that the activities of CARE and Centro Maya be gradually phased out and linked to support through USAID's (poverty reduction) SO4 and the Ministry of Agriculture (MAGA).

At the same time that USAID is phasing out sustainable agriculture activities, it should begin reprogramming these funds into expanded forestry activities in the Service Corridor. These activities should be linked to ongoing land titling efforts (CARE and others) and INAB's reforestation programs to provide a whole suite of positive incentives to encourage better stewardship of forest resources.

Approximately half of the lumber processed by mills in the Service Corridor comes from the corridor itself or regions to the south. Support for the forest products industry (which in turn support community concessions and coops) is important in that it ensures consistent supply of raw materials for milling and processing. This support encourages rational investments with a longer-term time horizon and creates competition among mills for the raw materials produced by community concessions.

We estimate that it will take three years to fulfill two strategic goals in the Service Corridor: 1) the transfer of sustainable agriculture activities; and 2) the expansion of forestry activities linked to land titling and reforestation. The greater challenge for USAID and its partners comes in trying to address the longer-term development options for the Service Corridor and ensuring that they enhance rather than detract from the viability and integrity of the MBR.

We have several recommendations about where to start, but we must emphasize that these concepts require further study and development if they are to be made part of a successful strategy.

Population Dynamics of the Service Corridor and MBR. The root cause of agricultural encroachment in the MBR is local population growth through increased birth rates and immigration from other areas of the country. Without addressing this problem —and in the absence of other, better economic opportunities—continued invasion of the Reserve is a virtual certainty.

In order to better understand the population dynamics of the MBR and surrounding areas, USAID should ensure that CARE continues to receive funding to complete and periodically update its ongoing census[4]. The SO5 team and project partners should also try to develop

[4] This year they are planning to do a second census, which has as its baseline the 1998 census. Without this second measurement the population dynamics cannot be understood.

linkages with USAID's SO4 team (better health for rural women and children) and health and education programs of the GoG and other donors.

As part of their work, GreenCOM should be asked to develop environmental communication strategies that explicitly recognize the linkage between population growth and park protection and that focus on the reasons for immigration to the Petén.

Diversifying the Economic Base. Diversifying the economic base of the Service Corridor will be key to the long-term success of the Maya Biosphere Project. Community forestry concessions, nature-based tourism and sustainable agriculture cannot by themselves create enough opportunities to alleviate all the threats to the MBR. Ultimately, the MBP needs to either directly incorporate or attract financial and other resources that will assist in creating alternative economic opportunities through broad-based development that would include activities such as support to the tourism, forest and agricultural industries; environmentally appropriate infrastructure development; and vocational training programs. The MBP can no longer be treated as a project which tries to address the problems of a strictly rural, agrarian society. Annexes A-II, The Buffer Zone, and A-III, Ecological Services and Economic Valuation, examine some of these issues and suggest the idea of establishing a Special Area Management Zone (centered around Lake Petén Itzá), as an organizational tool to begin addressing these types of issues.

More Municipal Involvement. A strategy for developing the Service Corridor[5] must include municipalities since they are the most densely populated settlements and the drivers of economic development in this zone.

USAID and its partners should start working now to begin involving municipalities in the MBP. There should be more coordination and interaction with mayors, their municipal planning technical units (UTPMs) and their environment and natural resources sections (SARNs) in order that they understand which resource management practices are being promoted in each of the MBR zones in their municipalities, and so that the partners can better understand municipal activities and needs. This coordination should also extend to the donors of the major municipal development and strengthening programs in the Petén (GTZ, World Bank, and Spanish Cooperation).

These three activities, if pursued over the course of the next three years, will complement the proposed strategy and lay the groundwork for a longer-term strategy that can be implemented in the next five-year strategic plan (2004-2008). USAID is in a unique position to play a leadership role to attract and leverage financial and other resources, within its own programs and those of other donors, to establish a strategic vision for the Service Corridor that will ensure the consolidation and viability of the last 10 years of the Maya Biosphere Project.

[5] The importance of municipalities is not restricted to the Service Corridor since they also have ejidal lands and a taxable population base within the MUZ of the Reserve as well.

Tasks, Resources and Timing

Task	Resources	Timing
1. Phase out funding for sustainable agriculture activities.	S04, MAGA, CARE, Centro Maya, CONAP's BZ coord., other donors	End of 2003
2. Promote woodlot management among large land owners	Centro Maya and others	Q2 2001
3. Promote adoption of reforestation incentives on private, municipal, and communal lands	Centro Maya, INAB, CONAP	Q2 2001
4. Review of fiscal policy MBR *vis á vis* municipalities.	IRG, CONAP	Q1 2001
5. Fund population census by CARE depending on CARE/Austria's funding	CARE, MBP	Q1 2001
6. MBP informational and coordination workshop with UTPMs and SARN	Expanded SOT and Muncipal Mayors and SARN and UTPM personnel	Q2 2001
7. Exchange with GTZ, World Bank and Spanish Muncipal Strengthening Personnel - titling, resource management, and fiscal strategies	Expanded SOT, GTZ, WB and Spanish personnel	Q2 2001
8. Make and distribute large maps of the MBR zones with the municipal boundries, ejidos and towns clearly marked	CEMEC	ASAP

Improved Environmental Policies. With respect to the strategy for strengthening the policy component of a new environmental strategy and developing a consensus within the GoG on priority policies for natural resources management and biodiversity conservation the EPIQ/FIPA team recommends the that SO5 expand its policy initiatives beyond the Maya Biosphere Reserve to a nationwide perspective, since most environmental policy issues affect both the Protected Areas System of Guatemala (SIGAP) as well as other areas, such as democracy and governance, and economic development.

The strategy should consider mechanisms/models that will strengthen institutional participation to address and propose, analyze, and advocate for policy issues. To this end it is recommended that a series inter-institutional coordination fora be organized, with the participation of GoG agencies and donors, and with civil society, local governments, the private sector and the academic sector. Furthermore we propose that the new environmental strategy focus on strengthening CONAP's capacity to better address environmental policy issues and establish policy dialogue mechanisms with the Environment and Natural Resource Secretary Bureau (or Environment and Natural Resources Ministry, if that were the case).

Using the existing legal and regulatory framework, the current institutional structures and mechanisms for developing policies, and a highly participatory consultative process, the EPIQ/FIPA team is assisting the SO team and its counterparts to define a national policy agenda, to guide the work of the new environmental strategies. As a result of weekly meetings with GoG

counterparts, the following policies and technical assistance requirements have been identified as immediate needs.

Tasks, Resources and Timing

Task	Resources	Timing
Structural Issues		
1. Human Settlements in the MBR	SEMARN, CONAP, MAGA et al.	Through Q2 2001
2. Petroleum in the MBR	SEMARN, CONAP, USAID	Through Q1 2001
Operational Issues		
3. Coadministration of protected areas	SEMARN, CONAP, partners, et al.	Through Q2 2001
4. Concessions in the MBR	SEMARN, CONAP, INAB, CATIE	Through Q3 2001
Institutional Strengthening		
5. Formation of Policy Unit in CONAP	SEMARN, CONAP, Univ. et al.	Through Q3 2001

SECTION IV

Results Framework Critique

SECTION IV

Results Framework Critique

This section provides a critique of the existing results framework, as well as recommendations for its improvement and revisions based on the development of a new SO5 strategy.

While we provided a comprehensive analysis and critique of the results framework, considerable effort necessary on the part of USAID and its partners (even with outside help) to "operationalize" the framework, particularly in the development of useful and meaningful impact indicators. This process will be time-consuming and labor intensive, but it is critical, because these indicators become the basis of the "contract" between local NGOs and USAID (or its proxy in the form of the proposed project management organization). An equally important aspect of this operationalization of the results framework will be to design and implement an effective system for managing all types of financial, administrative, legal, socioeconomic, environmental and other information associated with the project.

Our suggested changes to the results framework have been driven by our critique of its internal consistency, logic, and organization; the need to revise it based upon our new strategy recommendations; and the requirement that it should be a useful tool for implementing the new strategy. However, our suggested revisions have taken into account both the need for the Mission to move swiftly and for the lengthy delays in approval for major changes.

Most of the changes we are recommending are a matter of focusing and organizing the results framework in a way that makes it more useful. With the exception of relatively minor changes in wording and adding a new intermediate result (IR) to better focus environmental education activities in the MBP, we have not changed much at the IR level. Most of our recommendations focus at the level of sub-IRs to provide for meaningful measures of impact and improved evaluation of results.

A. Organization of the Material

The main reference material for this analysis comes from the team management contract for 2000 and the R4s from 1998 and 1999.

In general, the results frameworks and supporting material—R4, the "Performance Data Tables" and the "Performance Monitoring Table" of the team management contract for 2000—were poorly written. The SO title did not follow the basic, recommended practice of having a single goal. The R4 sheets did not have clearly labeled references to the framework. The performance monitoring plan (PMP) did not have the IRs in numerical order.

Another problem with the results framework is that it does not always follow the flow of causality, that is, items in boxes below an IR do not always lead logically to the IR outcome or, in some cases, they may even be the logical outcome of the IR.

Recommendation. Use standard USAID formats and sequential numerical order for the R4.

B. Management of the Information from Partners

The SO Team's computer files on the indicators are not appropriately organized. For example, the tables used to generate the R4 are under the name of the person who gleaned the information from Partner or contractor reports. Thus, in this sample review, it was necessary for USAID personnel to recall which person had written the report, go to the main drive, open the directory of that person, and then seek the name of the file that contained that table. In the case reviewed, the file was not even in a sub-directory, such as R4 that would make the search easier.

Recommendation. All of the files that have to do with monitoring and reporting should be under one directory on the main drive with an appropriate title such as S05/M&E and then with subdirectories such as IR1. That way, all personnel can access the material and store related information and not depend upon individual memory for recalling stored data and reports.A financial management system, even if it is only a simple spread sheet with the expenditures by Partner, area and strategy, would be a great step forward. The proposed PM responsibility of developing this system at CONAP.

C. Multiple Goals at the SO-Level

The current SO5 is an example of a compound vs. simple statement of expected results. Although the two goals are not mutually exclusive and the latter can be the result of the former, it does not necessarily follow that improved natural resource management will lead to the conservation of biodiversity.

Recommendation.The semantic problem should be resolved by separating these two goals either by making the SO a more general, inclusive statement and then using each of the goals as IRs, or by choosing only one goal. As will be recommended below, the new SO should focus on the management goal and not the biodiversity goal.

D. Indicators of Biodiversity

Historic Deforestation. The USAID/G-CAP Strategic Objective for the environment of Guatemala is to achieve "improved natural resource[1] management and conservation of biodiversity within priority areas." This SO5 has various indicators of progress in the local management of potentially renewable natural resources, but has no direct measure which indicates the actual conservation of biological, ecological, and genetic diversity ("biodiversity"). The SO-level indicator (SO 5.2) regarding biodiversity is "Area of natural habitat (primarily forest) saved from conversion to other uses (primarily agriculture) in comparison to historic trends (1970-1990) and projections (1991-2010)." We do not find this indicator to be a useful tool for measuring threats to the Maya Biosphere Reserve (MBR) nor in identifying local socioeconomic conditions that may affect USAID-supported activities.

[1] This word should be changed to "resources" (in the plural) as there are many different natural resources in the MBR. Such a change in wording presumably would not require Washington approval.

The principal indicator of the MBR's success in conserving biodiversity is that the annual loss of forest cover is less than that projected to occur based on the historic trends of deforestation from 1970-1990 (i.e., before the designation of the MBR). These historic trends of deforestation would have continued unchanged without the interventions of the MBR in controlling the conversion of forests to other land uses, although there will never be any way to prove that this presumption is correct. The steep rate of deforestation from 1970 to 1990 was due to, in large part, the industrial forest concessions issued by the Petén Management Unit (FYDEP) and the increasing colonization in the Petén during this period. "Natural" deforestation was caused by fires, hurricanes, tree-fall gaps, and the like. Colonization, and the consequent deforestation from agricultural conversion increased drastically with the dismantling of FYDEP and the implementation of the Peace Accords. It could be argued that the decreased deforestation *rate* through the late 1990s was due to a natural decrease in colonization as families displaced by the conflict returned to settlements and agricultural production in many parts of Guatemala and titles or settlement claims were for many of the agriculturally suitable lands in the Petén. Noticeable increases in deforestation from 1998 to the present probably result from extensive forest fires in much of the MBR and not necessarily from conversion of forests to agriculture or pastures.

The use of this indicator was strongly questioned in the 1994 evaluation (MacFarland, et al. 1994, pp. *v* and 46-50), but continues to be used, perhaps because the indicator measure is always positive and indicates the project has indeed "conserved" substantial areas of forests which *might have been* converted to other land uses. The 1994 evaluation states (p. v-vi): "Particularly unconvincing is MBP's use of… one data source (TFAP) and a high deforestation rate (4 percent/year) to calculate a 'historical tendency' and predict the future without the project and . . . another data source (SEGEPLAN) with a lower deforestation rate (about 2 percent/year for the 1980s) to measure project impact…Cause-effect relationships can almost never be proven with numbers alone, and this is especially true in the Petén where so many powerful socioeconomic forces operate in difficult to predict ways." In the summary (Part II) of the evaluation, section B.5: "The evaluation's assessment of the relationship between the MBP and variables such as 'deforestation rates' is based, not on scientific data, but on anecdotal evidence and logic."

The above questions raised in the 1994 evaluation are still valid, as thve same measure is being used. We see no clear discussion of the questionable use of *historic trends* and *km^2 of forests presumably conserved* in the letter from the project manager to the evaluation team leader (Kline 1994), which only shows "Actual km^2" and "Conserved Actual km^2" for one year, 1993 (from SEGEPLAN), in the table of "Forest Cover in Petén" for 1960-1998.

This indicator and its reporting include various critical assumptions which are largely untestable:

1. Estimated historic rates of deforestation from 1970-1990 (based on estimations, not on direct measurements of forest cover or land-use change) would have continued straight through 2010 if the MBR had not been created.
2. Deforestation is primarily attributable to human activities changing the actual land use and land cover.
3. Deforestation is a reliable indicator of loss of the biodiversity of ecosystems and organisms in a particular area.

This does not provide a monitoring system capable of measuring threats to the MBR and is not capable of identifying local socioeconomic conditions that impact on interventions. An indicator of achievement of a Strategic Objective should be immediately useful in management, both by USAID and by all partners. The *difference* between an historic trend of deforestation and actual deforestation is only useful to show that the project activities *may* have been effective in reversing a trend, but not in determining the annual impact of these activities. This indicator, as measured to date, is no longer useful in assessing impacts of project activities and planning future strategies to assure conservation of biodiversity, as the "historic trend" from 1970 is no longer applicable to the changed land use and socioeconomic conditions in the Petén. The historic trend of more relevance for management of the area is now the comparative annual deforestation (as an estimate of the conservation of biodiversity) since the beginning of the MBR in 1990 and particularly the absolute rate for the last several years.

Recommendations for measuring deforestation

1. Measure the actual deforestation and ground truth. A more useful management tool for this SO Indicator 5.2 would be the actual measurement of annual deforestation, compared with the previous years of the MBR and the USAID-supported interventions. This now can be determined with relative accuracy using satellite or other imagery, with the prior years already having been analyzed[2]. It will be necessary to separate human-caused deforestation for conversion of forests to agriculture and pasture from "natural" deforestation from any cause, including hurricanes and fires (but not apparently set in recently cleared land for conversion to agriculture). This separation of anthropogenic versus "natural" deforestation is possible to estimate statistically by systematic or random sampling ("ground truthing") in each of the "management units" of the MBR—parks, biotopos, recuperation and agricultural zones, Multiple Use Zone (MUZ), Buffer Zone, forest concessions. These estimates of actual land use changes, applied at the level of each "management unit" of the MBR, will allow this information to be managerially useful and to elucidate the probable causes and possible mitigations of the deforestation. For example, if sampling of an area in the MUZ (shown on the imagery as being severely deforested) indicates that there has been considerable conversion of forests to agriculture, then immediate management interventions can be put in place by CONAP or the forest concession managing the area to reduce this expansion of the agricultural frontier into a forest concession area. If the sampling of a deforested area in a national park indicates that deforestation was caused by fire, and the area is a habitat or vegetation type of special concern (rare or endangered species), then management interventions can be designed to monitor the status of these or similar unburned areas.

The comparisons with prior years will only be possible showing "total deforestation" without separating out the probable causes, as no (or very limited) "ground truthing" sampling was carried out in previous years.

[2] Although the data on annual deforestation were converted to comparisons with the "historic trends" in reporting this indicator, the actual deforestation numbers derived from satellite imagery are the bases of the analyses reported by the Maine Image Analysis Laboratory and NASA

2. Measure the actual deforestation and compare by specific management unit. As mentioned, if the area of the whole MBR is used as the denominator, yet given strategies and practices are applied to only part of the whole, then the indicator will not provide a useful indication of progress toward goals.

3. Change the title to "Sustainable Management of the Mayan Biosphere." To avoid the whole problem of measuring biodiversity and estimating its changes an alternative SO could have been, "Sustainable Management of the Mayan Biosphere." Then, the IRs would have followed directly along with the indicators.

Exhibit IV-1. USAID's Current Results Framework for SO5

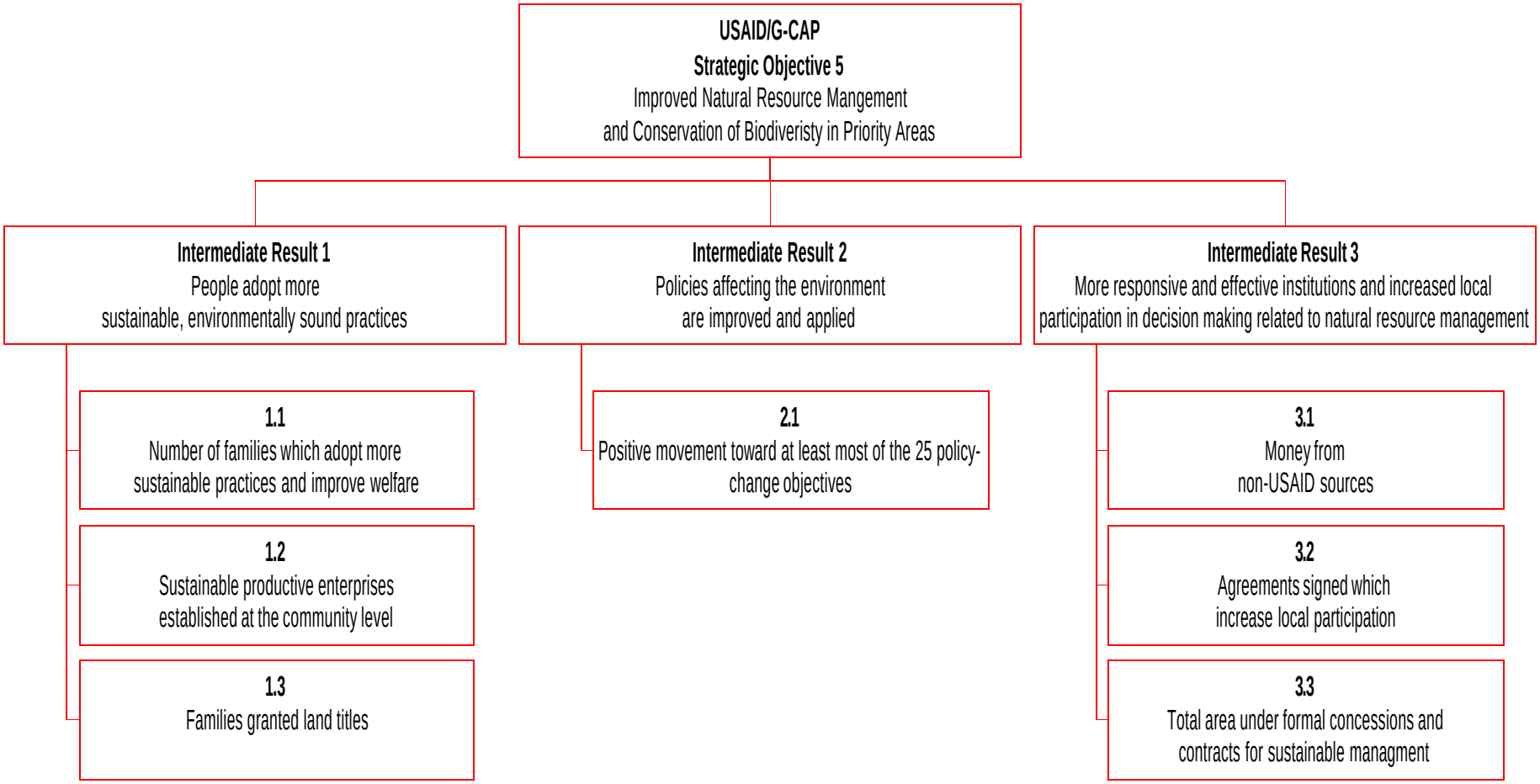
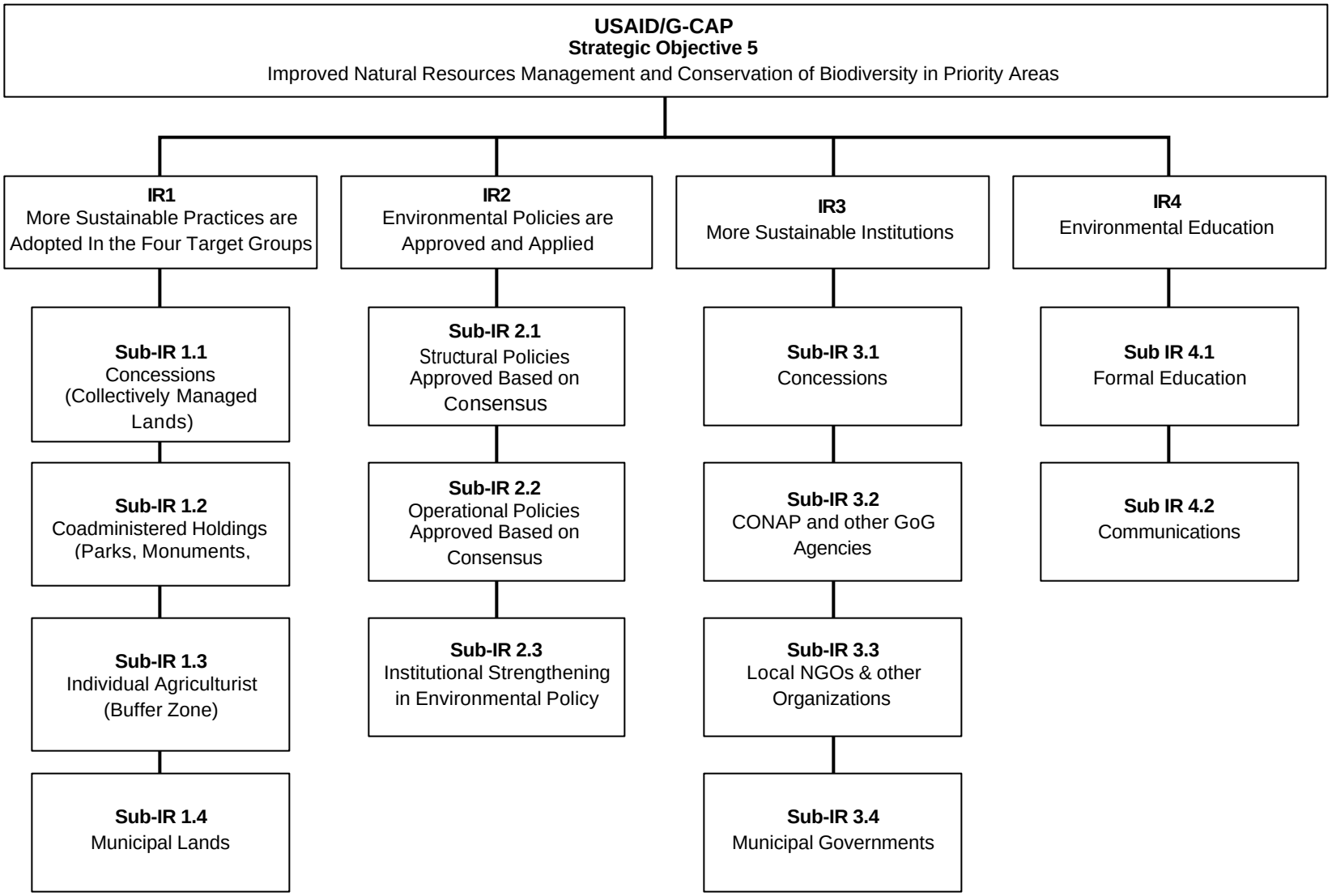


Exhibit IV-2. Proposed Results Framework



E. Intermediate Results

We discuss the intermediate results below, presenting first our observations, followed by our analyses, and recommendations

IR1 "People adopt more sustainable practices"

Observation. IR1 is too coarse to be useful.

Analysis. In keeping with our overall theme of systematic management of the MBP, we find that the single IR1 is not useful to assign or contract the activity. The reason being the subject matter (interested groups and the resources that they manage) in each of the zones requires different strategies and probably different implementers. The MBR has two major approaches to achieve the Strategic Objective through IR1, and they are aimed at distinct areas and types of managers:

1) Sustainable agriculture or woodlot techniques targeted towards individual users of natural resources on individually owned parcels of land (predominately in the Buffer Zone
2) Sustainable forest management activities on collectively managed lands (forest concessions in the MUZ)

These areas and managers are integral parts to a holistic strategy, yet there should be distinct sub-IRs for contracting the work and for tracking the work. Accordingly they require distinct indicators.

Current IR1 indicators are focused on "people adopting more sustainable practices" and the indicator is the percent of the population adopting practices. The problem is two-fold:

- There are two target populations (both collective and individual) and two distinct strategies, yet the target population is treated as though it were a homogeneous group pursuing one overall strategy.
- "Percentage of the population adopting practices" is calculated using the total population of the MBR as its base.

This is the old "apples to oranges" problem, especially considering that the numbers of people in the sustainable agriculture activity are much greater than those in the forest concession activity, thus masking the importance of the latter.

Municipalities[3] should have been another area. There should still be an effort to bring the municipalities into the "cause" of the MBP by including the Environment and Natural Resources Section (SARNs) in each municipality and the Municipal Planning Technical Units (UTPMs) in the information and discussion flow of the MBP. The former is linked to the Ministry of Agriculture and other foreign assistance programs[4], and the latter would be the logical unit on

[3] The annex on municipalities explains the gravity of their omission as well as the importance of including them as soon as possible.

[4] Ordoñez (2000), in his study of the Municipal Sustainable Resources project, concludes that the project has "demonstrated that the municipalities in Petén can and ought to be active participants in the sustainable management of their natural resources."

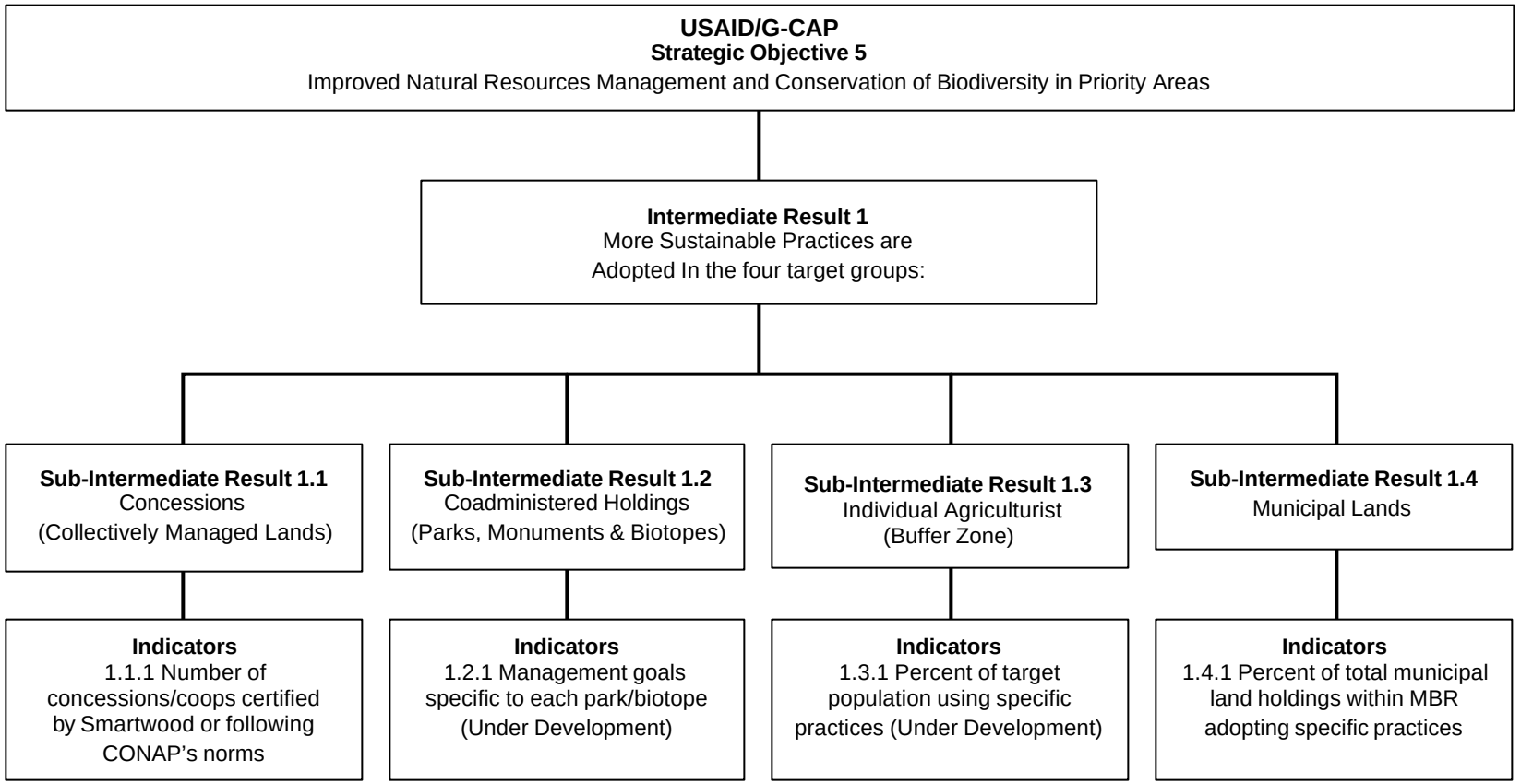
which to attach the EIA training so that public infrastructure and development plans have the environment in mind. This matter is discussed in the Annex A-II, The Buffer Zone.

This sub-IR is included as a reminder to the MBP to network with municipalities and other donors working with municipalities. We are not suggesting that activities other than networking and the inclusion of municipalities in workshops be funded.

Recommendations. Make IRs and indicators appropriate to specific subjects and geographical areas. The intermediate results should be generalized to cover all types of subjects/areas. For example, IR1 should be "More sustainable practices are adopted." The sub-IRs should identify the specific target area and accompanying indicators as shown in Exhibit IV-2, Proposed Results Framework. There is no indicator *per se* for the IR, because of the aggregation problem and the need to be more specific in order to evaluate the progress of contractors in their specific areas, using their specific strategies.

We suggest that new sub-IRs be developed, as follows, to measure the adoption of sustainable practices in each of the relevant target groups:

Exhibit IV-3. Proposed IR1



IR 1.1 Collectively Managed Lands (Concessions) At the present time the community forest concessions are under sustainable forest management plans, with the goal of obtaining certification by Smartwood.[5]Thus, the original indicator of area under production with sustainable forestry plans is no longer appropriate and the indicator should shift to compliance with the CONAP norms or the Forest Stewardship Council standards as the overall quality indicator of the state of this type of resource management.

IR 1.2 Institutionally Coadministered Holdings (Parks, Monuments and Biotopos). The indicator should have been the percent of the Biosphere area that was in this category compared with the total area that could have been in this category. As with the forest concessions, this indicator is becoming a moot point because virtually all of the area that can be in this category is already there and the focus should shift to management goals specific to the problems of the parks

The targets related to the management of the parks and reserves should be included under IR3 "More effective and sustainable institutions," as described below. The partners are working in Lacandón Park and Laguna del Tigre Park and Biotopo on issues such as community relocation, training of parks personnel, and the like. At present the results framework does not incorporate many park protection activities.

IR 1.3 Buffer Zone (Individual Agriculturists). The percent of population using the promoted sustainable agricultural and woodlot practices should have as its base, the population in those communities in the Buffer Zone and not the total population of the MBR.[6]In the case of both IR 1.2 and IR 1.3 the area and the number of concessions and parks in the MBR is finite. Accordingly, in the next work plans, the focus should shift from the area under management or the number of concessions or parks to impact indicators specific to the management goals for those areas.

IR 1.4 Municipal Lands. Most of the municipalities have *ejidal* lands within the MBR. At the present time, they are working with GTZ and MAGA on sustainable use practices, but there is a question about jurisdiction and appropriate land-use practices on these lands because of the overlap with the Reserve. The indicator should be the percent of ejidal lands from each municipality that are employing sustainable management practices appropriate for the MBR zone in which they are located (we expect that for this land category, much like the concessions, that 100 percent of the indicator will be reached, if it has not already).

[5] Smartwood operates under the standards established by the Forest Stewardship Council.

[6] It is noted in the R4 that the overall population has shifted according to the census conducted by CARE in 1997. Accordingly, reported percent figures had to be adjusted downward for that year, but considering that the population dynamics did not shift that much in one year to another, one would have to be skeptical about the claims for the previous few years. Targets should be expressed in terms of the numbers of resource users to be included and not the overall population, part of which does not manage the same type of resources. In late 2001 CARE will do another census by community. Those figures should be used for the next phase of the MBR program and changes in population analyzed.

IR 2 Environmental Policies are Improved and Applied

Observations. Based on the assessment and review of environmental policy issues, it is recommended that the sub-results of IR2 be modified to reflect the needs identified in the policy assessment. IR 2: *Policies Affecting the Environment are Improved and Applied*, provides sufficient latitude to address the need for structural and operational policies to be developed, as well as activities to strengthen policy processes within the sector, and can remain as stated in the current results framework. It is recommended that sub-IR, IR 2.1: *Positive Movement Toward More Than Half of the Policy Change Objectives Each Year*, be replaced with three specific sub-IRs that address the findings of the policy assessment.

Analysis. The analysis reveals that there are important achievements in policy development related to the SIGAP. However, efforts and results are scattered and have generally had little stakeholder participation. The assessment revealed a lack of information for decision-making; a lack of policy instruments to implement existing policy statements, and several policy instruments operating without a policy statement—based on consensus—to guide them. In short, there is a lack of long-term vision. There are contradictions between strategic and operational objectives in most of the areas analyzed. Finally, there appears to be a lack of institutions to support participatory policy-making processes within the government and within civil society. Government institutions lack appropriately trained staff and financial capital to allow them to propose informed and concerted policy pronouncements. On the non-governmental side, NGOs and other private sector entities lack the organizational and policy analysis skills to be effective advocates for environmental issues.

Recommendations. The policy issues assessment conducted by the EPIQ/FIPA team included an assessment of successes and gaps in environmental policy. To expand on the positive impact of natural resource management and biodiversity conservation policies that have been successfully implemented, it is necessary to support IR2 with actions directed to design and implement both structural and operational policies that are not yet in place, and to strengthen environmental policy institutions.

IR 2.1 Structural Policies based on Consensus. Structural policies are those policies that are broad in nature, applied on a national level, and are directed at issues beyond the authority and control of CONAP and implementing partners. Accordingly, to design, negotiate and implement structural policies, it is necessary to ensure the political willingness and active participation of other government agencies and private actors. In addition, successful policy making processes for structural issues require an enabling environment for within the political, socioeconomic and governance context. The importance of structural policies lies in their ability to resolve or mitigate fundamental inadequacies of secondary related issues that have an adverse effect on the environment. Hence the EPIQ/FIPA team proposes two structural policy areas as priority for SO5:

1. *Human Settlements in the Maya Biosphere Reserve*

a. *Benchmark*. Policy for human settlements in the Maya Biosphere Reserve is developed based on consensus.

b. *Monitoring Variables.* Number of communities, originated from the nuclear zones of the MBR, that have been voluntarily relocated to other areas that offer better access to development conditions and opportunities. Number of communities remaining in the nuclear zones of MBR that have voluntarily accepted to relocate within negotiated time frames.

2. Oil Activities in Protected Areas

a. *Benchmark*: Policy for oil activities in protected areas is developed based on consensus.

b. *Monitoring Variables:* The parties involved accept and comply with agreed upon actions made during the process of discussion, formulation and approval of the policy for oil activities in protected areas. List of agreements and level of fulfillment.

IR 2.2 Operational Policies Based on Consensus. Operational policies are those focused on issues that fall within the control and authority of CONAP and the public and private actors participating in the SIGAP. Based on the assessment, we are recommending that SO5 consider providing support to addressing the following operational policy issues: comanagement of protected areas and forestry concessions in the MBR. At present, the country lacks a policy that provides guidelines and frameworks to support the decentralization process and increase the participation of civil society in the management and conservation of protected areas. This situation is reflected in the manner in which forestry concessions are awarded and administrated:

1. *Comanagement of Protected Areas*

   a. *Benchmark.* Policy for comanagement of protected areas, based on consensus

   b. *Monitoring Variables.* Civil society is involved in managing environmental policies aimed at improving natural resources management and biodiversity conservation of protected areas as indicated by the number of NGOs and level of participation in the management of protected areas.

2. *Forestry Concessions in Protected Areas*

   a. *Benchmark.* Policy for forestry concessions in the MBR, based on consensus.

   b. *Monitoring Variables.* The parties involved accept and comply with agreed actions for the process of discussion, formulation and approval of oil policies in protected areas. List of agreements and level of fulfillment.

IR 2.3 Institutional Strengthening in Environmental Policy. Institutional strengthening is required to address the environmental sector and to implement institutional policy action plans. Therefore it is a priority to provide technical assistance to strengthen those institutions with the greater potential and leadership in decision-making processes. Based on the assessment, the following sub-results are recommended:

1. *Policy Analysis Capability Strengthened*

   a. *Benchmark***.** Establish a policy analysis and strategic planning unit within CONAP

b. *Monitoring Variables.* A functioning policy analysis unit with the necessary structure, authority, and professional capabilities to analyze, design and evaluate policies and propose action plans with sufficient background inform the decision-making process.

2. *Strategic Information Systems*

a. Benchmark. Develop a strategic information system that will generate the data and elements needed for policy analysis.

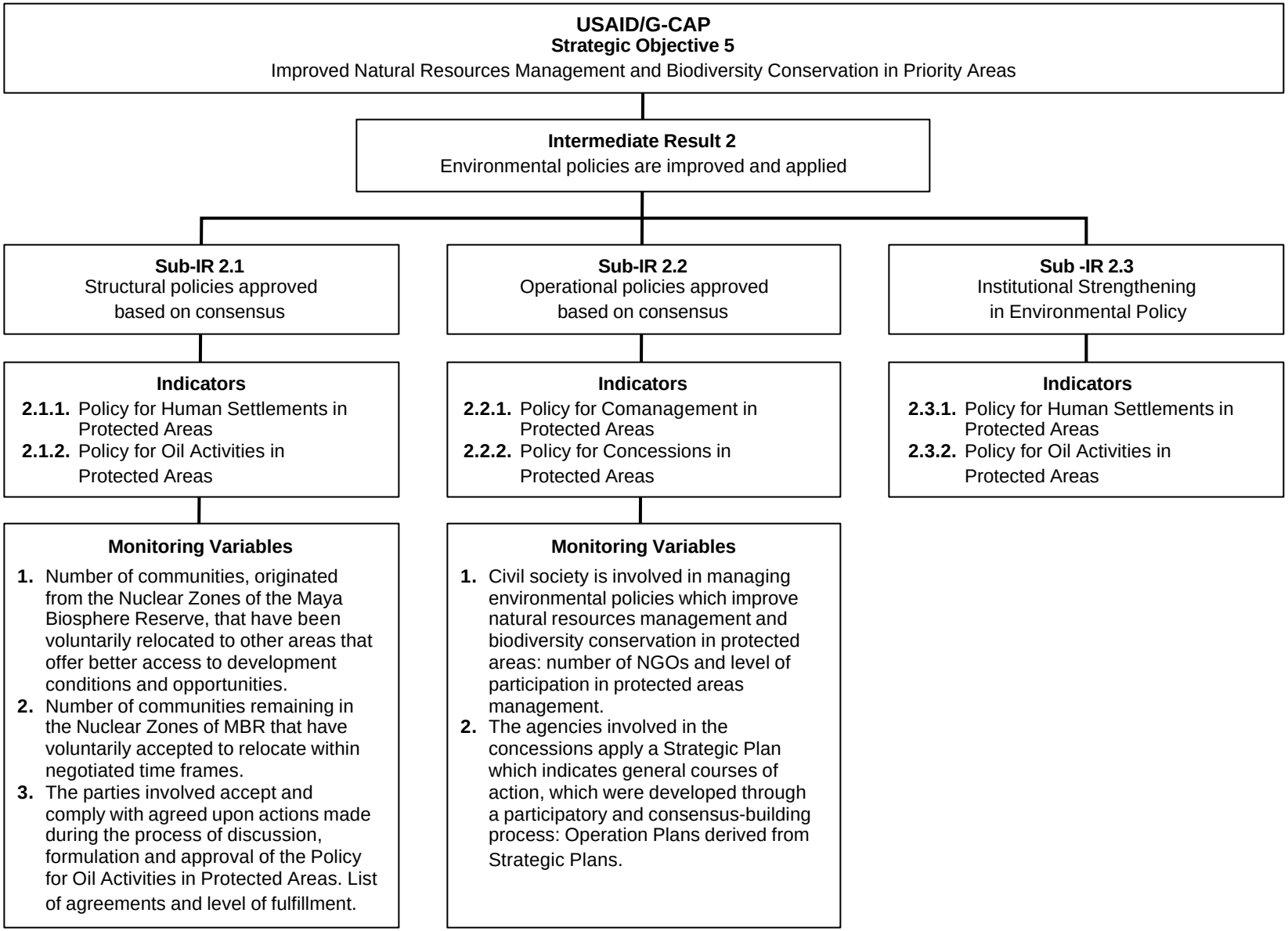
b. Monitoring Variables. Functioning and updated strategic information systems that allow the sector coordinating body to make informed policy decisions.

3. *Financial Sustainability of Natural Resources Management*

a. Benchmark. Policy and financial mechanisms that facilitate the sustainable management of natural resources and biodiversity conservation.

b. Monitoring Variables. National policy for sustainable finance of natural resources management and biodiversity conservation. Fiscal, structural, and operational incentives developed reflecting the economic valuation of Guatemala's natural resource base.

Exhibit IV-4. Proposed IR2



Restructuring of IR 2: Environmental Policies are Improved and Applied

We believe that IR 2 requires a complete restructuring.

IR 2. *Policies affecting the environment are improved and applied.* This partial result offers enough latitude to program policy-making activities to improve natural resource management and conservation of biodiversity.

Sub-IR (IR 2.1). *Positive movement toward over half of the policy change objectives each year*. This partial result makes it difficult to program policy-making activities, because the possibility of ensuring positive policy changes each year goes beyond the control of the project, its implementing partners, and even beyond the control of the government agencies involved in each policy subject.

Analysis. The analysis reveals that there are important achievements in policy development related to the SIGAP. However, efforts and results are scattered and have generally had little stakeholder participation. To summarize: 1) there is a lack of strategic information for decision-making; 2) policy instruments have not been developed to implement existing policy statements; 3) several policy instruments operate without guidance from a consensus-based policy statement; 4) there is a lack of long-term vision; 4) contradictions underlie strategic and operational objectives in most areas analyzed; 5) there is a lack of institutions to support participatory policy-making processes (understanding institutions as appropriate human, social and financial capital, all guided by a general policy and legal framework). A detailed analysis is in the IRG/EPIQ contract report in support of IR2 of SO5 presented directly to USAID.

Recommendations. The analysis permitted to identify successes and gaps in the area of environmental policy. In order to increase the positive impact of natural resource management and biodiversity conservation policies, it is necessary to support IR 2 with actions to design and implement both structural and operational policies, and to strengthen environmental policy institutions. Following is the results framework related to IR 2, including partial results, benchmarks, and monitoring variables.

IR 2.1 Structural Policies based on Consensus. Structural policies are those focused on issues that surpass the control of CONAP and that of the implementing partners. Accordingly, in order to design, negotiate and implement structural policies, it is necessary to ensure the political willingness and active participation of other government agencies and private actors. In addition, successful policy-making processes for structural issues, require an enabling environment for that particular issue (political, socioeconomic and governance context). The importance of structural policies lies in the fact that they are aimed at solving structural problems in the long term. In the process of implementation, structural policies contribute to solve a multiplicity of many other, secondary related problems.

Topic: Human Settlements in the Maya Biosphere Reserve

a) *Benchmark.* Policy for human settlements in the Maya Biosphere Reserve is developed based on consensus.

b) *Monitoring Variables.*

- Number of communities, originated from the Nuclear Zones of the Maya Biosphere Reserve, that have been voluntarily relocated to other areas that offer better access to development conditions and opportunities.
- Number of communities remaining in the Nuclear Zones of MBR that have voluntarily accepted to relocate within negotiated time frames.

Topic: Oil Activities in Protected Areas

a) *Benchmark.* Policy for oil activities in protected areas is developed based on consensus.

b) *Monitoring Variables.*

- The parties involved accept and comply with agreed upon actions made during the process of discussion, formulation and approval of the policy for oil activities in protected areas. List of agreements and level of fulfillment.

IR 2.2 Operational Policies Based on Consensus. Operational policies are those focused on issues that fall within the control of CONAP and the public and private actors participating in the SIGAP. Operational policies address the following topics: comanagement of protected areas and concessions in the MBR. Therefore, these are the actors that should be involved in designing, negotiating, and implementing operational policies. At present, the country lacks a policy that provides guidelines and frameworks to support the decentralization process and increase the participation of civil society in the management and conservation of protected areas. This situation is also reflected in the concession issues, which have been authorized for the Multiple Use Zone of the MBR. To resolve this issue, we recommend the following indicators be followed:

1) *Comanagement of Protected Areas.*
Benchmark. Policy for comanagement of protected areas, based on consensus.
Monitoring Variables. Civil society is involved in managing environmental policies aimed at improving natural resources management and biodiversity conservation of protected areas: number of NGOs and level of participation in the management of Protected Areas.

2) *Concessions in Protected Areas.*
Benchmark. Policy for concessions in the MBR based on consensus.
Monitoring Variables. The parties involved accept and comply with agreed actions for the process of discussion, formulation and approval of oil policies in protected areas. List of agreements and level of fulfillment.

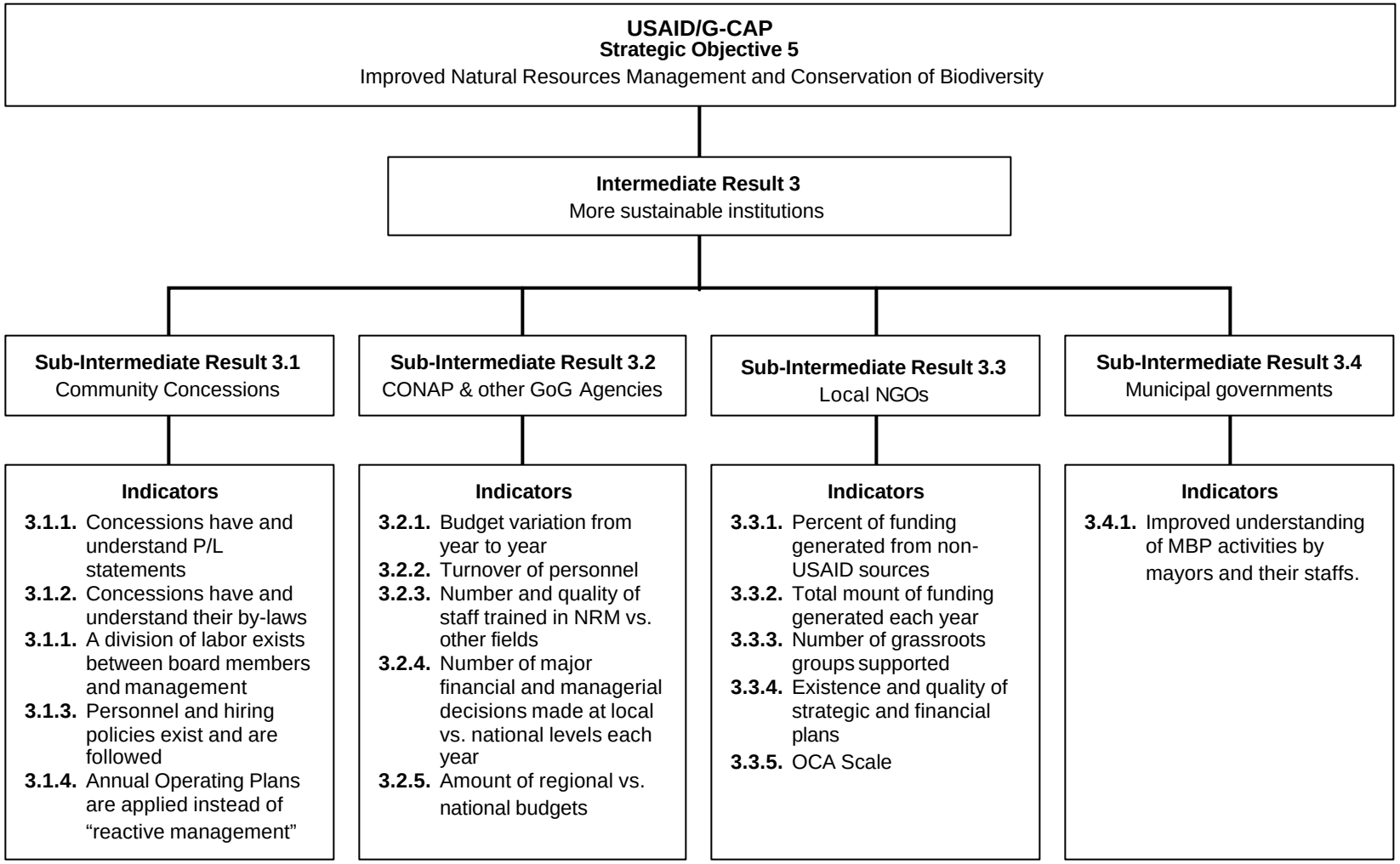
IR 2.3 Institutional Strengthening in Environmental Policy. Institutional strengthening is required to properly address the environmental sector and to implement institutional policy action plans. Therefore it is a priority to provide technical assistance to strengthen those institutions with the greater potential and leadership in decision making processes.

Benchmarks.
1) *Developing the policy analysis unit.* This unit will have the structure and professional capabilities needed to analyze, design and evaluate policies and propose action plans with sufficient background information to assist adequate decision making processes.

2) *Developing a strategic information system* that will generate the data and elements needed for policy analysis.

3) *Financial mechanisms.* These mechanisms will support economic sustainability for the institutional system and the process of natural resource management and conservation of biodiversity.

Exhibit IV-5. Proposed IR3



IR 3: More Effective and Sustainable Institutions

Observation. Compound goals.

Analysis. The full title of this IR "more effective and sustainable institutions and increased local participation in sustainable management" reflects the problem of compound goals mentioned before. The goals of effectiveness, sustainability and participatory planning are separate managerial goals, which would be manifest by different indicators according to the target institutions. Again, one cannot add the results of indicators across the various institutions which are key to attaining the strategic objective.

Recommendation. As in the case of IR 1, it is necessary to use sub-IRs so that the activity can be properly contracted and tracked using appropriate indicators. It is important to keep in mind that the indicators and the sub-IRs help define and explain the IR package. Accordingly, we are recommending that IR 3 be "more sustainable institutions," and that there be the following sub-IRs:

IR 3.1 Organizationally Strengthened Concessionaires. Concessionaires need to become strong enterprises. The forest concessionaires have been strengthened in the basic technical aspects of sustainable forestry mangement. However, in order to make them viable business enterprises, concessionaires need to be trained in business management, including contract negotiations, financial planning, record keeping, collective and delegated decision- making. These needs are elaborated in detail in the Annex A-IV, Forest Concessions and Annex V, Proposal for Strengthening Forest Management.

As explained in these sections, special organizational development skills are needed. Illustrative indicators for IR 3.1 are:

- Concessions have and understand profit/loss statements.
- Members have and understand by-laws.
- A division of labor exists between board members and management.
- Personnel and hiring policies exist and are practiced.
- Annual operating plans are proactively applied instead of functioning under a more reactive management style.

IR 3.2 Stable Government Counterpart. Political instability thwarted MBP execution. CONAP's political and financial instability delayed the implementation of important planning and financial management systems. CONAP is USAID's principal counterpart; its instability is part of a systematic and structural weakness. Financial and decision-making powers have not been substantially devolved within CONAP. Furthermore, as an inter-institutional council that reports directly to the Guatemalan presidency, it is subject to the whims of that office, and its importance and prestige vary tremendously depending upon the interest of the president.

CONAP as an institution has been strengthened over the course of the last four years. In particular the integrated planning and financial management systems which combines NGO partners, the USAID, and a financial intermediary are useful models throughout SIGAP.

At this time, the GoG is considering the creation of a Ministry of the Environment. This is being worked on as part of IR policy. Special process indicators are proposed in the IR 2 section, but once established, illustrative indicators for IR 3.2 could be:

- Budget variation from year to year and with changes of government
- Turnover of personnel
- Number and quality of staff
- Various grades of staff trained in conservation and natural resources management versus other relevant fields
- Number of major financial and managerial decisions made at local versus national levels each year
- Regional versus national budgets

IR 3.3 Strengthened NGOs. Most NGOs are dependent upon USAID funding. The international NGOs in the program have been able to bring significant external funding as part of their counterpart contribution, but most local NGOs do not have this experience or network for fundraising. A few NGOs are doing well in this area, but all of them need additional support if they are to continue supporting the MBP. The PVO/NGO partnership has not transferred the fundraising ability required. Some NGOs have sought local funds as consulting firms, but this effort has proved insufficient for obtaining needed funding.

Our recommendation is that the project provide broad-based institutional support to project NGOs, using other project NGOs and NGOs from other sectors. This support should consist of training and technical assistance in fundraising, strategic planning, accounting and financial systems, and organizational development. Illustrative indicators would be:

- Percent of funding received from non-USAID sources
- Total amount of funding generated each year
- Existence of quality strategic and financial planning
- Number, type, and quality of board and staff trainings; analysis of professionalization of staff—job descriptions, distribution of decision-making authority, level of education and experience of personnel

IR 3.4 Municipal Government. Municipal governments need to be included in the MBP. The omission or lack of the municipal governments in design of the MBP was a lost opportunity to strengthen the institutional and political base for the project. Annex A-II, The Buffer Zone, deals with this extensively, but in brief, the findings are:

- The mayors with municipalities bordering on the MBR and the governor of Petén see the MBR as a positive conservation effort, and are convinced that if it had not been for the MBP the forest area would not exist today.
- The mayors conclude that the MBP removed large areas from their jurisdiction and, hence, from their responsibility.

- Their perception is that it is CONAP and the NGOs who are responsible for the communities in those areas, even though the communities come to them for assistance in all the traditional municipal fields: health, education, roads, services.
- The MBR has been a fiscal burden on the potential of the municipalities to develop and provide services for the citizens. Fore example:

    - *Ejidal*[7] lands in San José (15 percent and also the BioItzá's 36 km^2) and Melchor de Mencos (approximately 75 percent) were removed from the tax rolls.

    - The Forestry Law which grants 50 percent of the taxes collected for lumber and forest products to the municipalities was superceded by the CONAP law, which uses all of the taxes from forest products from the MBR to support CONAP.

    - It is expected that communities from the MBR will be resettled in non-MBR areas of these municipalities, thus implying the need for services such as roads, electricity, and water.

Thus, one of the main strategies for the conservation and sustainable management of natural resources was not applied—to show that they are a valuable resource worth managing for the stakeholders. The stakeholders in this case are the municipal governments.

Misunderstandings exist among mayors about what they can and cannot do with lands in the Multiple Use Zone and the Buffer Zone. Five of the six mayors in areas bordering the MBP are serving their first term as mayors this year.

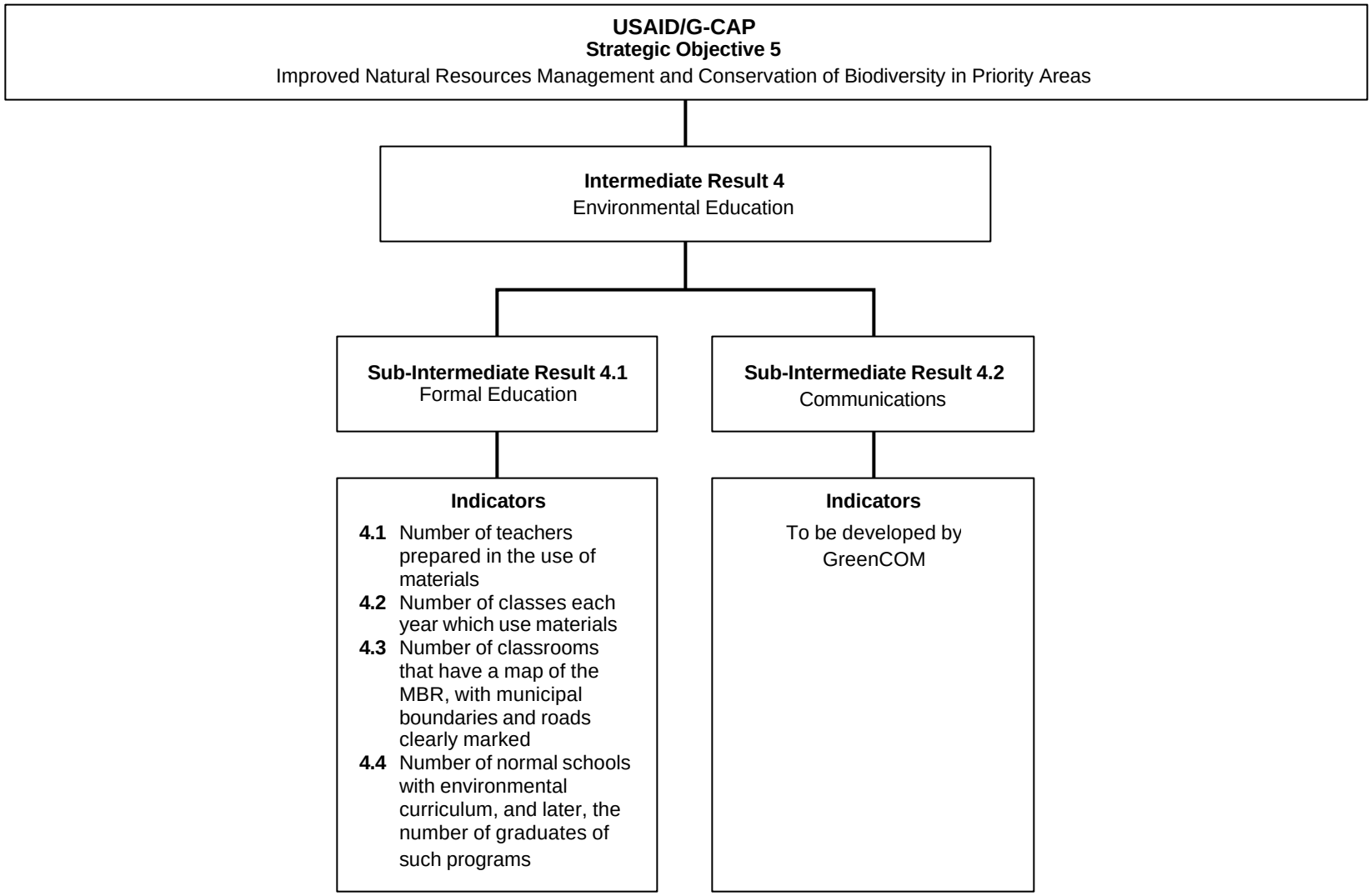
Fortunately, other donors have begun work with the municipalities on fiscal issues (GTZ with the PMS on the *ejidal* lands, World Bank and UNDP with their cadastral study, and Cooperación Española with its sanitation and municipal strengthening project). The Ministry of Agricultural program is also working with the municipalities on the environmental and natural resources commissions and offices (SARN).

Because of the excellent work of the other international agencies, the task for the MBP is relatively simple and, in the case of the first two recommendations, not at all costly:

1) Explain to the mayors and staff, their UTPMs, and their SARNs how the Multiple Use Zone and Buffer Zone are supposed to work, taking great care to be positive and not restrictive when it comes to the *ejidal* lands.
2) CONAP and USAID directors should meet with other donors to coordinate policies and project activities.
3) All relocation of communities from the parks should be fully coordinated and financed so that community services are not a financial burden on the municipalities.
4) The fiscal loss of taxes on the forest products from the concessions should be addressed as part of the IR 2 policy agenda.

[7] The municipalities were granted ejidal lands in the late 1970s. Each one set aside 250 caballerías amounting to 3.85 percent of the total area of Petén. The exceptions to the 250 Cb. rule are: San Benito with only 50 Cb., and La Libertad with 275 Cb.

Exhibit IV-6. Proposed IR4



IR 4: Environmental Education

Observation. Environmental Education by CARE with the Ministry of Education has been solid and so has CI/ProPetén's work with a community "normal school". Both have contributed to the incorporation of the environment into the curriculum of the formal educational system. However, the remaining environmental education efforts of the project have not added systematically to formal education.

Analysis. The CISEA educational review and strategic plan would be the best way for the MBP to assure the coordination of supported MBP educational activities and their institutionalization. Annex A-VII, Environmental Education, has a complete analysis of the history of this subject.

Recommendations. For ease of management and better tracking of results, there should be a separate IR package managed by the Mission and executed by a contractor.[8] Funds committed for this IR should only be used in program support of the Ministry of Education Region VIII to strengthen the formal education system as long as it fits two basic concepts: 1) the activity fits the Region VIII strategic plan; and 2) the activity is for start-up costs, such as preparing modules for training teachers; establishing normal school curriculum in municipal seats as in San Andrés; working with the Ministry training personnel; and art supplies for printing of materials.

1) An IR package should be added to the results framework that includes both environmental education and communication of environmental themes to assure that these two sets of activities are coordinated and are complementary.
2) Only environmental education activities that are incorporated into the Ministry of Education strategic plan for Petén should be funded. Environmental communication activities should also be supported per GreenCOM's recommendations.
3) If the Ministry of Education/CISEA plan is not implemented, then the MBP should focus instead on communication and non-formal education rather than formal educational efforts not coordinated with this plan.

Process indicators for the proposed Environmental Education IR:

- Percent of teachers prepared in the use of the materials
- Percent of classes each year that use the materials
- Percent of the classrooms that have a map[9] of the MBR with municipal boundaries and communities, with roads clearly marked.
- Number of normal schools with environmental curricula; and later, the number of graduates of the programs.

[8] We use the term "contractor" to mean any organization that the Mission contracts under any of the usual mechanisms – cooperative agreements, sub-grantees under an umbrella agreement, etc., as long as it is integrated into the remainder of the MBP activities.

[9] It was found, not only in the classroom but also in public places, that there are no maps showing the geographic location of the municipalities and communities and roads in relation to the MBR. This graphic material is necessary for everyone to visualize the whole.

ANNEX A ASSESSMENT FINDINGS

Context and Overall Impact

Context and Overall Impact

Th assessment findings provide detailed observations, analyses and recommendations summarized in previous sections and used in the development of the new strategy and Results Framework.

The Maya Biosphere Project in Context

The major underlying theme to the recommendations is that the management of the Maya Biosphere Project (MBP) and the Maya Biosphere Reserve (MBR) needs to shift from the entrepreneurial mode to a more systematic administrative mode in order to consolidate the gains of the earlier "environmental movement" phase. We need to work creatively and we stress the need for a concentrated, systematic and administrative focus.

To comprehend the challenge of the Strategic Objective 5 (SO5) in supporting the creation of the Maya Biosphere Reserve, it is necessary to point out that the area of the reserve in the northern Petén was subject to an organizational and institutional vacuum at the beginning of the last decade. During the early 1980s, the Government of Guatemala began to dissolve the Petén Management Unit—the Comisión para el Fomento y Desarrollo Económico del Petén (FYDEP)—the state organization charged with developing natural resources of the Petén and overseeing transmigration. It was a period of indiscriminate timber extraction, intensive settlement, and transfer of lands into private hands in areas that now make up the reserve. This institutional vacuum continued through the early 1990s as the National Council for Protected Areas—Consejo Nacional de Areas Protegidas (CONAP)— was established and struggled to reassert order and apply the principles of the new protected areas law in the three main zones of the Biosphere—the Multiple Use Zone (MUZ), the Buffer Zone (BZ), and the parks and biotopos or "core areas"). The sociopolitical backdrop to this era was a national struggle to end a 30-year civil war with a strong guerilla presence in the Lacandón National Park along the Mexican border and an equally strong military presence throughout the rest of the region. Following the initial cease-fire in 1992 and the signing of the Peace Accords in 1996, returnees from Mexico and internally displaced peoples were settled in areas that had already been declared parks.

CONAP's effort as a civilian agency charged with new approach to land-use planning met with considerable and oftentimes violent opposition. The agency lacked an immediate fiscal base: it earned no taxes from forest products concessions. Neither did it enjoy institutional stability owing to the threat of force from the military that FYDEP's presence had established. FYDEP indeed however did work with municipal governments and shared its revenues with them. The Maya Biosphere Project overlooked this local government aspect and thus lost important stakeholders and potential allies.

The Government of Guatemala (GoG) and USAID committed resources to projects in the early 1990s. However, it was not until about 1994 that the first two community forestry concessions were established (with European funding for CONAP) to test a model of sustainable forest management as a way to institutionalize land use in the Multiple Use Zone. This was followed by other community forest concessions, mostly after 1997, which completed the allocation of land in the Multiple Use Zone. Beginning in about 1997, CONAP gained credibility and began

using the first integrated work plans that involved all Project Partners. Prior to that, the work plans were based on individual cooperative agreements between USAID and international NGOs. Although the master plan for the Biosphere Reserve was complete in 1992, various versions circulated until an officially approved version was released in 1996. Zoning and planning of the parks got underway, but it was not until 1999 that the master plans for the management of two key parks (Sierra de Lacandón and Laguna del Tigre) and a national monument (Yaxhá-Nakúm-Naranjo) were completed and approved. Although the management and strategic plan for the Multiple Use Zone was completed earlier and considerable personnel committed to it, it was not until August 2000 that a director and staff of four were appointed to the Buffer Zone and assigned responsibility for developing the zone's strategic plan. CARE, which has worked in the Buffer Zone since the early 1990s, also began work on a Buffer Zone strategy plan in July and August of 2000.

The institutionality of the MBR is in the early stage of consolidation at this time. Notwithstanding the many accomplishments of the Maya Biosphere Project, the consolidation of the MBR will require steady support and effort during the rest of this phase and the better part of the next strategic plan. The Chemonics team—and the directors of institutions interviewed—generally conclude that without the MBR and support from the MBP, much of the northern part of Petén would have been deforested and sustainable management approaches would not have been implemented. The MBP should be viewed as a social and environmental movement that requires constant political effort and public awareness to change traditional practices, customs and institutions. What began as an experimental, highly entrepreneurial effort, now needs to shift into a more focused, systematic, and managerial mode in to consolidate and build on the activities of the last decade.

Overall Impact of the Maya Biosphere Project

The Maya Biosphere Reserve was created in 1990 and the Maya Biosphere Project begun in 1992 to improve management of natural resources and conserve biodiversity. Of the estimated $40 million dollars invested by USAID to date, the majority of those funds have gone to two NGOs (CI/ProPetén and CARE) and two national parks (Sierra de Lacandón and Laguna del Tigre). The principal activities and strategies employed by Project Partners include sustainable forestry in the Multiple Use Zone, environmental enterprise development, sustainable agriculture and land titling in the Buffer Zone, and protected areas management, including resettlement of communities outside the parks. The MBP can be credited with five principal achievements over the last decade:

1. *Helping to gain public and government recognition and acceptance of the Maya Biosphere Reserve, its external boundaries, its internal zoning scheme, and the various management regimes employed therein.*

   In short, the Project has helped place the Biosphere Reserve on the map and into the public eye nationally and internationally. Despite any arising controversies and conflicts, the Project has raised public awareness about the Reserve and has led to a broader recognition, understanding, and acceptance of its value and importance.

2. *Slowing the rate of deforestation within the MBR.*

   Though the forest coverage indicator employed by the MBP suffers from several conceptual and measurement problems, it is a virtual certainty (and *everyone* the team spoke with agreed) that the Project has helped slow the *overall* rate of deforestation within the Reserve.

3. *Promoting and strengthening coadministration agreements between the GoG and environmental NGOs.*

   Though coadministration agreements between the GoG and NGOs exist for protected areas outside the Reserve, the Project has raised the stature of these agreements and strengthened them by employing these instruments in Sierra de Lacandón and Laguna del Tigre. Though these agreements still lack sufficient uniformity and clarity, they hold tremendous potential and are particularly interesting in the case of the MBR because they require more of a genuine partnership between the government and NGOs.

4. *Creating an incipient community of environmental NGOs in the Petén.*

   Project Partners have created an important base of local NGOs and other groups such as Cänan K'aax, Centro Maya, Naturaleza para la Vida (NPV), EcoMaya, and Alianza Verde. Numerous other grassroots groups have also been created, most of them organized around specific production activities such as forestry or agriculture. These groups are still young and inexperienced as institutions, but with a concerted effort to strengthen them, they have the potential to work together as a community of environmental NGOs with common interests and concerns.

5. *Creating and legitimizing community forest concessions.*

   In the last six to eight years, the Project has worked to involve local communities in the sustainable management of forests within the Multiple Use Zone (MUZ) of the Reserve. These community forest concessions have been very successful in providing real revenues to their members, while also helping to protect forests in the MUZ from fire and illegal logging. MBP Partners are also successfully using these same principles of local community involvement and income generation to work with cooperatives in the Buffer Zone (BZ) to sustainably manage their collective (but privately owned) forest holdings.

ANNEX A-I ASSESSMENT FINDINGS

Protected Areas and Biodiversity

Protected Areas and Biodiversity

Conserving Biodiversity

Background

There are some basic misconceptions on the species and ecosystems of the Maya Biosphere Reserve (MBR) that are perpetuated in many publications (and USAID R4s). One is that the MBR is exceptionally high in biodiversity for its area, and that the forest types are rainforests ("subtropical humid hot [Bh-s]," based on the Holdridge classification of life zones). Actually, the diversity of trees is comparatively low, with less than 500 species in the Petén compared to more than 1,400 species in humid forests of Costa Rica; there is no summary information on the non-woody species of the MBR (Pinelo 2000). The Petén forests are dry to humid (Gentry 1995, F. B. Lamb 1966, Murphy & Lugo 1995) with 1,200-1,700 mm of annual rainfall. The number of tree species of commercial value is low, and there are few individuals. These factors result in average harvests of less than one tree per hectare, although there are more than 600 trees/ha of all species (10 cm or larger in diameter; Carrera and Pinelo 1995, Pinelo 2000).

These are dynamic ecosystems in continuous change and regrowth: the forest composition and structure are mostly determined by the long-term frequency and intensity of fires and hurricanes, more so than by prior harvesting of mahogany and cedar and other human interventions. The exception is where there has been permanent settlement resulting in conversion to crop land and pastures. These forests have apparently recuperated from more intensive land use during the Mayan period, although the soils may still be reforming. According to Lamb (1966), "it seems almost certain that the past agricultural practices of the Mayas produced effects that still influence the composition of the forest." The average height of the trees is 25 m and there are relatively few large-diameter trees (Pinelo 2000), probably reflecting this climactic history. Lamb (1966, from Lundell 1937) points out that injuries from the extraction of chicle from *zapote* trees caused the death of many of these trees and altered the natural balance of the vegetation. "The extract obtained from the bark of the mahogany tree is used…for various medicinal purposes…cuts to obtain this gum are responsible for the death of many trees. Mahogany logging operations have affected the composition of the forest in some localities. Fires escaping in severe drought years – approximately every five years – cause great damage to the vegetation. Strong winds occasionally affect the vegetative balance of this association by blowing down large sections of the forest" (Lamb 1966, p. 69).

The known number of endemic, threatened, rare, or otherwise unique species of the Reserve's animals and plants is relatively high and they are threatened by the expanding agricultural frontier, as are the unique communities of organisms on the limestone ridges and in high pH (basic) waters. These are sufficient reasons to conserve this unique area. The non-biological services provided in watershed and erosion protection by the intact vegetation cover must also be given consideration.

In important physical components of the ecosystems of the MBR, the Rio Usumacinta has the greatest flow in Central America (seasonal, with 230 m^3/sec. to 5,220 m^3/sec), drains 42 percent of Guatemala, and has a watershed of 106,000 km^2. A large percentage of the water flow in the

MBR is subterranean, with many of the management units probably interconnected, but the flows and hydrology are unknown. Most of the soils in the MBR are not suitable for continuous agriculture, but because of desperation, the population will continue to expand, thus requiring more area for subsistence agriculture and conversion to pasture. Such has accompanied the rapid growth of population for the last 60 years.

Observation. The biodiversity aspect of SO5 is misunderstood and not systematically measured.

Analysis. Although the dry-moist tropical forest is an important ecosystem, it is not high in biodiversity compared with the humid tropical rainforest described in MBP literature. The Reserve does have important endemic species worth protecting. What is disturbing is that the MBP has not established or gathered the information necessary for a baseline of the flora and fauna, so that the zone-by-zone interventions can be tested as strategies for conservation.

Recommendation. Eight proposals to the MBP for monitoring and evaluation since 1996 were identified. The proposals of Imbach[1] and of Méndez[2] can be followed in designing a monitoring and evaluation system. The methodologies used by CI and TNC in rapid assessments can be combined for assessing the lesser-known parts of the parks. The conceptual guidelines in Corrales' recent report to CONAP should be followed for managing the data.

A serious effort is needed to gather existing surveys, theses, data from monitoring parcels, and to establish at least two locations where the material will be accessible and protected. In all cases the material should be made available in CD format for making inexpensive copies.

MBR – Zoning Without Adequate Information

Although the MBR was established to conserve unique species, ecosystems, and genetic resources (biodiversity), and this is part of the SO5 of USAID/G-CAP, there have been too few studies of the basic fauna, flora, and vegetation types of the entire Reserve to provide the information necessary for proper zoning. This information is essential for management and rational zoning of a Biosphere Reserve, and for sustainable harvesting of potentially renewable biological resources, be they timber, chicle, xate, potpourri, fish, or subsistence game animals.

There are scattered studies of biological resources in the Reserve, such as commercial timber species and forest communities (but not all tree species) as the basis for ecological zoning (APESA 1993); some birds (principally raptors, in reports by the Peregrine Fund with USAID support); xate; aquatic plant and animal species and communities in parts of the Laguna del Tigre National Park (Bestelmeyer & Alonso 2000). There are numerous theses from the Guacamaya Biological Station in Laguna del Tigre and elsewhere, and major plant and animal communities in the Sierra del Lacandón park (TNC 1998c). The flora and forest vegetation were generally described by Lundell (1937), Holdridge et al. (1950), and Lamb (1966). These have never been gathered together and the data compiled and mapped, so are of little use in planning and zoning in the MBR. We could not find such summarized information, although CONAP and

[1] Imbach, A. C.. 1999 (Nov.). Propuesta: Sistema de Monitoreo de la Reserva de la Biosfera Maya. CIAT; CONAP, Sta. Elena, Petén, Guatemala. Data Base, on CD, September 2000. Unpublished document, 55p.

[2] Méndez, C., C. Barrientos, F. Castañeda, R. Rodas. 1998. Programa de Monitoreo, Unidad de Manejo Laguna del Tigre: Los estudios base para su establecimiento. CI-ProPetén, Conservation International, Washington, D.C.

various NGOs expressed interest in having it for planning purposes. CONAP recently received a consultant's report to set up an information management system to include floristic, faunistic, and other ecological data, as well as monitoring of other result indicators, for SIGAP[3].

Most of the ecological zoning within the MBR is only based on the distribution of trees, and primarily on trees of known commercial value/market demand. Forest trees constitute only one component of the biological and ecological diversity in the Petén. Although trees are a principal and essential part of most of the intact ecosystems, the removal of forest cover will, indeed, drastically affect all biodiversity, as well as the non-biological components of ecosystems that provide "environmental services" (erosion control, hydrological balance through evapotranspiration). The presence of commercial timber species cannot be the primary reason to protect the ecosystems in a protected area. Some of these physical services of forest cover could be provided by artificial systems such as tree plantations unrelated to conserving the natural biodiversity.

Most of the published lists of species of plants and animals in the Reserve have titles such as "Species of … which *presumably* can be found in …," and are based both on actual records of specimens collected or sighted and on species that "could be expected to occur" in this type of area, or are known to occur elsewhere in the Yucatan Peninsula. This level of information is of little use for designating areas for special conservation or for determining the distribution of biodiversity in the MBR or any of its management units.

Baseline Information – What Was There Before We "Managed" It?

The distribution of the principal species and ecosystems that compose the MBR must be known sufficiently to allow management of the Reserve, particularly to change the boundaries of any management units such as the core areas within parks or the "biological corridors" that are supposed to connect the parks. Once zoning and management strategies begin, it is imperative that changes in these biological and ecological components be monitored to show and detect the affects of management systems (forest concessions, recuperation zones within parks). This type of information system is a crucial management tool for the type of management we have been advocating. Only if this type of information exists can adverse impacts on the composition, structure, or functioning of the natural ecosystems be detected and measures taken to mitigate. Such monitoring will require the use of permanent sample plots to determine major impacts of interventions and management alternatives to conserve biodiversity.

An excellent example of the management utility of recording such basic information on biodiversity is in the recently published AquaRap by Conservation International, ProPetén, Cänan K'aax, and CONAP (Bestelmeyer & Alonso 2000). In a field study of only two weeks in and near the Río San Pedro and the Laguna del Tigre National Park, this rapid assessment survey recorded 647 species of organisms, new records (for the region or for Guatemala) of 3 bird, 1 reptile, 1 mammal, and 2 ant species. Of immediate significance for management of the Sierra del Lacandón and Laguna del Tigre parks was the finding of a rare freshwater reef of bivalve mollusks (with an associated unique assemblage of aquatic plants and animals) and a stand of

[3] Corrales, L. 2000. Marco conceptual y requerimientos de información, Sistema Integrado de Información del SIGAP (SII-SIGAP). CATIE-CONAP; CONAP, Guatemala City. 137p.

true mangroves (rhizophora mangle), both within the Río San Pedro, but not in either park. They are however within the suggested biological corridor connecting the two parks near the Mexican border. The Laguna del Tigre park harbors 16 vertebrate species of international concern, listed by the IUCN and/or CITES.

This AquaRap field survey cost $90,000, but helped contribute to the cadre of increasingly qualified Guatemalan professionals who can continue such surveys without the significant transport and other costs of bringing in international teams. Nine international (Brazil, Mexico, Peru, United States) and 15 Guatemalan specialists are listed as participants.

There are numerous permanent plots in the parks, forest concessions, biotopos, and other areas with partial baseline data of biological/ecological conditions from near the beginning of the Reserve up to recently established plots. Some have subsequent monitoring information. There is no systematic listing of these plots except for the forest concession Permanent Plots for Measurements (PPM, Parcelas Permanentes de Medición), most of which are recorded in CATIE, CONAP, or in the individual concession records (Pinelo 2000, Rodriguez 2000). These PPM are for forest management use and can include various silvicultural treatments (removal of lianas and epiphytes, girdling or herbicide treatment of non-commercial tree species), but include plots that are undisturbed controls ("testigos"). The PPM include standard methods of collection and analysis of data, as published in various CATIE/CONAP manuals (Carrera, Gretzinger, Pinelo, Rodriguez, Stanley, Synnott, listed in References).

Proposals for Monitoring Impacts

There is a surprising number of detailed proposals to survey and monitor the biological and ecological components of the MBR, but none has been implemented (Carrera 1996; Gretzinger 1996; Imbach et al. 1999; Méndez et al. 1998; Pinelo 2000; TNC 1998c; TNC 2000; Whiteacre 1997).

Recommendations. We strongly recommend that the proposals of Imbach (1999) and of Méndez (1998) be followed in designing a monitoring and evaluation system for both USAID and CONAP, as well as participating NGO partners of both agencies. The application of these proposals can provide information of utility for management in the Reserve. Furthermore the methodologies used by CI and TNC in rapid assessments should be applied for assessing the lesser-known parts of the parks. The conceptual guidelines in Corrales' recent report[3] to CONAP should also be followed. More specific recommendations are:

- Determine what information exists, published and unpublished, with an estimate of reliability of the information (records based on specimens or other material stored in a Guatemalan or other museum, general observations without precise localities). Note that unpublished specimen information on plants or animals collected in the Petén in prior years may be available on the museums' Internet Web sites (New York or Missouri Botanical Gardens, the Smithsonian Institution and U.S. National Museum).

- Convert the known information, in summary formats, to map coordinates (a survey of vegetation types in the northeast corner of Laguna del Tigre includes all/some/limited groups of plants, fishes found in the Río San Pedro watershed, parrots observed in the

Mirador park). Note that much of such information is already recorded in GIS systems at TNC, CONAP, CECON, or elsewhere in Guatemala.

- Use the mapped information to determine what areas are significantly lacking in data on major groups of plants or animals. Determine if these areas are of immediate or potential MBR management concern (encroaching settlements, known or presumed habitats for rare or endangered animals or plants, area already deforested and converted to agriculture) to set priorities for gathering baseline information.

- Contract well-qualified professionals (with prior experience in the area, preferably Guatemalan residents) to begin basic surveys of the flora and fauna, following standardized methods (existing rapid surveys by CI and TNC, with permanent plots using the CATIE guidelines for PPM), concentrating on priority areas. These should include a botanist, a zoologist, and a vegetation ecologist. Within a year they should be able to produce simple field manuals for identification of most major species and habitat/vegetation types throughout the MBR, suitable for use by Guatemalan students to learn the techniques of identification and of subsequent monitoring of significant changes in biodiversity.

- Contribute start-up and/or endowment funding for a small-grants program for Guatemalan students to study the diversity within the MBR, with a percentage of the funds earmarked for priority studies identified by the team charter. Such a grants program could be administered by a consortium of Guatemalan universities or (preferably) university museums, perhaps with the participation or oversight of organizations such as the Smithsonian Institution.

- Give priority to locating and remarking permanent plots or sampling areas, particularly those for which baseline data exists.

- Establish a monitoring system for all permanent plots or sampling areas, annual or periodically, depending on the need to determine impacts of any management interventions (forest concession areas) before and after interventions. Periodic monitoring is essential to give an indication of the annual or other variation in the species or ecosystems monitored, to detect significant impacts. (Observing a jaguar one year in a plot, but not the next year, probably will not be significant unless the same observation is made in numerous plots in many locations. Trapping 40 individuals of six species of rodents in one year and none in the next may be significant. Recording 10 species of orchids and five fern species in a plot in one period and only one species of each in the next monitoring period may indicate a threat to that ecosystem, requiring more intensive sampling and study to determine the causes of the threats).

- Do not attempt to account for all biodiversity in the Reserve, as this could include soil microorganisms or fungi. Find groups in which the species are relatively easy to identify or that are known indicators of environmental stress, such as mammals, birds,

reptiles and amphibians, vascular plants, lichens and bryophytes (sensitive to air pollution, as in areas near petroleum extraction and transport).

- Assure that all of the information is permanently available and duplicated in more than one institution, including a university or similar organization as well as CONAP, to assure the long-term record of biodiversity and change in the MBR. This should also be done to assure that the information is publicly available and not lost when there are changes in the Guatemalan government agencies.

The Parks: Sierra del Lacandón and Laguna del Tigre

*Observation.*The effort to create the Sierra del Lacandón and Laguna del Tigre parks has not been successful.

Analysis. These park areas were intervened and settled before the lines were drawn; roads had been built to and into what became the parks area; natural, river transportation and access for settlers and logging made for inappropriate boundaries; and petroleum concessions had been granted and developed beforehand. National and international policies that accompanied the peace accords – resettlement and the rights of indigenous peoples – led to new settlements within the park boundaries. All of these aspects made the task of managing parks within their present boundaries virtually impossible. The steady flow of satellite images shows that the clearing and fires have continued. The resettlement plans have not been implemented at a scale necessary because of a lack of funds and also a lack of political will. At the same time populations along the boundaries and from other areas of the country continue to enter the parks. For example, census data from 1993 and 1998 show a 65 percent increase in population along the Naranjo Road bordering Sierra del Lacandón park.

Recommendation. Clearly it is appropriate to radically reconsider the strategies employed to create and secure the parks. One important biological aspect to these two parks is that they both contain important habitat for the scarlet macaw, an endangered species. Future protection efforts should be concentrated in areas with important ecological functions and in core zones away from human settlements and intervention. USAID should phase out funding for other activities as soon as possible.

Park Triage

The Sierra del Lacandón National Park (PNSL) is not protectable outside of the park's internal core area even though the entire park is a legally designated "core area." Laguna del Tigre National Park (PNLT) remains intact mostly in the floodable or aquatic areas and away from the petroleum concession and roads. The internal core area of the PNLT is presently not defined, but there is probably enough baseline ecological information available to allow an ecological zoning of the PNLT. Actual land use (deforestation, settlements, and petroleum development vs. recuperation and natural ecosystems), should be the base of the ecological zoning for defining the core area to be protected. It is probable that the majority of the communities and squatters in the parks can never be relocated because of political realities, lack of funds, and refusal to move. The degree of problem is shown by:

1. The present population in the southeastern sector of the PNSL (outside of the PNSL management-designated true "core area") is substantial. (See Map A-I-2, Norte del Petén: Reserva de la Biosfera Maya y Poblaciones por Número de Habitantes, and Exhibit A-I-5.)

2. There have been extreme fires in the areas of both parks that are linked to agriculture and, hence, an indicator of intervention in these parks. (See Map A-I-3, Intensidad de Fuegos Durante 1998 en el Petén, Guatemala, and Map A-I-4, Fires March to May 2000.)

3. Some communities and individuals in the parks told us they refuse to be relocated. (See Centro Maya 2000, "Resultado 1, Resultados alcanzadas," and other MBR documents).

4. We have observed in discussions with residents in the parks (and with others in the MBR), that some have arrived in the last 1-2 years, and that there is a black market in documents for settling in the parks, both of which are illegal activities[4].

5. There is apparently little government will to remove illegal colonists from the parks, and it is not morally, ethically, or politically feasible to do so forcibly.

6. There are large family sizes of 6-7 children per family. (Where will the grown children go?)

7. Some communities and individual families are petitioning to the GoG to title their inholdings (see Centro Maya 2000).

8. The legal precedence of settlers, which is supported by the government even if they do not have titles or proof of settlement from before the park, (or were given settlement rights as part of Peace Accords) means that in the future any Guatemalan can settle in the parks and claim rights by showing that others have settled permanently with the government's tacit acceptance.

9. Many of the assistance programs of CARE and Centro Maya (see Centro Maya 2000 and CARE reports) encourage permanence in the parks with such things as community permanent survey markers with geographic coordinates, five-year management plans, and planting of trees for fruit and wood.

Recommendations. There are two options to support the continued conservation of the remaining natural ecosystems in Sierra del Lacandón National and Laguna del Tigre parks.

1. The first option is to continue with the present boundaries and to divide the park administratively into two zones: the core and a multiple use zone (MUZ). To implement this option the core area must be clearly marked with signs and boundary clearing. The GoG must have a strong commitment to stop any further encroachment (hunting, wood extraction) that will degrade the natural resources in the core. Concessions could be given for extraction of

[4] Ley de áreas protegidas. Artículo 82 *bis*, (Reformado). Usurpación a Áreas Protegidas. Comite delito de usurpación a áreas protegidas quien con fines de apoderamiento, aprovechamiento o enriquecimiento ilícito, promoviere, facilitare o invadiere tierras ubicadas dentro de áreas protegidas debidamente declaradas. El responsable de este delito será sancionado con prisión de cuatro a ocho años y multa de tres mil a seis mil quetzales.

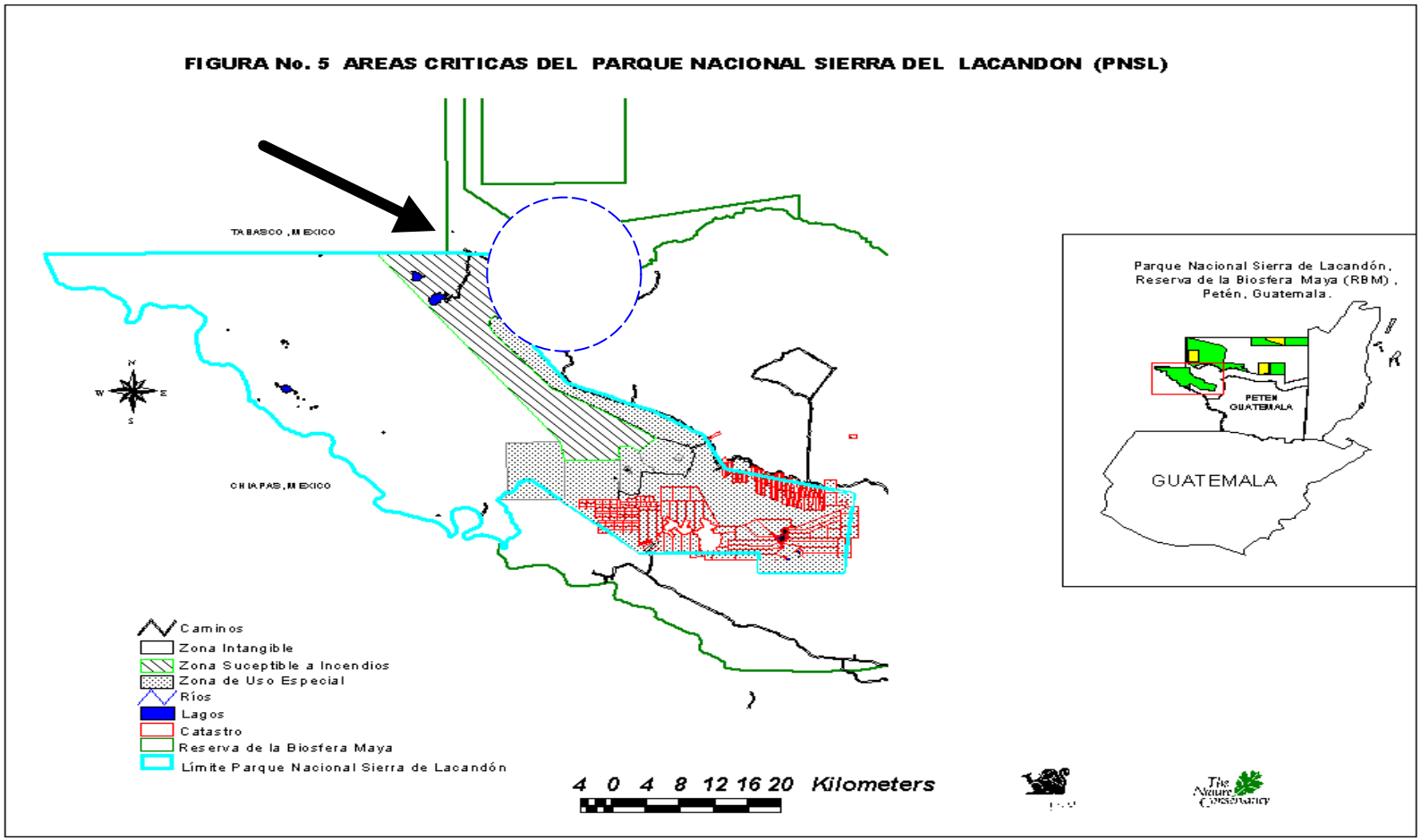
non-wood forest products in the MUZ[5]. Priority should be given to residents/communities from the park multi-use zone, following the model of the forest concessionaires protecting "their" resources in the MUZ. The success of this approach would depend on the capacity of the GoG (with the coadministrators) to strictly enforce the integrity of the core zones and the legal use of resources within the MUZ. There is ample force in the laws on protected areas to deter illegal (non-concession) harvesting in the park, if laws are enforced. Relocation should continue with any settlements still in the newly designated core zone. There may be difficulties in defining a core zone in the PNLT that still allows a protected biological corridor connecting it to the PNSL.

2. The second option is to regroup, change the law establishing the boundaries of the parks so that a protectable National Park is created from adjoining parts of PNSL and PNLT. This requires full GoG and congressional support. The major drawback, aside from the chore of going through congress, is that by opening the boundaries for redesignation, many other issues in other areas may be raised.

Clearly the first option is the most pragmatic and will lead to the same result, or the protection of special areas or species. One special species is the scarlet macaw, found in both of the parks because of seasonal availability of food for rearing their young. Assuredly there are other biological and ecological links between the two areas. The core area inside the PNLT is presently not defined, but there is probably enough baseline ecological information available (including the AquaRap 2000 done in the southwestern part of the park near the Río San Pedro and the Guacamayas Biological Station) to allow an ecological zoning of the PNLT. The ecological zoning would then be modified with actual land use (settlements and petroleum development vs. natural ecosystems) determining the core area to be protected. Further biological and ecological research should be done to define these linkages as part of defining realistic core areas based on scientific criteria. Although it would not be wise to simply remove one or both of the parks from the MBP, it would be appropriate to concentrate support only to the core areas and to use the funding saved for other areas or activities.

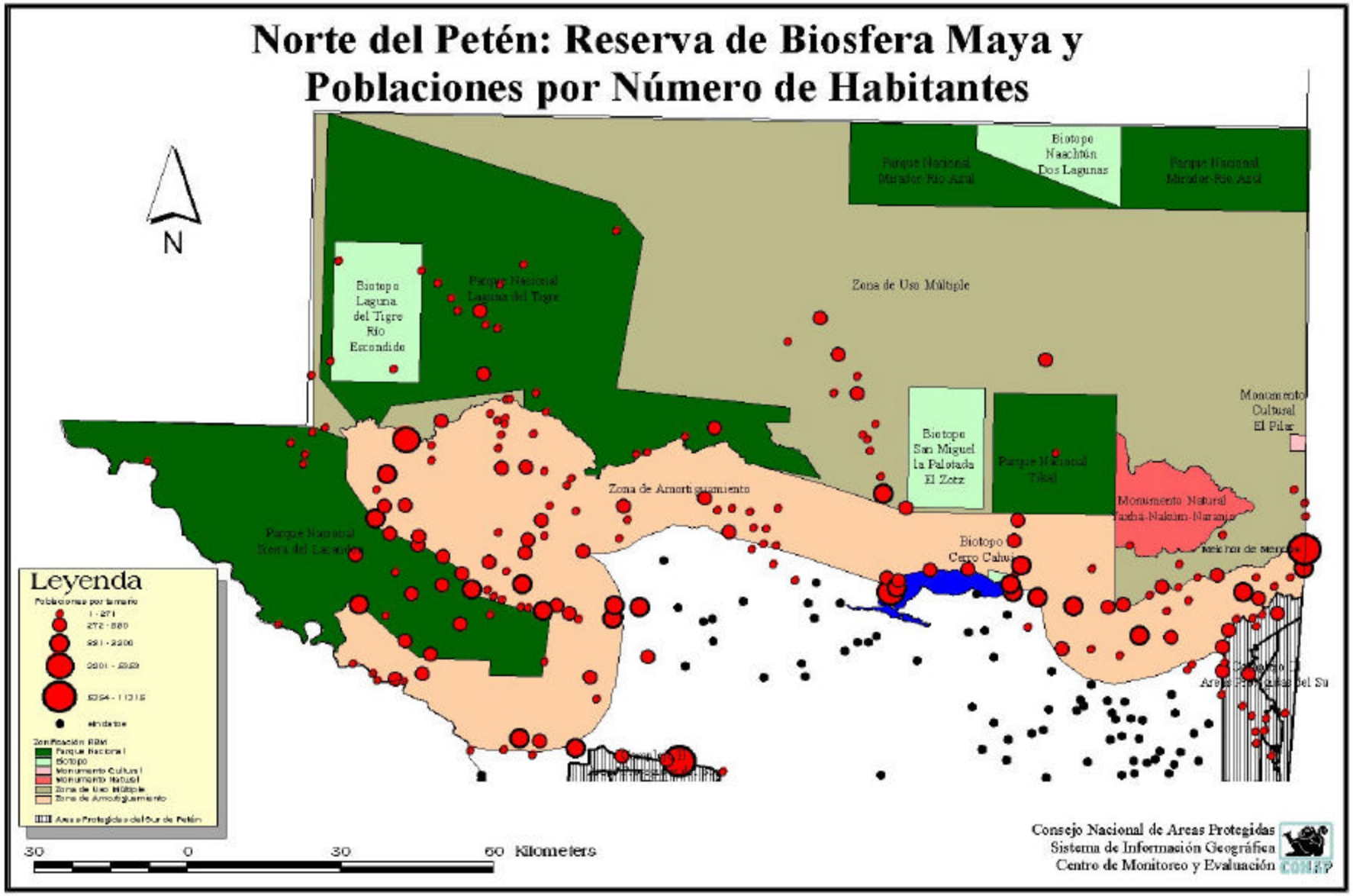
[5] Ley de Áreas Protegidas. Articulo 19. Concesiones. El CONAP podrá dar en arrendamiento u otorgar concesiones de aprovechamiento en las áreas protegidas bajo su administración, siempre y cuando el plan maestro respectivo lo establezca y lo permita claramente; debiendo suscribirse los correspondientes contratos de concesión.

Map A-I-1. Critical Areas of the Sierra del Lacandón: *Circle marks important bridge area with swamps south of the San Pedro River, mangroves, and mollusk reef.

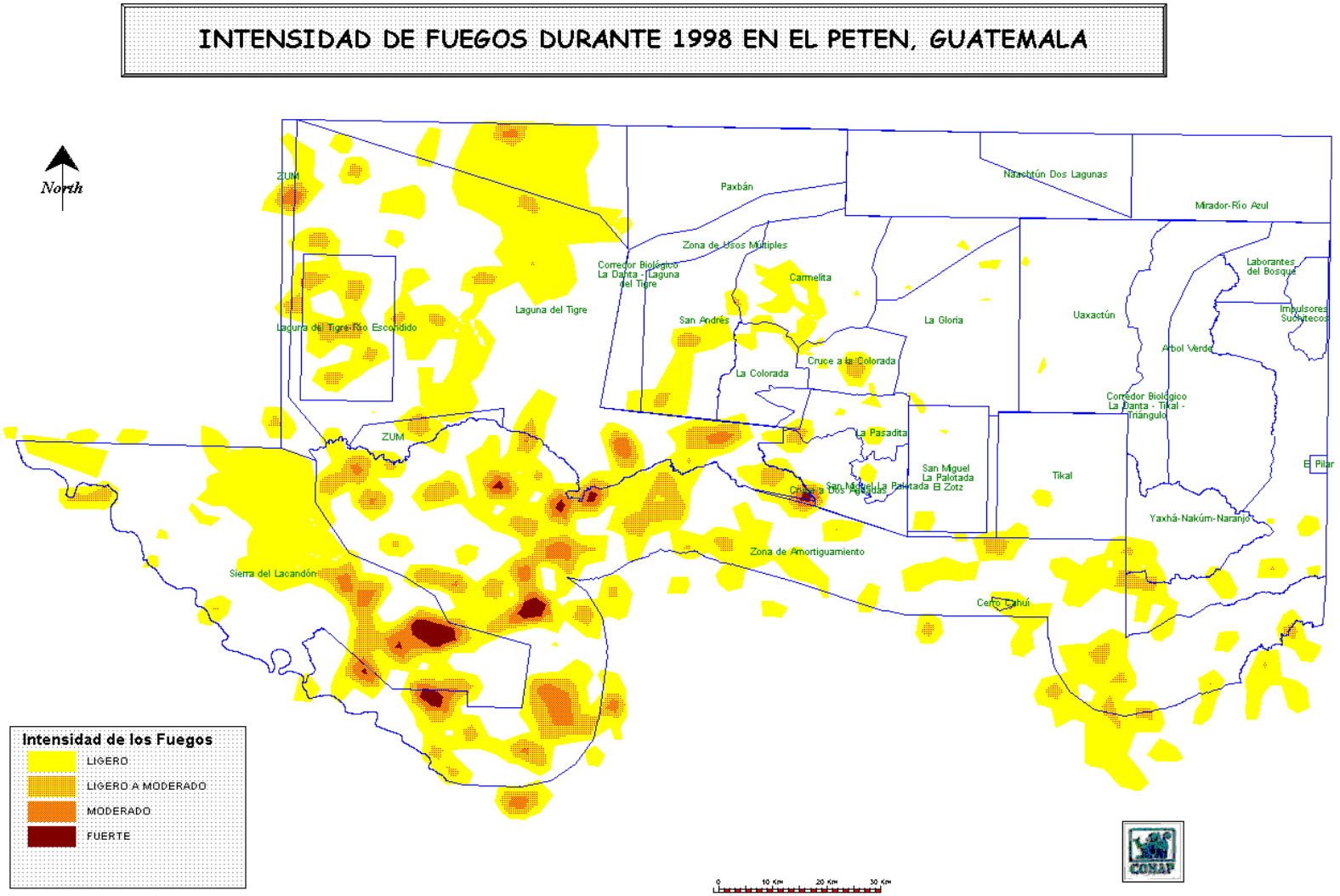


Source: TNC Data Base, PNSL, CD (Sept. 2000)
*Circle and arrow added by Chemonics team

Map A-I-2. Population



Map A-I-3. Fire 1998



Map A-I-4. Fires March to May 2000

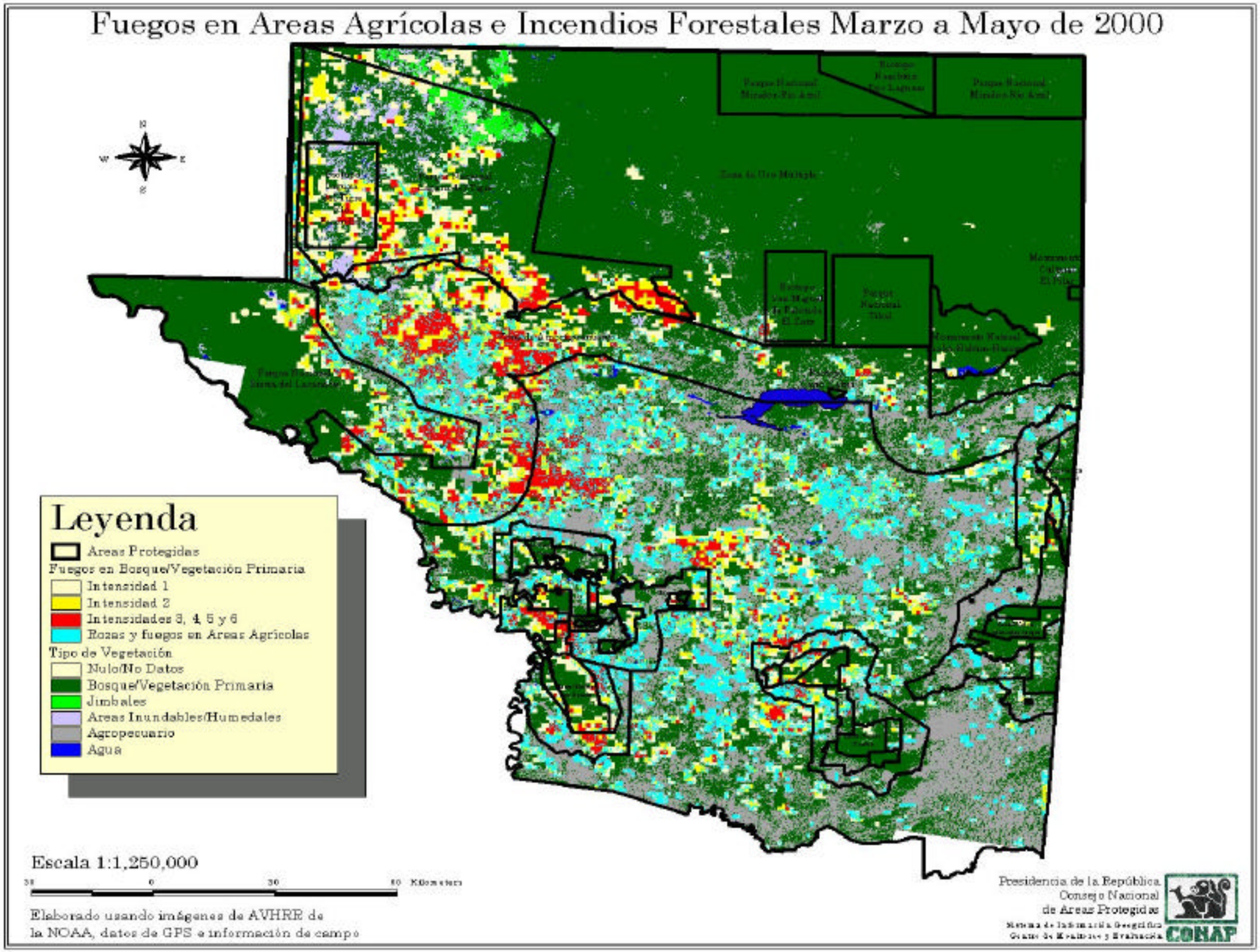


Exhibit A-I-5: Estimated Populations for 1993 and 1998 with Projection to 2008 for Communities in the Area of influence of the Sierra Lacandón Park

Comunidad	Población Estimada 1993	Población Estimada 1998	Población Proyectada 2008	Tasa de Crecimiento Anual[6]
Ruta a Bethel				
La Unión Maya Itzá	0	1113	1113	--
Retalteco	843	818	770	-3%
La Lucha	246	277	351	0.13
Bethel	369	431	588	17%
El Esfuerzo	281	738	5090	163%
Total Ruta a Bethel	**1,739**	**3,377**	**7,913**	**94%**
Ruta a Naranjo				
Poza Azul	225	394	1208	75%
Lagunitas	1055	2144	8855	103%
Nueva Jerusalén II	176	527	4725	199%
Km.107	1125	2250	9000	100%
Km. 75	105	281	2013	168%
Manantial	281	633	3212	125%
Km. 96	281	401	817	43%
Km. 101	633	1055	2931	67%
Km. 91	281	598	2708	113%
Poza del Macho	1933	2461	3989	27%
Manantialito	35	63	204	80%
San Juan Villanueva	844	844	844	0%
Las Ruinas	1230	1434	1949	17%
Nueva Canaan	70	112	287	60%
El Ceibo	56	105	369	88%
El Esqueleto	141	330	1808	134%
Villa Hermosa	422	844	3376	100%
Km. 86	352	724	3063	106%
Las Victorias	211	387	1302	83%
Km. 114	77	120	291	56%
Tierra Linda Zapotal	70	295	5239	321%
El Repasto	281	422	952	50%
Total Ruta a Naranjo	10,067	16,649	45,537	65%
Total	11,806	20,026	57,621	70%

[6] Las proyecciones se hicieron aplicando la tasa de crecimiento de 1993 a 1998 al período de 1998 a 2008.

ANNEX A-II ASSESSMENT FINDINGS

The “Buffer Zone”

The "Buffer Zone"

Buffer Zone or Service Corridor?

Although the 15 kilometer-wide band along the southern part of the Maya Biosphere Reserve is called a buffer zone, it is more like a social and economic service corridor.

The role of a buffer zone in parks and reserve management nomenclature is quite different from the actual use. The area that fits the standard definition of buffer zone, and that is clearly stated in legislation that established the MBR,[1] is the Multiple Use Zone (MUZ). Here the buffer strategy is the use of forestry concessions to stop the advance of the agricultural frontier. However, in the same legislation the buffer zone is described as the area where activities will not have a negative impact on the reserve or core areas. As will be shown, the buffer zone is an area of concentrated use and not the true buffer or fringe area. Accordingly, a new perception of this area needs to be developed to make it a positive, proactive part of the strategies for protecting the remainder of the MBR.

Aspects that Make the Buffer Zone a Service Corridor

Population Density. The Buffer Zone has become a concentration of people. With its population[2] of 48,362, it has 55 percent of the total population of the MBR with three times the density (9.7 people/km^2) of the remainder of the reserve.

The International Airport. The airport located in the central area provides rapid tourist transportation and cargo service for products (sate) to Guatemala City with its world connections, and also directly from Petén to Cancún, Mexico and on to the United States. Its runway is built for large transport aircraft.

The Primary, Paved Road System. The transportation backbone of the corridor is the east-west road beginning in the municipal seat of Melchor de Mencos on the border with Belize and goes westward to the central area with its concentration of municipal and departmental seats[3] that are clustered around Lake Petén Itzá.

From the central area is the paved highway that goes south to connecting Petén to Puerto Barrios (about five hours) and also to Guatemala City (about eight hours). Along this road are three municipal seats: Dolores, Poptún, and San Luis.

The Secondary, All Weather Roads. From the central area secondary roads outside the buffer zone go south a short distance to the municipal seats of San Francisco and Santa Ana. A loop goes north from San Benito into the buffer zone around the lake to the municipal seats of San

[1] Art, 2, Chapter I, Title I of the norms for CONAP.
[2] G. Grünberg, V. H. Ramos, "Base de datos sobre Población, Tierras y Medio Ambiente en la Reserva de la Biosfera Maya, Petén, Guatemala, 1998.
[3] Technically only Melchor de Mencos, San Andrés and San José are in the 15 km buffer area. San Benito and Flores municipal seats are a couple of kilometers south of the 15 km limit of the MBR.

Andrés and San José. Continuing south and westward the secondary road system has two branches that re-enter the buffer zone and then the park zone:

A *southern route r*uns through the municipal seat of La Libertad with its oil refinery, and onward to the west ending at the Usumacinta river and the cooperatives that line its banks on the southern side of the Sierra del Lacandón Park. The municipal seat of Sayaxché is part of this system.

A *northern route* going along the northern border of the Sierra del Lacandón to Naranjo on the San Pedro river. This road goes on to Palenque, a major site in Mexico. North, across the river, the road provides access into the Laguna del Tigre Park and petroleum concessions.

In addition, from the primary road are two south-north secondary roads, which become tertiary, seasonal roads providing important access to community and industrial forest concessions:

- The road to Carmelita gains access to Cruce Dos Aguadas, La Pasadita, Cruce de Colorado, Carmelita, and finally runs through the biological corridor to the industrial concession of Paxbán. Directly north of this road is the Mexican highway system.

- The road to Uaxactún, aside from the timber brought to market along these roads, provides access to traditionally gathered products such as xate and chicle. Inexpensive road transportation makes these products more competitive; before roads, transportation for these products was by plane from Carmelita and Uaxactún.

Flow of Forest Products. Trade flows through the road system to and from Belize, and through Belize to Mexico. Some wood products use this route for export to Mexico. Other lumber products go south to Puerto Barrios/Livingston. Some populations use the route north and west to go through Mexico to the United States.

Agricultural and wood production also comes from the two main watersheds at the western end of the road system and also from farms along the route to the Belizean border. Sawmills in the central area draw timber from as far south as Sayaxché, and timber is also exported to Mexico through Belize using this highway system. Estimates of wood production from the buffer zone are difficult to obtain to compare with the production from the MUZ, but cooperatives at the western end have coordinated the sales of wood production for export. Thus there must be important forest production in this buffer zone beyond firewood. It is important to keep in mind that sawmills and buyers centered in this corridor are dependent on both zones and areas to the south of the buffer zone for economies of scale. Thus, the development of these areas of the buffer zone, with a forestry perspective, will be important for the economic as well as ecological stability of Petén.

Public Administration. The public administration is represented by the municipal seats of San Benito, Flores, and San Andrés, plus the border town of Melchor de Mencos; the Air Force and Army installations; and Flores as the capital of the Petén. These are all important sources of employment and services, making this a government services corridor as well as economic production and transformation corridor.

The Universities and Educational System. There are branches of two universities in the central area: San Carlos' CUDEP and Mariano Gálvez University, as well as normal schools, which are a source of employment. They are also important assets for the development of human resources that increases the division of labor in Petén. Aside from the forestry careers offered, there is a degree in environmental education, which is directly relevant to the MBR.

Actual State of the Corridor

In considering this area as a corridor, we return to the actual state of the Buffer Zone. USAID, CONAP and the partners have perceived the buffer zone as the area to end the agricultural frontier and protect the forest area of northern Petén from further encroachment. A proportionate and proactive effort to make the Buffer Zone an attractive alternative to settlement in the MUZ or Parks has not yet been made.

This is not to detract from the very important work in titling and agroforestry, nor the organizational strengthening and development of CONAP and NGOs. Nevertheless, the proportion of effort and attention has not been commensurate with the role the Buffer Zone is expected to play. To date most of the financial and planning effort has been focused on parks and, to a much lesser degree, on the Multiple Use Zone. In the case of the parks, the effort has been principally on the Sierra del Lacandón and the Laguna del Tigre areas. For example CONAP/CATIE's allocation of funds for 1998 and 1999.[4]

Parks	Q./ 11.866m
Multiple Use Zone	Q./ 6.954m
Buffer Zone	Q./ 1.284m

This imbalance can also be seen in the administrative area. The Buffer Zone has had one director and one technical person assigned by CONAP and two MBP projects (CARE and Centro Maya) plus the European Economic Community supported "Programa de Desarrollo Sostenible." By contrast, the remainder of the biosphere (Multiple Use Zone and Parks) has 5 program directors, 8 extension agents, approximately 130 natural resource guards, and the programs are managed by TNC, CI, Cänan Káax, Centro Maya, NPV, plus the university effort in the Biotopos. The MUZ and parks have integrated work plans and strategic plans, but the Buffer Zone does not have such a plan. Fortunately, recently, CONAP has assigned the person who was responsible for the MUZ planning to this task. SO5 activities that have supported the corridor:

- Forest concessions provide a planned, steady flow of timber to sawmills.
- New certified sawing techniques provide additional small dimension stock for local trade as well as export.
- Employment generated by the NGOs and CONAP provides an opportunity for local professionals.

[4] Data provided by IRG from CONAP/CATIE information, August 2000.

- Ecotourism with the communities and the archeological sites create employment in the corridor and above.

- Links fomented to the international market for wood and non-timber forest products also generate business and employment.

- The support of the CUDEP curriculum (Lic. Educación Ambiental).

- Land titling complements the needs of municipalities for establishing a tax base.

Additional Activities. The activities begun—agroforestry, diversification of the transformation of wood—should be reinforced and doubled. In addition, new activities should be added:

- A woodlot[5] perspective should be added to the agroforestry focus.

- The "Incentivos Forestales" of INAB should be increased and promoted among small holders as part of the agroforestry and woodlot strategies (actually many of the titled parcels have about 45 ha and have about one half is in woods).

- The FIS should be brought to bear with intensity to provide public services, schools and clinics in the corridor. Their 2001 program calls for productive projects.

- PRONADE should be promoted intensively in the Ministry of Education's decentralization effort.

- The Ministry of Education Strategic Plan should be supported.

- CUDEP should be strengthened.

- The Ministry of Health decentralization effort (SIAS) should be supported.

- USAID SOs should be brought to bear especially increased incomes and job creation (SO4), and Health (SO3). Given the importance of good governance to any area, some effort should be made to assess the administrative needs of the municipalities so that they have a solid reputation as administrators of public funds and taxing systems. This activity must be done and assessed through the Spanish muncipal strengthening program and the GTZ PMS program. It is not necessarily a MBP activity; it is, however, an important point for inter-donor coordination that has not taken place.
- Titling should be reviewed with regard to the World Bank and GTZ activities and if not needed then discontinued.

- The agricultural extension activity should be handed over to SO4 and MAGA.

[5] Because many of the holdings in the Buffer Zone have up to one half of their area in intervened woodland, the management strategy of these areas would be on woodlots owned by individual owners. This fits the indicator recommendations, too. Centro Maya's activity in this area should be reinforced.

Making the Argument For a Proactive Stance

The notion that the Buffer Zone is a natural resource that serves to protect the Reserve is in stark contrast to another perspective that the Buffer Zone is a social, administrative, and economic service corridor, a transportation artery, a site for agricultural and forest production and transformation facilities, and an access route for national and international tourism. The conceptualization of the zone, strategies, and activities for its development must be changed to fit its reality and potential. The strategies for this area should be focused on making it an attractive area for living and earning a livelihood as an alternative to life in the forests.

Concerns

Roads are seen as destructive to forests and parks given the access they provide to agricultural colonizers. Almost everywhere in tropical forests where access roads have been built for lumbering and petroleum exploration, the colonists follow and the forests are destroyed, thus raising concerns. Nevertheless, if coadministration institutions manage and control parks appropriately, and concessionaires control forest concessions, then a sustainable management strategy to allow roads may garner support. Better roads throughout the area would provide easier access for guards and security forces to stop illicit activities; the isolation there should not serve to protect illegal extraction of artifacts. The no-roads strategy needs objective reexamination with an eye on competing road systems in neighboring countries.

Assuming that protecting Mirador and Dos Lagunas Parks is possible, and that concessionaires can keep intruders out of the concessions, tourism and forest concession interests would be served with improved roads from Flores through Carmelita into the Mirador Basin, and an extended Tikal-Uaxactún road. Access to the Tikal road is carefully controlled, and there is no reason why similar control could not be provided on the Carmelita road to protect the Mirador Basin archeological sites and forest concessions using admission charges to cover the costs of the entrance the Mirador Basin.

What is a tricky aspect to manage is that both the Carmelita and Tikal roads are used by the international and national tourist communities that, in general, are sensitive to lumbering activities. For these roads to be shared by these two industries requires a very careful public education program, so that when tourists see trucks of lumber flowing from what appears to be the park area, they understand that this is part of a sustainable forestry strategy with international certification.

Another question that raises concern, which is dependent upon considerations stated above, is whether or not making the service corridor a better place to live and work would attract people from the forest areas, thus reducing pressure on the forests. Or, would the quality of life in the zone attract more people who, in turn, would pressure the forests for greater extraction rates, or revert back to forest-clearing practices.

In reality, the die has been cast; the area is a service corridor, and during the past 10 years strategies for the co-administration of the parks and concessions for the forest depend upon the services in the corridor. Thus, the vision of what the MBR is, and how it can develop, needs to

include this perspective. In the "Municipal-MBR Relation" below we criticize the conception of the MBR as forest-oriented and biased, as though observers stood with their backs to the municipal and buffer zone and only saw the forest. Now, we are asking the observers and actors to step back, focus on the service corridor, and understand its relationship to the remainder of the MBR. If this concept of the service corridor as its function is adopted, then the synergies between the zones can be understood and a proactive stance adopted to correct previous omissions and to promote new activities coordinated with other international donors and the municipalities.

Comments in Regard to Previous Economic Corridor Analysis for USAID/G-CAP [6]

In May 2000 Steve Wingert reviewed the strategy of using corridors[7] as an area focus and strategy for Mission efforts. His conclusion in general was:

> "It will be useful for readers to be aware while reading this document, that at the end the author concludes that it is premature for USAID to adopt a formal economic corridors strategy for its existing program, as to do so would require a disruptive redirection of those programs. However, such a strategy should be considered as a possible central theme for USAID's next five-year strategy, beginning in 2003. *In the meantime, the paper will recommend that the Mission and its partners adopt a networking approach to the coordination of activities under existing projects, and that it pursue with the Government of Guatemala actions that could facilitate a future focus on economic corridors in the Zonapaz region (emphasis ours*)."

Our analysis of the MBR led us to the conclusion that the buffer zone was really a development or service corridor with all the public administrative, social and economic characteristics of such a corridor. We wish to call attention to these facts, and provide a new vision and accompanying strategy for the implementation of MBP activities. As shown above, there are ongoing activities that support the corridor, and there is an organizational basis for new activities that vary in difficulty to implement from the easy, woodlot addition to existing agroforestry training, to the more complex – substantial other-SO involvement, all of which, fits with Wingert's "in the meantime" recommendation of using a networking approach.

Municipal-MBR Relation

Background. It is quite clear from the review of early material (1989[8], 1991[9], 1993[10]) that the MBP and the Central American program did not contemplate involvement or working with municipal governments. Moreover the clarity of this omission is seen in the lack of municipal boundaries on MBP maps. Many maps of the MBP exist with the park and concessions clearly

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[6] Stephen Wingert, ZONAPAZ Economic Corridor Strategy, Wingert's Consulting, under Contract No. 520-C-00-00-00035-00 with USAID/Guatemala (under Subcontract with Abt Associates Inc.), May 2000.

[7] The corridor approach is a derivation of classic central place theory and corridors usually come about because of mountain/valley topography as in the Peruvian case, or where transportation systems cut through new areas and the system of transportation links has not spread into the hinterland.

[8] Environmental and Natural Resource Management in Central America: A Strategy for AID Assistance, AID, Bureau for Latin America and the Caribbean. Also "Natural Resource Management: Strategy for 1993," USAID, Guatemala.

[9] Proposal for "Environmental Education, Awareness, and Policy Component," CARE, Guatemala, May 1991.

[10] Proposal for "Environmental Education, Awareness, and Policy Component," CARE, Guatemala, May 1991.

marked; some maps have the roads, but very few have even the names of the municipal towns. As asked in Annex A-VII, Environmental Education, "how can people relate to the MBR if they cannot see where they live on the map?"

Some of the early documents refer to the involvement of communities and resource users, but the implication was not municipal government. The exception to the above was the July 1994 presentation and follow-on December Report[11] by TR&D on the study that they did on the Environmental Impact of Forest Concessions in the MBR. Representatives of the Municipalities of La Libertad, San Andrés, Flores, San José, and the governor's office, attended along with opinion leaders from the parks, tourist, and lumber industries, and CUDEP. This was the only activity and PR event that we found to "sell" the concept of the concessions to the municipalities, and included a recommendation to "Plan out the forest management units in close cooperation with the municipal governments."

Some NGO activities have included municipalities. To be fair to the NGOs that have had some activity with the municipalities, it is important to mention:

- Cänan K'aax – working with the Municipality of San Benito in Barrio Panarama to create a botanical park that will focus on the ecology of Petén. The archeological site "La Cubanita" of five caves and *cenotes* with paintings in San Benito could be an important tourism site and reminder of the importance of water to prehistoric and present citizens of the urban area.

- TNC with the BioItzá in San José and the relocation of a few families

- CI/ProPetén with the island zoo in Flores and language schools in San Andrés and San José, and also with the Environmental Commission of San José

- Centro Maya with the resettlement effort in La Libertad

- Defensores de la Naturaleza with the resettlement effort in San Andrés

- CARE and the normal school in San Andrés

- NPV, as per the 2000 work plan, is working with the Environmental Commissions of Flores and Melchor de Mencos

The omission or lack of the municipal governments in design of the MBP was a lost opportunity to strengthen the institutional and political base for the MBP. Considering that this effort was taking place during a period when the U.S. government was stressing the development of democratic institutions, and that there was an institutional vacuum in Petén because of the dissolution of FYDEP, the omission shows a lapse in inter-SO coordination that persists. The focus was so much on the forest that an interdisciplinary team was not involved in the planning effort. Thus the social and political organization of the region was all but ignored.

11 "Programmatic Environmental Assessment for Natural Forest Management Concessions for the Maya Biosphere Reserve," Petén Guatemala, TR&D/AMBIO, December 1994, p.48.

The mayors with municipalities bordering on the MBR and the governor of Petén all see the MBR as a positive conservation effort. They are convinced that if it had not been for the MBP, the forest area would not exist today. However, the mayors conclude that the MBP removed large areas from their jurisdiction, and, hence, from their responsibility. Their perception is that CONAP and the NGOs are responsible for the communities even though the communities come to them for assistance in traditional municipal fields: health, education, roads, and services.

The Fiscal Impact Upon The Municipalities. It is important to realize the fiscal burden that the MBR has had on the potential of the municipalities to develop and provide services for the citizens outside of the Parks. In a separate section we have presented the "Service Corridor Perspective" of which the municipalities are an integral and key part. The fiscal impacts are:

1) *Ejidal*[12] lands in San José (15 percent, and also the BioItzá's 36 km^2) and Melchor de Mencos (approximately 75 percent) were removed from the tax rolls.

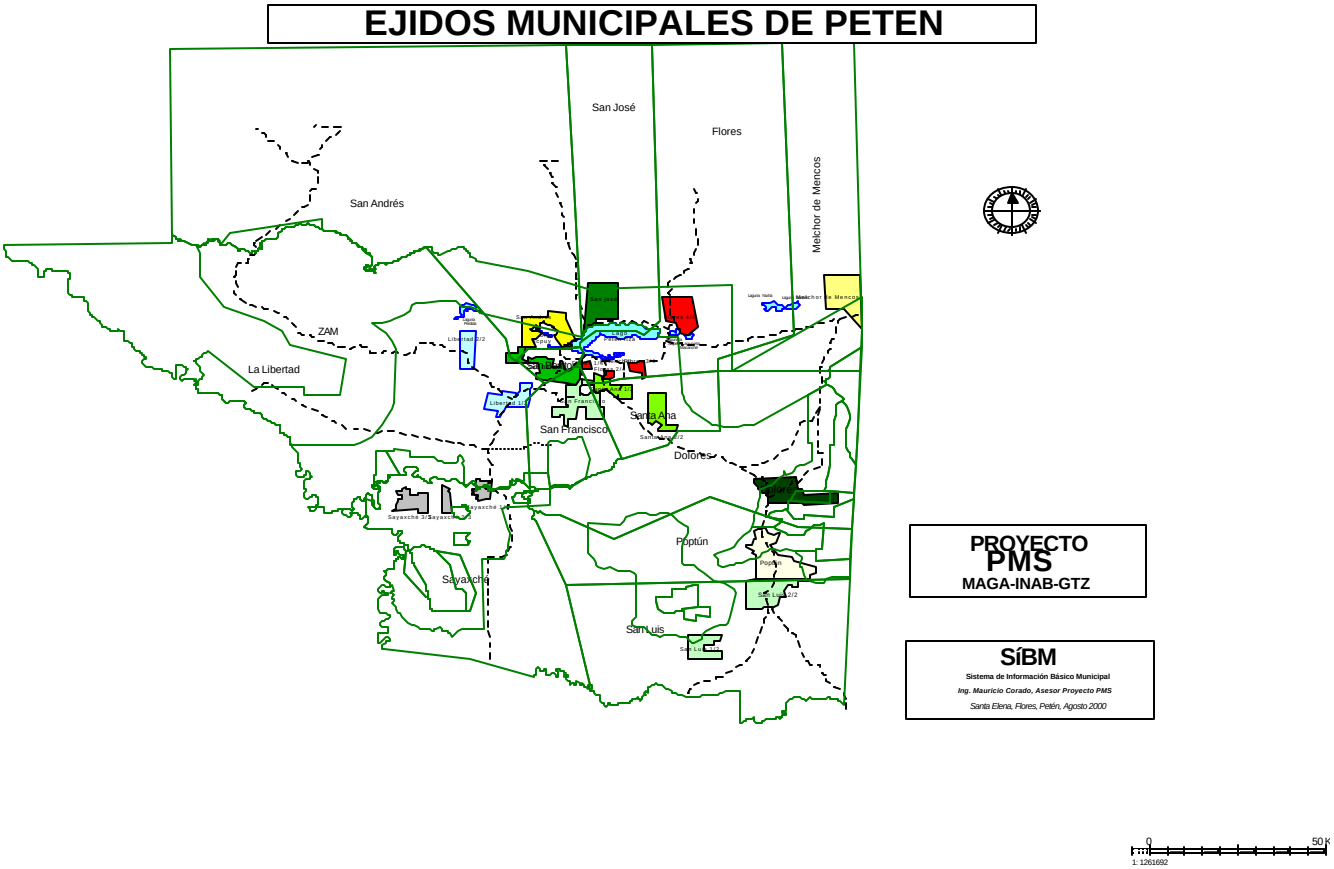
2) The Forestry Law that grants 50 percent of the taxes collected for lumber and forest products to the municipalities was superceded by the CONAP law that uses all of the taxes from forest products from the MBR to support CONAP.

3) Communities from the MBR are expected to be resettled in non-MBR areas of these municipalities, implying services such as roads, electricity, and water.

One of the main strategies for the conservation and sustainable management of natural resources was not applied to show that they are a valuable resource worth managing for the stakeholders. The stakeholders in this case were the municipal governments that lost fiscal resources. Ordóñez, in his study of the Municipal Sustainable Resources Project,[13] concludes that the project has "demonstrated that the municipalities in Petén can and ought to be active participants in the sustainable management of their natural resources."

[12] The Municipalities were granted ejidal lands in the late 1970s. Each one set aside 250 caballerías amounting to 3.85 percent of the total area of Petén. The exceptions to the 250 Cb. rule are San Benito with only 50 Cb. and La Libertad con 275Cb.
[13] Ordóñez, William. "Modelo Municipal, para el Manejo Sostenible de los Recursos Naturales de Petén: Un aporte del Proyecto PMS, MAGA-INAB-GTZ, para el Fortalecimiento Municipal en el Departamento de Petén." En Nuevas Perspectivas de Desarrollo Sostenible en Petén, Flacso, Guatemala, 2000. P .263 (translated by Chemonics team)

Map A-II-1. Municipal Ejidal Lands in Petén and Their Relation to the MBR



Another oversight of the original design was that the municipalities have considerable forest areas, both within the ejidos and among the private holdings outside of the MBR. The MBP apparently did not perceive these areas as crucial to the buffer zone strategy. Since the design stage, there have been some activities in the buffer zone that are sustainable and forestry-oriented, and also will generate revenue for the municipalities, such as the work by Centro Maya with cooperatives and independent land owners (parceleros) along the southern border of the Lacandón Park.

Another oversight in the buffer zone has been of the large landowners with forest holdings. Work with them aimed at sustainable forest management could help maintain the forest coverage in the buffer zone and protect small ecosystems, such as wetlands, with all of the associated ecological benefits.

There is also some misunderstanding with regard to the MBR and the use of the buffer zone: A good example was best shown by the mayor in San Andrés when he showed a map of the MBR on which he had drawn the municipal boundaries. He said, “Look, they have taken 95 percent of the municipal lands.” He gestured to the lands in the MBR, including the buffer zone. Thus the buffer zone area, where important municipal and conservation efforts are needed, is excluded by this important stakeholder and potential ally in the overall MBP strategy because he does not

understand the management of the system. Another ejido-related management policy is in Melchor. The municipal statutes for the use of ejidal lands include the prohibition of permanent crops and structures because, should the municipality wish to recover the lands, then it would have to compensate the user for the improvements. This type of policy foments the clearing for annual crops and cattle, and also does not see the ejidal lands as a source of income according to land use. (In La Libertad, the fee for crops is less than half the fee for cattle.)

There are also examples of excellent strategies by mayors to maximize the use of programs that support the buffer zone concept. The mayor of La Libertad has arranged for INAB reforestation and forest management incentives for the citizens in the ejidal lands. The municipality collects 10 percent of the incentives for its effort and, at the same time, is preparing woodlots that will, in the long run, generate revenue for the municipality because the ejidal lands are outside of the MBR.

During the last week of August, two Peace Corps volunteers were assigned to work with the mayors of Flores and La Libertad on municipal management. They should be included in the exchanges so that they are aware of the possibilities and the goals of the MBR.

Observation. Municipal government has not been included in the MBP.

Analysis. During the design phase, the MBP and the Central American Commission on Environment did not consider the municipal relation to the proposed MBR; the partner organizations did not propose working with the municipalities; the fiscal base for the municipalities was reduced by assigning taxes from forest products to CONAP; and, in some cases, ejidal lands were included in park and Multiple Use Zones. Some of the NGOs and PVOs in the MBP have worked with municipalities. Fortunately, the World Bank with its Cadastro; GTZ with its Sustainable Management Program aimed at Ejidal lands; and the Spanish Technical Cooperation program with its focus on strengthening municipal management and environmental health, are working on environmental themes and resource management directly related to the MBP in the buffer zone (services corridor) and the Multiple Use Zone. All of these programs will have important fiscal strengthening aspects too, but the present situation, in which the taxes from the products of the reserve do not go to the municipalities, needs reviewing This would then be congruent with the principle that the resources must have a value to the stakeholders if stakeholders are expected to take an interest in those resources.

Recommendations. The USAID program officer should meet with the directors of GTZ\PMS, Spanish\MSP, and World Bank\Cadastro programs in Petén and exchange program ideas, goals and methods to explore the possible synergisms. If the regional director of CONAP has not done this kind of inter-organizational public relations, then it should be done.

- There should be a workshop explaining what the MBP is to the mayors, their UTPM, and SARN, so that they understand what resource management practices are expected in the MBR zones in their municipalities.

- There needs to be an analysis of the cases of ejidal lands and their management when in buffer and multiple use areas, so that the fiscal utility of these lands will be clear and productive to the municipal governments.

- Resettlement should be coordinated with the mayors and funded, so that the social infrastructural needs of the settlers do not become a burden upon the mayors; resettlement should fit municipal plans.

- The fiscal burden of the MBR should be relieved by policy and regulatory understanding or changes so that the value of the MBR is positive for the municipalities.

Central Area Zone—Lake Petén Itzá Watershed

We believe that the Lake Petén Itzá watershed should be declared a special area management zone and included within the MBP. This central area would encompass part of the service corridor or buffer zone, as well as areas outside of the MBR. As proposed in the case of the Mirador Basin special management area, such a plan would require the willful collaboration between the interested parties, in this case the mayors of San Benito, Flores, San Andrés, and San José[14].

Though not yet recognized as such, Lake Petén Itzá is one of the central natural resources of the Mayan Biosphere Reserve. Flores itself serves as the gateway to the MBR and the Mayan World. The lake, which is technically outside the limits of the MBR, forms the southern border of the biosphere, and is located in the center of the east-west axis. It is a key reference point from the perspective of residents the northern Petén and is known as the *area central* offering many of the key administrative and commercial services described in the service corridor perspective. For many citizens and tourists, the lake is a focal point for quality of life because of its microclimate and landscape. From a biodiversity perspective, it is the principal habitat of an endemic fish species that also has an important economic value. On the shores of the lake are four municipal seats and the major population concentrations of the Petén. These towns are magnets for business and people seeking employment from the surrounding areas.

The continued, unmitigated development of the central area is the single greatest threat to the survival of the lake. Unless a continuous and coordinated effort prevents these communities from polluting the lake and further degrading the shoreline ecosystem, it could become another Lake Amatitlán. It behooves the MBP to recognize the central areas as a special use zone with a distinctive set of needs and relationship to the of the MBP.

Fortunately, there are exemplary efforts underway at the present time. With support from Spanish Cooperation, the mayors of two municipal seats have joined together to prevent disposal of solid waste in the lake by creating a joint garbage disposal system consisting of a landfill in the southern part of the Municipality of Flores (on the road to La Libertad). The worst impact of local garbage on the lake has been on the shores of the town of Santa Elena where it is

[14] The Director of INFOM, Luis Ocaño, reported that this has been in discussion for at least three years. It was reported in *Siglo Veintiuno* on 26 of August, p. 12, that the Congress had begun to explore the idea of a special management district. CONAMA had proposed it in response to the endemic whitefish die off during August.

estimated[15] that there are more than 12 m of garbage and fecal matter covering part of the lakebed.

Similarly, the mayors of Flores and San Benito have formed a water agency that manages the supply of fresh water from a series of wells (6 in San Benito and 3 in Flores). This agency (EMAPET–Empresa Municipal de Aguas del Petén) is a semi-autonomous agency dependent upon the collection of user-fees for its survival. There is also a pumping station on the northern end of the island where Flores is located and some hotels pump water directly from the lake and then treat it by chlorination and filtration. Thus, the water quality of the Lake is of crucial importance for the present and future well-being of the citizens and the tourist industry.

One key land tenure issue for the economic survival of the municipalities is the *cadastro* because with it comes the identification and ordering of the *ejidal* lands that generate local taxes. The borders of these lands are not well known or demarcated, thus probably less than half of the potential land-use taxes are collected. The other fiscal aspect of these municipalities is that some have not completed the registration of their residents, so they lose a substantial amount of funding from the central government (the 10 percent transfer) that apportions funding to municipalities based on their registered population.

Drainage is a key problem in some of these municipalities.[16] KfW is working with the municipality of San Benito for surface drains. Unfortunately, sewage system has not been put in, and the increased water supply to the houses, plus the surface drainage, increases the amount of sewage making its way into the lake. Fortunately there is a project underway to provide sewage treatment before dumping waste into the lake. Given the geomorphology and aquifer from which the municipal wells are drawing, the quality of water in the lake is important for the future health of the population.

The question of drainage and the topography brings forth a common coastal zone theme: land-use planning and zoning to preserve the shoreline ecosystems for their biological importance, and to protect the population and social infrastructure from natural disasters. From this perspective Lake Itzá is unique because of its 53-year [17] cycle of "tides." It is note quite clear just what the difference in level is from the low point to the high point, but it is probable that the fluctuation is about 5 m, given that there was once a road around the island town of Flores, and the water is more than 2 m deep where the road was. Furthermore an estimated 2.5 m are cited in San José Testimony to this fluctuation in levels may be seen in:

1) Buildings are abandoned in the low areas.
2) Houses and stores are below street level in Santa Elena and San Benito.
3) In Flores, they say that the highwater of 1995 flooded the present street on the northern side of town.

[15] Interview with Mayor Franciso Javier López Marroquín of San Benito.
[16] This problem is well known. It was reported (CARE proposal 1991, p. 21) that Radio Petén had an ongoing radio program dedicated to the conservation of the Lake, drainage, and sanitation.
[17] Interview with Mayor Julian Tesucún y Tesucún of San José: his grandfather's recollection was that prior to the 1995 high water the last one was 1942. Approximately 20 houses in San José were relocated in 1995 and the roadbed that forms the waterfront was built. The water rose to the level of the present basketball court – about 2.5 m above the present level.

4) South of the bridge between Flores and Santa Elena, one can see the site of a church and hotel, which are still flooded.

This evidence indicates that the low level of the water probably encouraged the expansion of human settlement prior to the last high water. The water level is dropping and this would be the time to limit the expansion of human settlement onto lower lands. This is also a time to reflect upon the siting and construction of all public infrastructure such as water supplies, sewage systems, landfills, roads, and schools, by noting the high water mark of the last cycle. As with most coastal zones, the history and knowledge of these fluctuations needs to be kept in mind so that the quality of life and related ecosystems can be improved and maintained.

ANNEX A-III ASSESSMENT FINDINGS

Ecological Services and Economic Valuation

Ecological Services and Economic Valuation

> "An economist is someone who knows the price of everything and the value of nothing."
>
> – Oscar Wilde

When it comes to natural resource economics, Oscar Wilde was prescient: the value of protecting natural resources goes far beyond their price (or cost). Unfortunately, the price (or cost) of not protecting a natural resource is sometimes the best information we have to estimate its value[1].

Occasionally, this cost (which is really a foregone benefit) is made more visible and striking by its sudden absence. During our stay in Petén, we had the opportunity to witness just such an instance.

When we arrived to Flores in late July, the excellent eating fish pescado blanco (white fish), which is prized by both tourists and locals alike, was dying in record numbers in Lake Petén Itzá. Pescado blanco is the most valuable commercial fish found in the lake; it is also endemic to the Yucatán Peninsula. Curiously, this mass mortality was only affecting this one species in this one lake.

In the weeks following our arrival, the problem became worse and the news reached local and national headlines. Emergency meetings were held by CONAMA with local fishermen, restaurateurs, and others affected by the die-off. Eventually, a subsistence support program was implemented for local fishermen whose livelihoods depend largely upon the sale of this one fish. As part of this program, fishermen were employed to collect dead fish, and tissue samples were sent to a lab in Guatemala City for analyses.

Unfortunately, as of this writing, the cause of the mass mortality is still undetermined. It could be due to natural causes (a species-specific parasite, changes in food supply) or anthropogenic causes (cumulative effects of some pollutant, a one-time toxic spill) or even a combination of the two.

We did the following "back of the envelope" calculation based on information provided to us by CONAMA:

CONAMA estimates that about 20 tons of pescado blanco were collected in a two-week period as a result of the die-off. Unfortunately, there is not enough baseline data to know what portion of the total population of pescado blanco this 20 tons represents, but it is thought to be the majority (most were wiped out).

[1] Conservation of natural resources generally involves real costs, which are easy to quantify (guard posts, equipment, vehicles, labor). The benefits of conservation, on the other hand, are usually difficult to quantify and sometimes intangible. Natural resource economists typically quantify benefits in the form of revenues from tourism, user fees, extraction of timber and NTFPs and more recently—and with more theoretical difficulty—in terms of "ecosystem services," such as watershed protection.

About 80 local fishermen are primarily dependent upon pescado blanco (which is thought to represent about 80% of their catch by value). Fishermen typically sell pescado blanco on local markets for about Q. 18 per lb.

Therefore, estimated cost of lost fish harvest equals:

40,000 lbs. of fish x Q. 18/lb. = Q. 720,000

Plus the cost of the subsistence support program that was Q. 50 per fisherman per day for what we estimate to be at least 60 days or:

Q. 50/day x 80 fishermen x 60 days = Q. 240,000

For a total cost of Q. 960,000 (or about US$125,000).

This estimated loss of $125,000 over a two-week period does not capture the loss of revenue of restaurants or hotels that, as of this writing, continue to be unable to offer the fish on their menus. Clearly there are also many important, unknown variables (How much of the 20 tons would local fishermen have caught? How quickly will the population of pescado blanco recuperate, and how long will these losses be sustained by local fishermen?). Still this exercise gives us a rough figure, that may in all likelihood, be a significant underestimate.

A number of useful observations and lessons can be drawn:

1. A $125,000 loss in the space of only two weeks in a small, local economy such as Flores is probably significant, particularly given that it almost certainly represents an underestimate.

2. Whatever the ultimate cause of the die-off (natural or anthropogenic), this calculation gives us some idea of the value of the fishery to the local economy.

3. Lake Petén Itzá provides other valuable ecological services to the local economy, principally as a water supply and a tourist attraction that contributes greatly to the atmosphere of the town. There appears to be little understanding of the ecological services provided by the lake and little appreciation of the lake as a valuable resource[2]. This points to the need for some basic economic valuation studies, as well as more directed environmental communication for the urban populations surrounding the lake. Whatever environmental communications are developed should stress the connection between environmental and human health and the idea of the lake as a economically valuable resource that also affects the quality of life for both tourists and locals.

[2] Based on the personal experience of one of the team members, Robert Lester, water quality in the lake has deteriorated considerably over the last 20 years. It is our understanding that many residences in Flores and environs still obtain their water from the lake and that there is no treatment of sewage other than some septic systems. Even where there are septic systems, it is very likely that phosphates and nitrates from untreated sewage leach very easily into the lake because of the well-drained soils and the small size of the septic fields, particularly on Flores.

ANNEX A-IV ASSESSMENT FINDINGS

Forest Concessions

Forest Concessions

Forest management in the concessions and cooperatives has made impressive advances in these first five years. The aim of the present consultancy is to orient future support that forest management needs to consolidate this success. Three types of entities manage forests in the MBR:

- Concessions allocated to communities for the management of government-owned forests in the Multiple Use Zone.
- Concessions allocated to industry for the management of government owned forests in the Multiple Use Zone.
- Management of forests owned by cooperatives and "parcelamientos" in the Buffer Zone.

The experience, status, and contractual obligations of these arrangements vary widely.

A. Impacts of the Forest Concessions and Cooperatives

- The forest remains intact due to the control of illegal settlement, control of illegal logging, reduction of forest fires, and the technically correct management of the forest.

- The forest produces social and economic benefits due to the joint production of forest products, especially wood, by the communities. These benefits include revenues to the community members, revenues for joint community projects, a change of attitude of the members of the community about the forest and a strengthened community identity.

- The organizational and technical infrastructure that is needed to advance is now in place, specifically the technical capacity in the support organizations, and the productive and organizational capacity at the level of the community.

At present financial viability of the forest concession and cooperatives seems promising as indicated by high revenue/expense ratios and Net Present Values. However, a serious decline in the financial conditions related to use of the forest is likely to cause a drastic degradation of the biophysical environment as well.

Opportunities. If done correctly forest management in the MBR can build on the successes to date to create the following major impacts:

- Conservation of more than 600,000 ha of forest

- *Viable forest enterprises that improve the income of the communities, cooperatives and industries that operate them.* Once all the Forest Management Units are in production, more than 60,000 days of rural employment will be generated. These will provide Q.2.3 million in revenues to the rural communities of Petén. Additional unskilled and skilled employment opportunities will be generated in the milling and value added processes.

- *Contribution to stability and economic development of the northern Petén.*By the end of 2001 the annual harvest area should reach 10,182 ha, producing a total volume of 65,430 m3, including 52,961 m3 of secondary species and 12,469 m3 of mahogany per year. This wood is supplied as a steady flow upon which industry, markets and long-term alliances can be built, rather than the "boom and bust" of traditional forest mining. Various taxes and forest fees associated with the harvest of wood should generate Q.2.7 million to CONAP. In additions, a number of other revenues will accrue to the state, including taxes generated by the harvest of NTFPs, IVA, and income taxes.

B. Recommendations to Strengthen Forest Management in the Concessions and Cooperatives of the MBR.

To counteract the risks of failure of this fragile system and overcome current constraints, forest management in the MBR requires continued support but with several new dimensions.

B1. Management, Administration and Internal Organization of the Communities

Most communities suffer from numerous organizational, administrative and management problems. However, the necessity of working together on a common enterprise has also had beneficial effects of uniting the community and encouraging new organizational arrangements.

Promote Systems and Procedures that Make Corruption Difficult. CONAP should encourage the following of all community concessionaires and cooperatives:

- The acceptance of minimum accounting standards and submission to at least one external audit annually contracted with a reputable firm. Training should be provided to the groups in the use of the new practices.

- Publication of the conditions of all sales of forest products after they have been concluded, including contracts, volumes and prices.

- Within the internal bylaws, a general assembly should be required at the end of each harvest season to explain the financial status of the year's activities and discuss the utilization of the revenues.

Create and Train a Two-Tiered Organization Consisting of a Board of Directors and Management. Separate the function of a board of directors and of managers in different individuals. Not only will this make corruption more difficult, but it will also increase the

probability that the managers and other specialists will stay in their positions long enough to improve their skills.

B2. External Relationships

Let Communities Choose. CONAP with USAID support should limit their support to communities through the NGOs. Communities should receive a maximum of two years of free assistance. Starting in the third year, the forest, through the profits realized by the communities from the extraction activities, should pay for a gradually increasing share of any assistance they might need. At that time the communities should be given the right to choose from which NGO or private sector agent they wish to purchase services and of which type. By year five outside subsidized support would be minimal.

Improve Negotiation Skills and Contract Management Skills. Special emphasis should be placed on preparing the community groups to interface with the private sector, including their technical assistance provider, buyers and business partners. If increased understanding of the timber industry can be interjected within the system, better decisions can be made by the communities and more realistic contracts negotiated.

Encourage Longer-Term Contractual Relationships with Industry or Buyers. Longer-term relationships are essential to promote investment in secondary processing, the development of new products and the transfer of technology. Multi-year harvest plans with detailed volume information may prove useful to foster longer-term contracts. Another mechanism is the establishment of a voluntary review and arbitration council.

B3. Product and Market Development to Utilize Secondary Species

Strategic Business Relationships. The incipient tripartite strategic business relationships between:

- Communities low on capital and technological and managerial know-how
- Current industry that is antiquated and under-capitalized
- Outside buyers and investors who must continue to be strengthened

Communities should not aspire, given their low level of management capacity and access to capital, or be encouraged to be producers of finished products. However, in addition to those that already do so, some other communities might be assisted with portable sawmills for processing residual woods or lower value logs.

Industry cannot be complacent with the marketing of mahogany and cedro. They should develop longer-term business plans that identify diversified products and markets for secondary species. Industry should likewise benefit from their relatively high volumes of mahogany and cedro to attract international investors and buyers to form joint ventures.

Diversify Production to Match Managerial Capacity. Industry must lock in sufficient supplies of raw materials of several species that they can profitably utilize. They could do this by assisting the development of local associations of concessionaires or forming strategic business relationships with several concessions that have similar forest types and species mixes. An

increasing number of specialized secondary processors should be encouraged to use an increasing number of species.

Use Certification As a Tool to Open New Markets. Unfortunately to date, attention has been placed on certifying forest management activities rather than utilizing certification as the market incentive tool that it was designed to be.

Non-timber Forest Products Standards and Monitoring. CONAP should be encouraged to develop, disseminate and implement technical management standards for xate and allspice, including norms to avoid harvest of poor quality xate leaves. Monitoring and evaluation of the implementation of the norms should be integrated with CONAP's current monitoring of logging to keep costs low.

B4. Financial Viability of Forest Management

Technical assistance should be paid by the forest through the community. All subsidized technical assistance costs should be controlled in the future. This will allow the project to determine the returns on this investment by the donor, the benefits derived by the communities and permit comparative analysis of the technical assistance providers.

Technical assistance subsidized by USAID should ascend to the next level of product and market development, entrepreneurial training for communities and industry alike, and should be provided by institutions capable of doing so.

Attract Outside Capital, Technologies and Expertise. The concessions should use their intrinsic advantages to attract outside investors who can provide additional capital, technology and expertise. USAID should provide technical assistance to facilitate these linkages. Stability in the current concessions and policies is vital for this to happen.

Capitalize Operations Through Mahogany and Cedro. Given current mahogany volumes most economic data looks promising. However given the doubts about the regeneration of caoba and other valuable shade intolerant species, there should be major concerns about the sustainability of the current forestry model and its financial viability. The current volumes of mahogany should be seen as an opportunity to provide the economic basis for forest management to work, partly by using these early high revenues streams for reinvestment in value added processing.

B5. Technical Sustainability of Forest Management

Analysis and Utilization of Data from Permanent Plots. The CATIE/CONAP Project should prepare and implement guidelines for choosing location of plots, treatments and numbers to be established by forest type.

The Required Planning and Reporting Processes Should Be Revisited. A commission should analyze management plans, EIAs, annual operating plans, and annual reports and determine which information is indispensable and what amounts to bureaucracy and administrative requirements that can be reduced.

Efficiencies. USAID should provide training, not necessarily free of charge, to industry and community groups on how to inject efficiencies into their operations to increase recovery rates and foster the utilization of secondary species.

B6. Information Management

Create a Documentation Service. Create a documentation service in CONAP. Require all actors who produce documents and maps relevant to the protected areas of the Petén to deposit paper and electronic copies in this center.

Stop Financing Studies that Have No Clear Application.. During the process of making the annual work plans, USAID needs to be more critical in financing consultancies and the preparation of documents.

B7. Administration by CONAP of Forest Management in the Concessions and Cooperatives

Amend the Regulations for the Concessions and the Contracts with Specific Sanctions for Minor Infractions. CONAP Region 8 should prepare a list of infractions and the corresponding sanctions and submit to the CONAP Board for approval as an amendment to the regulations for the concessions (normativas).

Streamline Monitoring. Agreement needs to be reached between CONAP, USAID and SmartWood so as to combine their efforts at monitoring and reduce the currently prohibitively expensive inspections to the minimum needed to measure compliance.

C. Forest Management in the Maya Biosphere Reserve

Background. Since 1990, the Maya Biosphere Project, with financial support from USAID and other organizations, has been promoting the conservation and management of this protected area of 1.5 million hectares. The Multiple Use Zone (MUZ) of the Reserve includes about 800,000 ha where utilization of the natural resources is permitted under certain restrictions. By law the entire Nuclear Zone and the MUZ are property of the Government of Guatemala and no private ownership is permitted there.

To promote the sustainable management of the Multiple Use Zone of the Maya Biosphere Reserve, starting in 1994 CONAP followed a policy of allocating the management of the MUZ as concessions to neighboring community groups and to forest industry. By the end of 1999 CONAP had signed concession contracts for almost the entire MUZ, except for two Forest Management Units (see Table 1). At the same time CONAP created the mechanism for regulating the management of the forests of the cooperatives and of private owners in the Buffer Zone. These first five years have seen impressive advances in the management of the forests of the concessions and the cooperatives. Because the Maya Biosphere Project ends in 2001, it is time to decide how to orient future support to forest management in the Maya Biosphere Reserve. To assist in this process, USAID/Guatemala has contracted Chemonics International to carry out an assessment of the Maya Biosphere Project. The present report covers one specific aspect of that general evaluation.

Terms of Reference and Methods Used. USAID/Guatemala has contracted with Chemonics International to evaluate its assistance to the Maya Biosphere Reserve (MBR). Chemonics in turn hired John Nittler and Henry Tschinkel for 10 and 11 workdays respectively to cover the subject of forest management through concessions and cooperatives. Specifically the task was to describe and evaluate the current status of forest management and to propose how to strengthen it, including through possible further assistance by USAID. Tschinkel had previously worked on a related task under a contract with the CATIE/CONAP Project, also with funding from USAID. The result of that work including the draft report (Tschinkel 2000), documentation and the experience gained from interviews and numerous field visits, were used as input to this consultancy with Chemonics.

After review of the ample documentation available, the two consultants interviewed the individuals and visited the forest of the UMI cooperative. Mr. Nittler concentrated on the financial aspects of forest management. The progressive drafts of this report were reviewed by the other three members of the Chemonics team and several Petén foresters. A one-day workshop organized by the team helped obtain feedback from many of the institutions involved.

Diagnosis of the Current Status of Forest Management in the MBR

The Status of the Areas Under Forest Management. Exhibit A-IV-1 lists all of the Forest Management Units officially under management or proposed. Because a few started in 1994, while others have not even begun, their experience and status vary widely. Nevertheless, technical standards required of forest management are the same for all management units. Note however that contractual obligations are different for the three types of entities managing forests in the MBR:

- Concessions allocated to communities for the management of government-owned forests in the Multiple Use Zone. Some of these communities are located within their concession areas with traditional links to that forest, others are located outside.

- Concessions allocated to industry for the management of government-owned forests in the Multiple Use Zone

- Management of forests owned by cooperatives and “parcelamientos” in the Buffer Zone

For a more detailed description see the information system called (SI PETEN)] available on CD-ROM.

Exhibit A-IV-1. Forest Units Under Management in the MBR

No.	Forest ManagementUnit (1)	Entity Managing The Unit	Support NGO	Year Estab-lished	Total Area (ha)	Total Production Forest (ha)	Area harvested annually (ha)	Cutting Cycle (years)
COMMUNITY CONCESSION								
1	San Miguel **C**	Asociación de Productores de San Miguel (APROSAM)	CATIE/ Olafo	1994	7,039	4,800	80	60
2	La Pasadita **C**	Comité Pro Mejoramiento	CATIE/ Olafo	1997	18,817	12,043	482	25
3	CARMELITA **C**	Cooperativa Integral de Comercialización "Carmelita" R.L.	PRO-PETEN	1997	53,797	28,371	709	40
4	RIO CHANCHICH **C**	Sociedad Civil Impulsores Suchitecos	NPV	1998	12,217	10,000	333	30
5	SAN ANDRES **CP**	Sociedad Civil Asociación Forestal Integral San Andrés (AFISAP)	PRO-PETEN	1999	51,939	48,883	1,120	40
6	Uaxactun **CP**	Sociedad Civil Organización Manejo y Conservación	NPV	1999	83,558	28,141	703	40
7	Chosquitan **CP**	Sociedad Civil Laborantes del Bosque	NPV	1999	19,300	14,914	450	30
8	Las Ventanas	Sociedad Civil Arbol Verde	NPV	No contract yet	64,973	33,079	1,100	30
9	Cruce la Colorada	Asociación	Centro Maya	No contract yet	20,815	17,621	704	25
10	La Colorada	Asociación	Centro Maya	No contract yet	22,885	15,866	515	30
11	Yaloch	Sociedad Civil El Esfuerzo		Not yet bidded	25,387	Est 16,500	550	30
12	La Unión	Sociedad Civil Custodios de la Selva		Not yet bidded	21,176	Est 15,000	500	30
Subtotal					**401,903**	**245,218**	**7,246**	
INDUSTRIAL CONCESSION								
13	La Gloria	Baren Industrial	n/a	1999	66,458	Est 45,000	1,500	30
14	Paxban	PROFIGSA	n/a	1999	65,755	43,698	1,456	30
Subtotal					**132,213**	**88,698**	**2,956**	
COOPERATIVE								
15	Bethel **C**	COOPERATIVA	C. Maya	1994	4140	2700	100	25
16	La Lucha **CP**	Cooperativa	C. Maya	1996	3915	1950	100	25
17	La Técnica **C**	Cooperativa	C. Maya	1995	4590	2250	100	25
18	Monte Sinai	Cooperativa	C. Maya	1996	1035	800	100 Every 2 years	25
19	Unión Maya Itzá	Cooperativa	C. Maya	1999	6165	4932	130	25
Subtotal					**19,845**	**12,632**	**580**	
PARCELAMIENTO								
20	Retaltecos	Parcelamiento	C. Maya	1999	1575	788	Variable	25
21	La Felicidad	Parcelamiento	C. Maya	1999	1125	700	Variable	25
22	Yanabí	Parcelamiento	C. Maya	1999	585	300	Variable	25
Subtotal					**3,285**	**1,788**		

No.	Forest ManagementUnit (1)	Entity Managing The Unit	Support NGO	Year Estab-lished	Total Area (ha)	Total Production Forest (ha)	Area harvested annually (ha)	Cutting Cycle (years)
TOTAL					**557,246**	**348,336**	**> 10,782**	

(1) **C** = Certified
CP = Certification in process as of September 2000. Field inspection completed.

Subtotal 401,903 245,218 7,246

Impacts. The forest concessions and cooperatives have made impressive advances. Various documents describe them, so that the summary here is only brief (Gálvez y Carrera 1999, draft of Web page of CATIE/CONAP project, Proyecto CATIE/Olafo 1998).

The Forest Remains Intact. The areas under concession in the Multiple Use Zone of the MBR conserve their forest cover, thus completing the main objective of creating the system of concessions. The concessionaires consider themselves as "owners" of the area covered by their concession contract and in general the population has a tradition of respect for private property.

The map of changes in forest cover shows almost no loss of forest in the concessions since 1995, in stark contrast to the forest destruction in some of the nuclear zones and the buffer zone. The reasons are the following:

Control of Illegal Settlement. The concessionaires and cooperatives protect the forest against invasion by outsiders. They respect the boundaries of the forest described in the contract. They control the boundaries as if they were the owners.

Control of Illegal Logging. During 1999 and 2000 no significant illegal logging was reported for the concessions or cooperatives. Before creation of the concessions, stealing wood was common and the communities had no legal recourse to stop it.

Reduction of Forest Fires. The number of forest fires and the area burned is much lower in the concessions than in the other forests. For example during the 2000 fire season, fires burned 22 percent of the Nuclear Zone and 35 percent of the Buffer Zone, but only 3 percent of the MUZ (López et al. 2000). The concessionaires patrol the forest and detect fires. They use the revenue derived from the sale of wood to compensate those members of the community that help to fight the fires.

Forest Management Is Sustainable. The certification of two cooperatives (Betel, La Técnica) and four of the concessions (San Miguel, La Pasadita, Carmelita, Río Chanchich) with the help of SmartWood, plus another four management units in process of certification (La Lucha, San Andrés, Chosquitán, Uaxactún), demonstrates that forest management has started at a level that meets the strict international standards of the Forest Stewardship Council. With 100,000 ha already certified, Guatemala occupies first place in the world with respect to certified natural forests managed by communities. The principal good management practices have been transferred to the concessionaires.

The Forest Provides Social and Economic Benefits. The utilization of forest products, primarily wood, by the community as a group not only generates significant net income but also tends to catalyze important social and organizational benefits.

Revenues to the Members of the Communities. Without doubt the expectation of income is the driving force behind the progress made so far in forest management. All concessions pay a wage to the members for the days they work, at a rate higher (between Q30 and Q75) than the prevailing wage (Q.25). In addition, some groups divide part of their net income between the members. The amount of these dividends that each member receives is very variable but in some instances has reached Q. 27,000 per year.

Income for Community Projects. The groups reserve part of their net income as operating capital for the following year and for the purchase of equipment. But often they also designate part for such community works as expansion of the school, installation of a potable water system in La Pasadita and road maintenance for the Suchitecos.

Change of Attitude About the Forest. Although it is difficult to quantify, conversations, meetings and decisions about utilization of the forest demonstrate a more positive and realistic attitude about the forest than was common a few years ago. The members of the community understand fully that the well-managed forest is part of their economic sustenance. Their availability for certain unpaid jobs and their enthusiasm for learning the technical aspects of the operations show this new realistic attitude.

Strengthening of the Community Identity. The allocation of the concession to the community as a group has strengthened their work on a long-term common productive undertaking, something relatively new for most of these communities. This has fortified their identity as a community and their collaboration on other initiatives besides the concessions (such as in Carmelita where the marketing of xate that was previously done individually is now done jointly and part of the funds generated feed a fund to finance this activity). The groups have matured and improved their cohesion.

D. Organizational and Technical Infrastructure Needed to Progress Has Been Created

Technical Capacity of the Support Institutions in Forest Management and Other Relevant Fields. The demand for a wide range of assistance to the communities and the availability of donor funds to pay for these services has caused the creation and strengthening of numerous institutions. The quantity, quality and level of sophistication of the services that these institutions provide to the concessions and cooperatives have increased tremendously since 1994. In contrast to a few years ago these institutions are now staffed by many competent leaders, technician and specialists, many of them from the Petén, who have progressed professionally.

The Groups' Organization and Capacity To Produce. Only 4 of the 22 operations have carried out 4 harvests of wood. Eight others, including the two industrial concessions, have only carried out one. In this short time many of the members of the communities have made great progress in their capacity to manage the forest, especially with respect to forest management and logging practices, aspects in which some of the groups are close to being able to work independently without major outside assistance.

Beginnings of the Confederation Between Communities that Manage Their Forest. The community concessions and the cooperatives are seeing the need to unite to sell and to defend their interests. Even with all its limitations of inadequate representation, the Asociación de Comunidades Forestales de Petén (ACOFOP) is a step in this direction for the concessionaires. The situation seems ripe to achieve collaboration between concessions, similar to the Sociedad de Cooperativas Agroforestales (SCAF) of the cooperatives near the Rio Usumacinta, founded in 1998 for marketing purposes.

The Financial Environment. The biophysical environment of the MBR has received much attention. The financial environment much less. Yet a decline in the financial conditions and processes related to use of the forest is likely to cause a drastic degradation of the biophysical environment as well.

Factors Affecting the Financial Viability of the Forest Concessions and Cooperatives in the MBR.. There are many factors that vary tremendously between the 14 concessions and 5 cooperatives and 3 parcelamientos, which influence the financial viability of any forest management operation. These, among others, include: the size of the concession or cooperative forest, the quality of the forestry resource and more specifically the volumes of valuable species available for harvest, markets for lesser-known species and lower lumber grades, the harvest of non-timber forest products, the organizational capacity and efficiency of the managing entity, and the costs imposed by taxes and other bureaucratic requirements. General statements about the financial viability of the concessions should be taken in light of this variety of factors. Below is a summary of these variables:

Extent of the Forest. The size of individual forest concessions range from the smallest, that of San Miguel with 7,039 ha to the largest, that of Uaxactún with 83,558 ha. The cooperatives are smaller however, with an average forest size of only 2,678 ha. The areas allowed to be harvested annually range from 80 to 1,500 ha.

Forest Quality and Abundance of Valuable Species. The quality of the forest is largely judged by the abundance of valuable species since for most concessions and cooperatives, mahogany and cedro are the primary species harvested. Volumes of these most valuable species range from less than 0.4 m3 to nearly 2 m3 per ha. In the poorest forests, according to the approved forest management plans, up to 75 percent of the commercial trees are left standing while in the better forest, management plans allow for the harvest of up to 90 percent of the commercially valuable trees.

Markets for Lesser-known Species and Lower Lumber Grades. The international marketing of lesser-known species is incipient, at best. Reported export prices are 30-70 percent of the prices paid for cedro and even less if compared with mahogany. Prices paid for logs or standing trees for species other than cedro and mahogany are extremely low, ranging from Q0.50 to Q0.75 per bdft-Doyle compared to Q4-5 for the more valuable species.

Markets for lower grades of lumber of mahogany and cedro appear good. For example, in efforts to increase recovery in the Cooperative Unión Maya Itzá, they were able to sell branches and

other blocks of wood in the forest at Q1 bdft-Doyle. Many of the lower grades and shorts of mahogany lumber sell for Q3 to Q6 per bdft in the national market.

Organizational Capacity. The organizations, and their members, involved in the management of forest lands in the MBR are tremendously diverse, ranging from community groups, of various sizes, backgrounds and types, to large industrial holders. They can be grouped as follows:

- Communities with long-term ties to the forest (4)
- Communities with stronger agricultural backgrounds (7)
- Cooperatives and parcelamientos (6+2=8)
- Industrial concessionaires (2)

All but the latter group of industrial holders have minimal capital investments in the forestry sector compared to the raw material source they manage. Although this is changing as the Suchitecos and Los Laborantes have invested in modest milling capacity this year. Industry, although better capitalized, is not making sufficient capital investment to process and market secondary species. The community groups are composed of numerous members (29 -372 members) and in some cases, the members are from up to nine communities. Their experience working in the management of forests for wood products collectively ranges from 1-6 years, although members of the Suchitecos, San Andrés and Los Laborantes and individuals in other groups have worked in the logging sector for many years. While it was impossible to discern community organizational capacity for each area, sufficient was learned to cite the lack of capacity as a major obstacle. On the other hand, the industrial concessionaires were selected based partly on their managerial, technical and economic capabilities and their experience in the forestry sector in the Petén.

Taxes and Bureaucratic Costs. The forest tax paid by cooperatives, as private property owners, is that established by INAB, which is 10 percent of so called “official prices” (Q680/ m3 for mahogany and cedro and Q86 for the less valuable species). Community concessions pay the tax at the same INAB rate plus an agreed upon fee per hectare ranging from Q5 -10 over the entire area of their concession on a pre-arranged schedule during the 25-year period of the concession. Industrial concessions pay tax at the INAB rate plus 50 percent of the “real prices” established by INAB for the valuable species and 25 percent of the “real price” established for less valuable species that they harvest. They do not pay an area-based fee. All of the above also pay Q15 per truck for a transport permit. For each export permit CONAP requires payment of Q75 for a “No-CITES” certificate. In addition the municipalities of San Andrés and Melchor charge a modest arbitrio municipal. (To charge this arbitrio the Superintendencia de Administración Tributaria (SAT) must first authorized the municipality to do so. The other municipalities have not requested this authorization). A small tax is also levied on all bills extended (impuesto de facturación). All of these taxes and fees, except the municipal taxes, the impuesto de facturación and the IVA, flow into CONAP’s Fondo Privativo. See Exhibit A-IV-2.

Exhibit A-IV-2. Fees and Taxes Paid by Forest Management

Type of fee or tax	Community Concession	Industrial Concession	Private owner, Cooperative
PAID INTO THE " FONDO PRIVATIVO" OF CONAP			
Fee for the award of the concession	Paid only once, with 3 years grace period and then in 10 installments. Q.10/ha	Does not apply	Does not apply
Forest fee applied to the wood extracted	Does not apply	Percentage of the official value that INAB assigns annually to wood: Mahogany & cedar = Q680x50%=Q340/m^3 Secondary species= Q86x25%=Q21.50/ m^3	Does not apply
Forest tax	10% of the official value that INAB assigns annually to wood	10% of the official value that INAB assigns annually to wood	10% of the official value that INAB assigns annually to wood
Tax on rate	Q.0.05/lb, paid by the exporter	Q.0.05/lb, paid by the exporter	Q.0.05/lb, paid by the exporter
Tax on allspice	Q.2.00/lb, paid by the exporter	Q.2.00/lb, paid by the exporter	Q.2.00/lb, paid by the exporter
Tax on chicle			
Transport permits	Q.15 each	Q.15 each	Q.15 each
No-CITES Docum.	Q.75/export shipment	Q.75/export shipment	Q.75/export shipment
PAID TO THE MUNICIPALITIES			
Municipal fee for transport outside municipality	10% of the official value that INAB assigns annually to wood	10% of the official value that INAB assigns annually to wood	10% of the official value that INAB assigns annually to wood
PAID TO THE NATIONAL TREASURY			
Tax on billing	% of the sum of all bills	% of the sum of all bills	% of the sum of all bills
IVA	10% of sales	10% of sales	10% of sales

Other bureaucratic requirements are similar between the different types of forest operators. All are required to comply with general forest management plans utilizing the same guidelines, annual operating plans, environmental assessments, permanent sample plots, reports and so on. All concessions are required to be FSC certified within three years. One major difference however is that to date, the community concessions and cooperatives have been largely subsidized in the completion of these requirements. These subsidies as well as the tax preference given to communities allows the communities to attract industrial buyers and capture fairly high rents ($176 m3 on mahogany and $21 m3 for secondary species using a conversion factor of 220 bdft Doyle/ m3 of standing timber).

The payment made to SmartWood for the initial FSC certification and yearly audits is negotiable and this cost is insignificant (Q0.032/bdft) compared to the other costs of producing lumber (Carrera 1997, Sage 1997). However, the cost of improving operations so as to meet and maintain the certification conditions can be substantial.

It is more economical for the companies with industrial concessions to harvest their own wood than source from outside. They would only purchase from communities if they have excess capacity or if the margin on processing a specific species, mahogany for example, is greater than that for some of the secondary species. Then they may substitute outside material for their own. Therefore it is also important to include companies that do not have concessions in future project plans. They are the most likely business associates for the community concessions.

Non-Timber Forest Products. NTFPs are extracted to one extent or another in all areas under forest management and their financial contribution is significant, especially for xate and allspice. Although optimistic claims are often made and projections are available, we were not able to locate reliable data on actual costs and revenues. Record keeping needs to be improved for these products. One reason for the paucity of data seems to be that individuals harvest these products whereas the groups harvest the wood.

Financial Viability of the Forest Concession and Cooperatives. To determine the financial viability of the existing concessions and cooperatives, as much cost, income and investment data was collected as possible. In general, for community forest there was an amazing amount of data available. This accomplishment is largely due to the NGOs involved in supporting the communities and the fact that the CONAP annual reports require financial data. Unfortunately, in many cases there was a communication gap between the accountants and foresters, resulting in the fact that much of the information was poorly organized or insufficient for the their ultimate purposes. CONAP is in the process of standardizing an accounting system for community use that should resolve many of these problems as long as extensive training accompanies its implementation

Also, many of the concessions began to operate in 1999 or 2000 on a pilot basis and so the most complete data reported was from only 3 of the 4 concessions operating pre-1998. While not all of the data was totally complete and certain assumptions were required, comparisons and crosschecks between data and report style allowed for a fairly good understanding of the cost and revenue flows. The analysis for the Suchitecos, San Miguel and La Pasadita are quite thorough and should serve as a model for other cases. Cost and price data from the industrial concessions were obtained through discussion with the owners and buyers of wood from the concessions, but no financial data was contained in their forest management plans or other available documentation. The following conclusions can be drawn:

- *Revenue/Expense Ratios* may be the most appropriate financial indicator in these early stages of the forest management process and they are extremely attractive in most cases. Those reported range from 1.26 to 8.36. There is good cost information for the different steps in the production chain. The information is in line with what one would expect. However only in the case of the Rio Chanchich (Suchitechos) and San Miguel do the data adequately include technical assistance and concession startup costs. Cost information on the actual startup of the concessions, forest management planning and technical assistance provided for free through the NGOs therefore is not as good as it should be. As a result of these up-front subsidies and the little capital equipment that is actually owned by the communities, fixed costs are extremely low.

Variable costs are also extremely low when standing timber is sold. Thus, the high revenue/expense ratios. As they move from selling standing trees to milled or finished product, overall revenues and costs will increase. The ratio can be expected to decrease in most cases. It would be, however, attractive for communities to accept a lower revenue/expense ratio if the overall net revenues increase or even if they remained the same, especially if the additional expenses occur within the community in the form of salaries and other benefits to the community members.

- *Net Present Values* have been calculated for two of the operations and are positive. On a per hectare basis, they are not substantial ranging from Q324,967 to Q1 million. For these exercises, the initial startup costs of management planning and concession establishment were factored into the equation as well as a cost for outside contracted technical assistance, despite that to date these costs have been completely subsidized (with few exceptions). The discount rates used in the analysis were 4.4 and 10 percent (Naturaleza para la Vida and CATIE). Given commercial interest rates in Guatemala of between 25-30 percent, these may be considered low. On the other hand, since CONAP requires that these areas be used for forest management by, NPV comparisons with other land uses are not necessarily appropriate or necessary. NPV values within the forest management areas could also be expected to increase if NTFPs were included in the analysis, which they are not, and the future utilization of secondary species contribute to the overall profitability of the forest management activities as suggested in the forest management plans.

Opportunities. If done correctly forest management in the MBR can build on the successes to date to create the following major impacts.

Conservation of more than 600,000 ha of Forest. There would be practically no more reduction in the area of forest in the Multiple Use Zone (800,000 ha) nor in the contiguous blocks of forest currently managed by the cooperatives and parcelamientos (14,000 ha). At least 348,000 ha of these forests would be producing timber and other forest products. These managed forests would act as true buffers around the adjoining parks.

Viable Forest Enterprises Improve the Income of the Communities, Cooperatives, and Industries that Operate Them. Community benefits not only include the generation of the net revenue stream, but also an important increase in the availability of paid employment for the communities. For the seven communities for which there are data for the 1999/2000 logging season, Q.1.83 million of net revenue was generated through forest management for wood products. An additional 10,455 days of non-skilled employment generated another Q.397,290 of income for the communities. Since several of the communities were in their first year of operation, not all of their area or the permitted volumes were harvested. Revenues and employment opportunities can expect to increase in future years as forest management activities increase, as long as the species mix remains constant or becomes more diverse. Each community has its own way of distributing the revenues varying from the division of all of the benefits between the members after reserving sufficient operating capital for the subsequent harvest, to those that have decided to use the entire amount for community based development projects. In the case of Unión de Maya Itzá, the community decided to use proceeds to establish a

community transportation project through the purchase of two buses and one medium-size truck. Carmelita built a bridge, San Miguel installed a potable water system and La Pasadita built a dispensary.

Employment generation has been a very important aspect of the economic gains of the communities. On average, forest management, felling and skidding generated 5 workdays per ha harvested for community members. The average wage, estimated from a sample of six communities, was Q38/day, a 50 percent increase over the average rate (Q25) paid for agricultural and other non-skilled labor in the communities. While for the 1999/2000 harvest season it is difficult to estimate the total employment generated through forest activities, based on concession operating plans, once all the areas are in production, over 60,000 days of rural employment will be generated. These will provide Q.2.3 million in revenues to the rural communities of Petén. Additional unskilled and skilled employment opportunities will be generated in the milling and value added processes but sufficient data do not exist to estimate these levels.

Contribution to Stability and Economic Development of the Northern Petén. By the end of this year the last of the 14 forest concessions in the MBR should be granted, reaching a total area under concession of 534,116 ha. Of this total area, 63 percent or 333,916 ha has been deemed as suitable for forest production and the remainder will be place under protection by the concessionaire at their own expense. The annual estimated harvest area based on Ortiz (2000) and current management plans should reach 10,202 ha (see Exhibit A-IV-1). The cooperatives and parcelamientos in the southwestern part of the MBR have another 14,420 ha of production forest under management with annual harvest areas exceeding 650 ha.

Ortiz estimates, based on the current management plans, that a total of 5.65 m3 of the leading 12 species can be harvested per hectare. Included in this volume is on average 1.07 m3 of mahogany. For the cooperatives the numbers drop slightly to 4.35 m3 for the 12 species including 0.88 m3 of mahogany. Extrapolating these figures over the entire annual harvest areas (Area de Aprovechamiento Annual), a total volume of 65,430 m3 including 52,961 m3 of secondary species and 12,469 m3 of mahogany can be expected to be harvested on annual basis. Approximately 25 percent of this volume will be derived from the industrial concessions and the remainder harvested on community forests.

Not only are these significant amounts of wood for the local economy, but because of sustainable forest management the wood is supplied as a steady flow upon which industry, markets and long-term alliances can be built, rather than the “boom and bust” of traditional forest mining.

Revenues to Public Agencies Available to Finance Conservation. The potential tax revenues from the volume and area based stumpage fees can be found in Exhibit A-IV-3. In addition to Q.2.7 million that should be generated by fees related to the extraction of wood products, there are a number of other revenues that will accrue to the state.[1] These will include taxes generated by the harvest of NTFPs, IVA, and income taxes. Reliable information on the amount of taxes

[1] The authors are aware of the small tax revenues that accrue to the municipalities included in the MBR even though they are expected to provide certain services to the communities located there. This issue is dealt with in the main evaluation report.

generated from the harvest of NTFPs was not available. Rough estimates of taxes from xate alone reach Q.350,000 - Q.450,000/yr and so these could be substantial if combined with other non-timber products.

Exhibit A-IV-3. Potential Annual Revenues to CONAP from Stumpage and Area Base Fees

Forest Ownership	Volume of Valuable Species m^3	Volume of Secondary Species m^3	Taxes on Valuable Species in Q	Taxes on Secondary Species in Q	Total Tax Revenues in Q
Community Concession	8,126	34,887	568,820	369,802	938,622
Industrial Concession	3,117	13,240	1,271,736	398,524	1,670,260
Cooperative	1,226	4,834	83,868	41,572	125,440
Totals	**12,469**	**52,961**	**1,924,244**	**809,898**	**2,734,322**

Notes:
1) Revenues calculated from
2) 2. Revenues include: Community concession—10% INAB tax over official prices plus Q10/ha fee to CONAP distributed over annual cutting area and volumes; Industrial Concessions — 10% INAB tax over official prices plus "*tarifa*" to CONAP based on contracts; Cooperatives — 10% INAB tax over official prices.
3) Calculations based on volumes per area as defined above.
4) No transport license fees, IVA or income taxes are included in these estimates.
5) No revenues from NTFPs are included.

Major Risks. Despite encouraging achievements, three serious risks can still compromise what has been accomplished thus far.

Financial Failure in Community Forest Management. Although all concessions and cooperatives have earned positive net incomes to date, this is in part because they have benefited from the forest areas that are richest in precious woods. Furthermore, they have received generous subsidies from external sources. The challenge is that as these two income sources decrease, other measures must be taken to compensate for the decrease and for the reduction in operation costs. The communities otherwise lose interest in the forest, which will lead to its destruction.

Social Disintegration of Concessionaire Groups. Production is new to concessionaires and presents numerous difficulties in organization, distribution of power and benefits, funds management, decision-making, and other social organization. Paradoxically, in some cases, assistance has served to raise concessions. If prolonged, this situation risks creating a dangerous dependency, as well as a paternalistic relationship that leaves no opportunity for group empowerment, growth, and maturity.

Excessive Interference from Bureaucracies. One of the reasons for creating the concessions system was that the State did not have the means to control the Multiple Use Zone. The tendency of the state bureaucracy and the donors was to control excessively, delaying appropriations, and making private initiatives difficult to carry out. The challenge is to arrive at a balance between the needed control over the national patrimony that has been concessioned, and the freedom that concessionaries require to successfully carry out their role as entrepreneurs. It is easy to stifle this initiative with controls, irrational requirements, and even corruption on the part of some officials.

E. The Future of Forest Management in the Concessions and Cooperatives of the MBR

This section analyzes the current constraints to progress and suggests possible solutions, some of which simply require that decisions be made but imply no additional funding.

E1. Management, Administration, and Internal Organization of the Communities

Constraints

Only two of the twelve community concessionaires have any experience in business or in producing jointly. Therefore it is not surprising that most suffer from numerous organizational, administrative and management problems. However, the necessity of working together on a common enterprise has also had beneficial effects of uniting the community and encouraging new organizational arrangements.

Participation and Transparency in Decision-making. Unfortunately it is common that decision-making, information, and power are concentrated among a few individuals, usually those on the board of directors. Many members of the group do not understand the business aspects and simply work for the wage. Usually those who make the decisions also manage the money and accountants tend to follow their orders. There is little delegation of authority. Some decisions that should be made by management are submitted to the general assembly, which often does not understand the issue. Although the groups have written rules to guide their operation, these are frequently not followed. Mistrust is common. Such a situation is fertile ground for corruption. Although it is extremely difficult to prove corruption, we heard enough anecdotes to conclude that corruption within the leadership of the communities is one of the major threats to stability of forest management by the concessions and the cooperatives.

Management and Business Skills. Many leaders of the concessionaires and the cooperatives might have good political abilities but they usually do not have the skills needed to operate an enterprise. Also they tend to be replaced periodically so that a new set of individuals start near the bottom of the learning curve. Almost none of the groups have created a position of a permanent manager. There are numerous examples of poor business decisions that have cost the groups dearly (purchase of expensive but inappropriate equipment, disadvantageous contracts, and questionable arrangements for sales). Accounting practices are inadequate for most groups. It is impossible to tell whether this is so because of lack of accounting skills or on purpose to facilitate corruption, but the effect is the same. The assistance that the NGOs have provided in this area has been insufficient. In many cases the Board of Directors who often resist any such controls has not accepted their advice.

E2. Recommended Solutions

Promote Systems and Procedures that Make Corruption Difficult. Just as CONAP has the responsibility of assuring monitoring of forest operations, it should encourage the monitoring and transparency of the administration of the concessions to prevent their collapse and the subsequent destruction of the forest. However, because from a legal viewpoint the concessions are considered as private enterprises and the contracts are already signed, CONAP and the

supporting NGOs are very restricted in what they can require with respect to internal organization and auditing. Any outside intervention might have to be limited to persuasion and education. (One possible means of circumventing this limitation might be strict compliance with FSC certification requirements, which include minimum standards for administration and a separation of responsibilities). CONAP should encourage the following of all community concessionaires and cooperatives:

- Submission to at least one external audit annually contracted with a reputable firm. CONAP has already contracted for the preparation of minimum accounting standards and practices and intends to use these for the audits to be contracted in 2001. This process should be encouraged and training should be provided to the groups in the use of the new practices.

- Publication of the conditions of all sales of forest products after they have been concluded, including contracts, volumes and prices. Summaries could be posted on a special bulletin board in CONAP with details available for public access.

- Within the internal bylaws, a general assembly should be required at the end of each harvest season to explain the financial status of the year's activities and discuss the utilization of the revenues.

Create and Train a Two-Tiered Organization Consisting of a Board of Directors and Management. The problem of community leaders elected on a rotating basis and who also run the business, can be alleviated by encouraging an organization that follows a universal business principle: Divide the functions of a board of directors and of managers among different individuals. Not only will this make corruption more difficult, but it will also increase the probability that the managers and other specialists will stay in their positions long enough to improve their skills. It should not be necessary that the top manager be a member of the community. If no one has the required qualifications an outsider could be contracted. This separation of responsibility needs to be formalized in the bylaws of each group. It will be an important step in professionalizing the community enterprise.

All members of the groups should receive enough training in the business aspects of the concessions so that they have a basic understanding of the issues. But the members of the board and management should participate in more intensive and very practical training related to their functions.

F. External Relationships

F1. Constraints

Lack of Coordination Between the Groups Managing Forests. There is insufficient coordination and exchange between the various groups managing forests in the Petén: the 10 community and 2 industrial concessions in the multiple use zone, the 5 cooperatives, 3 parcelamientos and the 3 municipalities in the southern Petén. Given common forest types and many common problems, all these groups could benefit greatly from closer alliances with their neighbors. One of the few effective steps in this direction appears to be in the cooperatives through their second tier

organization (SCAF). Competition and institutional jealousies between the support NGOs may aggravate this lack of coordination and to date, these groups appear to have done little to foster coordination between concessions, especially those assisted by other NGOs. ACOFOP's initiative in sharing experiences between some groups is another worthwhile effort. In general, ACOFOP seems to have considerable potential in other areas as well, but is currently hobbled by the arrangement whereby its members are individuals from the communities, not the legal representatives. The ACOFOP leadership hopes to change this situation before the general elections near the end of this year.

Weaning of the Communities from NGO and Foreign Technical Cooperation Has Been Slow. While the NGOs have done an excellent job on preparing the communities to manage their forest from the technical perspective, often the relationship NGO-concessionaire has almost developed to the point of being labeled paternalistic (the extreme being San Miguel). It is in the NGOs' interest for this relationship to be successful and long lasting, therefore strong pressure to transfer skills on business management and administration have been lacking in several cases. We question the NGOs' capabilities to provide some of this type of technical assistance, as they have not succeeded in adapting to the changing needs of technical assistance required by their clients. Granted that time has been short for making this transition, but the scarcity of staff with business, processing or marketing experience in the NGOs indicates that the transition is likely to be slow and painful. Failed business ventures with potpourri in Cruce a Dos Aguadas, corozo palm oil processing in the buffer zone, and a sawmill and carpentry shop in San Miguel do not inspire confidence.

In all fairness one must remember that the concessionaires are not obligated to take the advice of anyone. We have been told that the most popular NGOs are those that intervene the least in the business dealings. For example, NPV and the CATIE/CONAP Project had to use the threat of ending their support to the Suchitecos to pressure them to reinvest a large proportion of their earnings rather than to distribute them.

In other cases there appears to be an over dependence on the NGO on activities that the community itself should be capable of carrying out. This is the case of the preparation of the POAs and reports. Many of the communities appear capable of carrying forward these processes but yet some of the NGOs intercede, almost as if to retain their involvement and importance in the process. Likewise, there have been some complaints by communities, especially through ACOFOP, that the NGOs, while having access to all the financial resources, provide only minimal services and information that do not respond to the needs of the concessionaires. Although not all accusations made by ACOFOP in its "internet war" of late 1999 and in its proposed new model of assistance seem justified, some of the points merit serious consideration.

Difficult Relationship Between Communities and Buyers or Industry. At some point along the production chain, communities must deal with buyers of their product. Buyers may be industry located in Guatemala or foreign companies. To date this relationship has taken place in two basic modes:

- The sale of a product (standing trees, logs, flitches or boards) to a buyer, national or international. This often includes the community contracting for extraction and/or milling services.

- The entering into "medias" with a local company in which case the costs and benefits of the extraction are shared between the producer and buyer.

In both of these modes there have been cases of the industry paying part in advance so as to provide working capital to the communities (Uaxactún, Laborantes del Bosque). Given that most of these industry/community relationships are only one or two years old, their dynamic in general is surprisingly positive and essential to the future of both. The NGOs have been essential to establishing these relationships, which would probably not have occurred without them.

Certain areas of concern do exist, however, based on numerous anecdotal accounts that are difficult to adequately document. These areas include: the violation of written agreements between communities and buyers, by both sides; the gouging of costs on contracts that are based on "medias", an unfair distribution of stumpage fees under the "medias" system, and support NGOs possibly influencing selection of buyers and negotiating system based on too little or erroneous information. While it is hard to verify these types of accusations, to our knowledge none of these relationships are for longer periods than the current harvesting period and numerous flip-flops from one buyer to another have occurred, which indicates an overall immaturity of this process.

F2. Recommended Solutions

Let Communities Choose. While recognizing the importance of NGO participation in the consolidation of forest management activities in the forest concessions and cooperatives, CONAP with USAID support should limit their support to communities through the NGOs. Communities should receive a maximum of two years of free assistance. This will allow for the development of the forest management plan and two annual census and POAs. Starting in the third year, the forest, through the profits realized by the communities from the extraction activities, should pay for a gradually increasing share of any assistance they might need. At that time the communities should be given the right to choose from which NGO or private sector agent they wish to purchase services and of which type. Although in year three USAID through CONAP might still have to finance a major proportion of these costs, this proportion should decrease each year so that by year five outside subsidized support would be minimal. To improve their understanding of the choices available to them, interchanges of experiences by the communities should be held at least once a year, three months after harvest. CONAP should organize these events.

Improve Negotiation Skills and Contract Management Skills. Improved administration and management skills on part of the community groups should be part of the future focus of support. Special emphasis should be placed on preparing the community groups to interface with the private sector, including their technical assistance provider, buyers and business partners. These groups need to fully understand their cost structure, and contracting mechanisms that can protect their interests, while having a realistic understanding of what is feasible for the industry. If

increased understanding of the timber industry can be interjected within the system, better decisions can be made by the communities and more realistic contracts negotiated.

Encourage Longer-Term Contractual Relationships with Industry or Buyers. Longer-term relationships between the communities and industry and/or buyers are essential to promote investment in secondary processing, the development of new products and the transfer of technology. The best basis for these relationships are positive experiences (usually expressed as profits) and trust, something that is built up over time. For trade to develop there must be continuity of quality, price and volumes of lumber. At present, the experience is selling annual allowable cuts or smaller lots of wood. CONAP with USAID technical assistance should support development of mechanisms for longer relationships. The provision of information as recommended above is one of these mechanisms.

Multi-year harvest plans with detailed volume information may also prove useful to foster longer-term contracts. Their up-front cost could be shared between the communities and buyers if necessary. Buyers have commented that having better projection on volumes would be very attractive to them.

Another recommended mechanism is the establishment of a voluntary review and arbitration council. The council should be formed by CONAP, USAID provided technical assistance, and representatives from industry / buyers and communities. Participation of ACOFOP or other NGOs could also be included. The mandate of the council should include the development of model contracts protective of the interests of both communities and industry, provision of solicited oversight of contracts, arbitration in case of conflicts, contracting for audits to determine reasonable price levels in case of contracts going “medias”, review or establishment of annual price levels since they cannot be included in initial contracts, among other tasks.

G. Product and Market Development to Utilize Secondary Species

Constraints

Overdependence on Mahogany and Cedro and the Export of Green Lumber. At present, the abundance of mahogany and cedro determines the financial quality of the forests of the MBR. As one representative of La Pasadita put it, “Our forest has no ‘wood’ as we have less than 0.4 m3/ha of mahogany and cedro.” Overall production in a number of the community concessions has been based on over 80 percent of these most valuable species. This is in spite of the fact that the harvestable volume of these two species combined is often below 1 m3/ha. Of course triple the price of these two species over the going price for lesser-known species ($1.80-2.00 compared to $0.66) and buyers willing to advance operational cost to lock in the purchase of these species explains this phenomenon. The situation is worrisome as it may jeopardize the commercial sustainability of these species in the forest as it makes sound economical sense to concentrate production on species with such high margins (Howard et al. 1996). Ortiz (NPV 2000) has developed a short list of 12 leader species for the MBR and estimated their volumes based on the forest management plans. He found that over 80 percent of the volume available in the forest is from other species with high economic potential.

Antiquated Industry Not Prone to Invest Given Insecure Environment. By visiting the three largest forest industrial complexes in the Petén, one can quickly appreciate the limited production capacity of the industry, especially for value added products that may utilize secondary species. While sufficient primary milling capacity exists, the equipment is quite old and requires investments to improve recovery rates and reduce waste. Facilities and equipment for value added processing are extremely poor.

At the same time, given the lack of security in being able to lock in long-term raw material supply and the high commercial interest rates (25-30 percent), little new investment to upgrade the facilities is taking place. The exception to this is an additional dry kiln at PROFIGSA financed in part by a buyer.

Diverse Species Composition Challenges Industrial and Marketing Capacities. Species diversity in tropical forest is well known to be an obstacle to forest management. Forest management plans in the MBR having identified more than150 different species with less than 30 m3 of wood volume over 25cm/dbh. In the case of Carmelita for example, only 6 species registered over 2 m3/ha in any single forest type and the vast majority of the 143 species inventoried registered under 0.5 m3/ha. At the same time, the difference in wood properties and characteristics exacerbates the difficulty of processing a broad array of species. Specialized sawing equipment, drying facilities and species-specific kiln schedules, pesticide treatments and secondary processing strategies must be acquired or developed for the different variety of wood densities and types. Complete vertical integration from forest management to end product marketing is unlikely to be widely successful in the MBR given the limited industrial and entrepreneurial capacities that exist.

In the case of many of the smaller concessions and cooperatives, additional constraints are placed on diversification by the extremely small size of the forest under management and the limited annual harvest areas. In the case of San Miguel for example, with only 80 ha/year to be harvested, many species may only be represented by 1-3 trees each harvest. There is little hope that these trees will be of high interest to buyers and with luck can only be sold at a minimal price. One attempt to tackle this problem is the creation of the Sociedad de Cooperativas Agroforestales (SCAF), which markets logs from a number of cooperatives to increase volumes of each species and prices.

H. Non-Timber Forest Products (NTFPs), Another Opportunity and Challenge

Strategic Business Relationships. Communities should not aspire, given their low level of management capacity and access to capital, or be encouraged to be producers of finished products, although in exceptional cases they may become sellers of rough sawn mahogany and cedro. Most portable (Woodmizers) or other sawmills accessible to community groups are not appropriate for the high valued mahogany and logs, although they are ideal for processing residual woods or some of the lower value logs. Higher quality raw material is best sold to industry with the appropriate technology to achieve high recovery rates and product qualities. Imperfections in the milling process of 1/16” along the length of a 16-ft board can cost 25-50 percent losses in recovery and result in even greater negative impacts on the final margin. Preferably longer-term sourcing contracts should be underwritten so that industry would have more incentives for investing in localized, when feasible, or centralized processing facilities.

In turn, industry cannot be complacent with the marketing of mahogany and cedro. They should develop longer-term business plans that identify diversified products and markets that incorporate increased volumes of secondary species into their product mix. They can do this by utilizing the high margins they receive on mahogany and to finance the required investments. Industry should likewise benefit from the fact that they can offer relatively high volumes of mahogany and cedro to attract international investors and buyers to form joint ventures.

Diversify Production to Match Managerial Capacity. Industry must lock in sufficient supplies of raw materials of several species that they can profitably utilize. This may take the form of assisting the development of local associations of concessionaires or forming strategic business relationships with several concessions that have similar forest types and species mixes. Vertical integration should not be encouraged but rather an increasing number of specialized secondary processors should be encouraged to use an increasing number of species suited for different processing facilities, end products and markets. Management capacity of both industry and communities is key to value added processing and product and market diversification. Otherwise, the returns to the raw material will be consumed by inefficiencies. While mahogany and cedro can absorb these inefficiencies, the secondary species cannot.

Use Certification As a Tool to Open New Markets. Unfortunately to date, attention has been placed on certifying forest management activities rather than utilizing certification as the market incentive tool that it was designed to be. As this time, only the wood sold to PROFIGSA and the Suchitecos can be exported as certified without outsourcing contracts from Smartwood. Industry should be encouraged and assisted in their efforts to take advantage of the opportunities created by having large community and soon-to-be industrial concessions certified to access new markets and attract buyers and investors. Price premiums for certified mahogany and cannot be expected but market access at higher prices than currently paid for secondary species is possible.

Non-Timber Forest Products Standards and Monitoring. CONAP should be encouraged to develop technical management standards for xate and allspice, including norms to avoid harvest of poor quality xate leaves that are likely to be rejected by exporters. CONAP should then contract dissemination of these norms and training for communities and the NGOs that support them. Monitoring and evaluation of the implementation of the norms should be integrated with CONAP's current monitoring of logging to keep costs low. This may require and institutional reorganization of CONAP placing NTFPs under the Forest Management unit rather than where it currently reports to, Wildlife and Flora.

I. Financial Viability of Forest Management

I1. Constraints

Subsidies for Technical Assistance to Communities. Until now, all of the technical assistance for community concession and cooperatives has been provided free of charge by CONAP and participating NGOs (mostly paid for by USAID). This assistance has been crucial to jump-start the process of instilling sustainable forest management in the MBR. It also has served to maintain costs relatively low for most community forestry activities and has allowed the communities to benefit from large initial but perhaps not realistic incomes during the first years

of their forest management activities. This has served as an effective strategy to spur initial interest. Increased efficiencies and the introduction of additional species to the market may maintain these strong early income streams. However, it may have also served to develop an unsustainable dependency of the communities on the subsidy and a specific NGO.

At the same time, the NGOs may continue their dependency on USAID/CONAP support unless an explicit calendar of decreasing USAID support to them is developed. In the case of some NGOs, they are also generating income by selling service to industry (NPV was contracted to prepare PROFIGSA's management plan). This may be a viable example to follow in the case of community forest as well.

Investment Capital for Both Communities and Industry Is a Constraint to Value Added Processing. While heavy front-end subsidies have served to capitalize a few community concessions, the high cost of credit within the local financial system will yield most investment opportunities financially infeasible for both industry and communities. Without further investment in capital equipment and specialized technical assistance, value added processing and the introduction of additional species to the market is unlikely to happen. While BANRURAL has loaned relatively low amounts of money to two communities at lower than market rates this is not likely to be an option for all communities and industry. Investment levels vary drastically by forest size, product lines and so on. Estimates to capitalize the average community concession with a portable sawmill for processing lower quality logs, extraction and transport equipment can run nearly $100,000. For industry to acquire the necessary molders, stellite tip saws, dry kilns and other equipment to improve their recovery rates and to process secondary species into linear products such as moldings, flooring strips and decking would require at least $300,000/company.

Mahogany and Cedro Pay for Forest Management. Current forestry operations are only financially attractive due to the presence of mahogany and cedro in the forest. Several of the smaller cooperative forests, as well as San Miguel and La Pasadita hold very low volumes of these species. The forest management plans generally establish only one annual harvest area per year and few of the plans vary the size of the harvest area based on the stratification of the different forest types. Annual harvest areas are also distributed according to two criteria: abundance of these valuable species and cost of extraction (the more accessible are cut first). This creates much of the same scenario as the subsidized technical assistance, initial income streams are far more attractive than those expected in the future, unless there are major increases in the number of species utilized and in the margins they produce. The margin per board foot on mahogany compared to all lesser-known species other than manchiche, is approximately $0.80 versus $0.05 according to cost and price data gathered. At such low margins for lesser-known species, high volumes would have to be harvested just to cover the fixed costs even though these are low due to the front-end subsidies. Centro Maya and the community of La Colorada incurred costs of $26.25/ha to prepare the POA and commercial census for 2001. At current values paid for lesser-known species, 1.4 m3 would be required to cover this cost. Production schemes with abundant mahogany on the other hand quickly cover fixed costs and produces high returns.

Fortunately, with value added processing many of the secondary species can return yields similar to those of mahogany. PROFIGSA for example, sells flooring strips: dried, planed and molded of a few "non-valuable" species for nearly $3/bdft yielding a margin similar to that of mahogany.

(Personal conversation between John Nittler and Israel Girón, Manager of PROFIGSA). The fact that margins for lesser know species are currently very low should not be seen as the fatal blow to forestry but rather the challenge for development.

I2. Recommended Solutions

Technical Assistance Should Be Paid by the Forest Through the Community. While recognizing the importance of the NGO participation and donor support towards the consolidation of the forest management activities in the forest concessions and cooperatives, these costs have not been adequately addressed in the monitoring and evaluation of the project. Therefore, all subsidized technical assistance costs should be controlled in the future. This will allow the project to determine the returns on this investment by the donor and the benefits derived by the communities. It will also allow for comparative analysis of the technical assistance providers (NGOs) to determine the effectiveness of their different approaches to development and technical assistance delivery.

Technical assistance subsidized by USAID should ascend to the next level of product and market development, entrepreneurial training for communities and industry alike, and should be provided by institutions capable of doing so.

Attract Outside Capital, Technologies and Expertise. In the era of venture capitalist and environmental awareness, a number of green funds and investors have surfaced to capture profits while protecting the environment. The concessions working in the MBR should use their intrinsic advantages of being certified, largely community owned, and having interesting volumes of valuable species that produce positive financial returns to attract outside investors. Investors should be sought that can provide additional capital, technology and expertise. Existing forest product companies with market access in addition to know-how can make ideal investors. USAID should provide technical assistance to facilitate these linkages. This will include providing training and assistance to local companies and communities for them to become eligible for attracting outside investments (transparent accounting systems and financial books, increased managerial capacity, secure raw material supplies, improved operational procedures, business plan development, etc.), facilitating contacts with funds and investors, and providing oversight to the contract development process, especially in the area of community concessions.

Stability in the current concessions and policies is vital for this to happen. Discussions about expanding the El Mirador Park or that CONAP limits annual harvest areas because they are concerned about the environmental movement criticizing large harvest areas revive a climate of uncertainty just as stability is being achieved. The development of markets and production capacity to introduce new species and product in the markets can easily take 2-3 years and produce returns on investments after another 5-8 years. If the concession framework is not seen to be viable for the next 10 years without major changes in policies, investors will not even consider Guatemala. CONAP is key to making this happen.

Capitalize Operations through Mahogany and Cedro. Current stocks of mahogany and cedro should continue to be used to capitalize the industry and guarantee forest management as a long-term economically attractive activity. The interest of Jeffrey Hunt of Plywood and Lumber Sales, Inc. to invest in Guatemala locking in future supplies of various species is one example. His

willingness to invest in kiln drying capacity at PROFIGSA is an indication of his interest in non-traditional species, even if he makes these investments against the guarantee of mahogany sales. There is very little emphasis on the long-term vision and economic viability of the industry. Given current mahogany volumes most economic data looks extremely promising. However given the doubts about the regeneration of mahogany and other valuable shade intolerant species, there should be major concerns about the sustainability of the current forestry model and its financial viability.

The current volumes of mahogany should be seen as a tremendous opportunity to provide the economic basis for forest management to work and it should not be foregone. In Bolivia for example, mahogany is all but commercially extinct in most of the areas that once held volumes equal or greater to those found in the MBR. While it provided the road infrastructure for future forest management activities (and spontaneous colonization), its exploitation did not capitalize nor prepare industry for the post-mahogany era in which they now struggle. Unfortunately, much of the capital generated through the exploitation of mahogany in Bolivia went to investments in livestock and agriculture to the detriment of the forest.

This concept of planning for reduced mahogany volumes in the future could take on the form of concrete business planning for utilization of these early high revenues streams to be reinvested in value added processing. On some areas the increased and more efficient utilization of non-timber forest products (either directly by the community or through contract with outsiders as done by Carmelita and Uaxactún) and other activities may offset lower incomes from mahogany in the future.

Policy should encourage reinvestment in the forestry sector and discourage investments in sectors detrimental to the forest. USAID should assist this process through the previously discussed assistance to product and market development, and increase managerial capacity, as well as encouraging policy changes. (One of the most powerful effects of policy would be to avoid the instability for investors created by frequent changes of laws and regulations affecting forestry, for example through the threat of an expanded Mirador Park).

J. Technical Sustainability of Forest Management

J1. Constraints

Permanent Plots. Within the forest management plans, there are numerous assumptions that must be verified by data collected over the upcoming years. A system of permanent plots has been prescribed in the management plans and, to an unascertained level, been established to assure that growth and yield, regeneration, and other silvicultural data are collected. It is crucial that these plots be correctly established, monitored and interpreted to adjust prescriptions based on reliable data. At present CATIE Costa Rica is responsible for pooling and analyzing the plot data. The CATIE/CONAP Project has produced standards for establishing and measuring plots (Pinelo 2000). What are lacking are guidelines for choosing location of plots, treatments and numbers to be established by forest type. It cannot be expected that the concessionaires, cooperatives or NGOs finance this type of applied research and it needs to be subsidized, at least in the short to mid-term.

Annual Operational Plans and Harvest Reports. Although after a couple of years of assistance, communities have made surprising progress in the development of forest management plans and the annual planning process, this process still needs to be made more efficient. Some POAs are prepared, presented and approved at the last minute, thus undermining their primary purpose. If used correctly, the POA allows for planning of resource allocation, harvest layout, and production and marketing strategies. CONAP has stated that this year they will require that the POA be submitted by October 15 to offset some of these problems. It may be in the interest of the groups to even do the POA for the subsequent year during the dry season while logging is going on.

There appears a need to step back and analyze the planning and operating requirements for forest management. Without entering into detail, there appears to be excessive duplication and unnecessary work involved within the established requirements. For example, separating out Environmental Impact Assessments from forest management plans seems an unnecessary division when the additional EIA requirements could be incorporated into the forest management plan. Likewise the POAs and post-harvest reports repeat much of the information in the forest management plans. Instead of simple tables that can easily be aggregated and brief narratives, these documents tend to be vague, wordy and non-uniform making comparisons difficult. Reports on production of non-timber products are particularly confusing. Nevertheless, tremendous gains in forest management planning have been made and credit should be given to CONAP and the support NGOs. There are however numerous areas in the plans that are less than adequate, especially those dealing with the financial aspects, marketing, processing, wildlife and NTFPs. Perhaps if the peripheral requirements mentioned above that do not contribute to the gist of the plan were reduced, the plans in general would become more practical.

Efficiencies, Recovery Rates, Residues and Secondary Species. While it is hard to generalize on efficiencies and recovery rates, our general impression after visiting several mills and logging operations is that operations are inefficient and recovery rates are quite low. Efforts to utilize and extract branches and other chunks of wood left in the forest are positive. It was claimed that 30 percent more wood had been recovered through this initiative. Unfortunately however, recovery should be a primary focus and not an after the fact strategy to recuperate lost raw material. Improved bucking, taking into account end product lengths and characteristics and defect within the log, are needed to improve recovery rates, both in terms of the raw material and also in financial returns. Similar fairly easy but important operation improvement practices are also needed in the milling processes for the mills to be more efficient. The inefficiencies in the current operations can be covered by the high value and margins associated with mahogany. To produce and market secondary species profitably, these inefficiencies will have to be eliminated from the system.

J2. Recommended Solutions

Analysis and Utilization of Data from Permanent Plots. The CATIE/CONAP Project should be assigned the task of preparing guidelines for choosing location of plots, treatments and numbers to be established by forest type. That project should also be put in charge of implementing these guidelines and controlling quality. All analyses and interpretation of the data must be shared with the institutions that have produced the plot data and credit must be given accordingly. These data are ideal subjects for a master’s thesis by Petén students at CATIE.

The Required Planning and Reporting Processes Should Be Revisited. A commission to revisit the planning process should be convened with participation of the concessionaires, NGOs, and CONAP. It should analyze several management plans, EIAs, POAs, and annual reports and try to determine which information is indispensable and what amounts to bureaucracy and administrative requirements that can be reduced in scope or eliminated. The commission should balance CONAP's needs with the limited capacity of many of the community concessionaires. Simplifying the process by developing forms that communities can complete for the annual reports, for example, while not sacrificing the underlying integrity will assist the communities in becoming less dependent on outside technical assistance.

Efficiencies. USAID should provide training, not necessarily free of charge, to industry and community groups on how to inject efficiencies into their operations to increase recovery rates and foster the utilization of secondary species. The training should begin in the forest addressing felling and bucking problems, stacking and storage of logs and sawn lumber, and end in the mill by focusing on quality control, plant layout and machinery maintenance and operation. This will be extremely important for the communities that are acquiring their own mills since this is a new endeavor for them.

K. Information Management

K1. Constraints

Lots of Documents, But Access Is Difficult. A surprising amount of written information has been produced but because it is dispersed between numerous institutions it is complicated and time consuming to find. One of the results is repetition in slightly different formats. A previous initiative to create a documentation center in CONAP failed as documents gradually disappeared.

Inadequate Interchange of Experiences Between NGOs. The participation of all actors financed by USAID in one joint annual work plan has done much to improve communication. However, institutional and personal jealousies still cause resistance to sharing information between the NGOs, especially negative experiences. Communication between the NGOs and industry is even worse.

Inadequate Communication with Decision-makers and Individuals with Influence. The successes of forest management in the MUZ are astounding. Yet the outside world knows little about it even though the process has been well documented.

Too Many Studies, Too Little Application.. Bookshelves are full of expensive studies, reports, strategies, plans, guidelines, proposals, statistics and other documents, many of which have never been applied and/or are irrelevant. A costly culture of generating documents with unclear application keeps many technicians and consultants busy in the NGOs, CONAP and USAID. But some other information needed to make informed decisions is scarce (processing, marketing, finances).

K2. Recommended Solutions

Create a Documentation Service. Create a documentation service in CONAP with supervised access, possibly as part of the Centro de Monitoreo y Evaluación (CEMEC). Require all actors who produce documents and maps relevant to the protected areas of the Petén to deposit two paper copies and one electronic copy in this center. One set of copies is to be forwarded to CONAP's documentation center in Guatemala City. The electronic catalog of this center (in MICRO-ISIS) in the Petén should be linked to the documentation centers in CONAP-Central, INAB-MAGA and USAC-CEDIA, thereby providing easy access to tens of thousands of references. Emphasis should be on obtaining electronic copies whenever possible and storing these on hard drives as well as on writeable CDs. Selected documents should also be made available on a Web page established by CONAP to disseminate results of their activities.

Stop Financing Studies That Have No Clear Application. During the process of making the annual work plans, USAID needs to be more critical in financing consultancies and the preparation of documents. Only finance those that have a very convincing practical application.

L. Administration by CONAP of Forest Management in the Concessions and Cooperatives

L1. Constraints

No Practical Sanctions for Minor Infractions. The regulations and contracts that govern the concessions and forest management by the cooperatives have no provision for minor infractions. The only sanctions are the suspension or cancellation of operations, which are detrimental to both parties and are only appropriate for major infractions. Nor are these sanctions credible because of the political consequences of canceling a contract with a community or cooperative.

The Urge to Control. Remember that the original impetus for creating the system of concessions was the incapacity of the government to control the MUZ. Now that the concessions and cooperatives are showing success, CONAP and other organizations are harassing and stifling operations with increasing inspections, reporting requirements and controls, all of which increase costs and many of which are unnecessary. The triplication of monitoring is only one example. We discovered that the UMI Cooperative had been subjected to nine inspection missions during the first eight months of this year (3 by CONAP, 4 by USAID including Chemonics, 1 by SmartWood, 1 by INAB/PINFOR) – all this for a harvest area smaller than 200 ha. Increasingly complex and prohibitively expensive monitoring is being proposed for the MBR (Imbach et al 1999, CONAP 2000).

L2. Recommended Solutions

Amend the Regulations for the Concessions and the Contracts with Specific Sanctions for Minor Infractions. CONAP Region 8 should prepare a list of infractions and the corresponding sanctions, including fines, and submit to the CONAP Board for approval as an amendment to the regulations for the concessions (normativas).

Streamline Monitoring. Agreement needs to be reached between CONAP, USAID and SmartWood so as to combine their efforts at monitoring and reduce the currently prohibitively expensive inspections to the minimum needed to measure compliance. We suggest that all monitoring be delegated to SmartWood or another outside FSC-approved entity.

ANNEX A-V ASSESSMENT FINDINGS

Proposal for Strengthening Forest Management

Proposal for Strengthening Forest Management

USAID/Guatemala has contracted with Chemonics International to evaluate its assistance to the Maya Biosphere Reserve (MBR). The evaluation of forest management in the MBR is covered in the document "Strengthening Forest Management in the Maya Biosphere Reserve. " The present proposal builds on that evaluation and should be read in conjunction with that document.

A. Biodiversity and Group Diversity

The environment and forest under concession and in the hands of the cooperatives are extremely diverse. Forest management plans often list more than 150 timber species of which the majority are still unknown to the industry and market. Unfortunately almost all also occur at extremely low volumes, not justifying substantial investments in the development of their products and markets. There are, however, more than 20 species with sufficient volumes and wood quality to be of interest to the industry. For their introduction in the market to be successful, processing that adds value will be required. Certification facilitates the introduction of new species and attracts investment because an increasing number of buyers require that the wood products come from certified sources.

There is also tremendous diversity between the size and characteristics of the forest among the different management units. Concession size ranges from 7,000-83,000 ha. The area of the cooperatives are in general much smaller than the community and industrial type of concession with an average size of only 2,900 ha (with an average of 1,800 ha of production forest). The forest quality also varies tremendously, with some areas having less than 0.4 m^3/ha of valuable species while others have over 2 m^3/ha. With annual harvest areas ranging from 80-1120 ha, one can imagine the range of production levels and product mixes that need to be developed for these community and industrial concessions to be successful.

The groups managing the forest are as diverse as the forest itself. There are two industrial concessions, 12 community concessions, 6 cooperatives and 3 communities managing their private parcels jointly. Each group has different levels of experience and socioeconomic and cultural ties with the forest. For example, three of the communities (Suchitecos, Los Laborantes and San Andrés) have long worked in the timber extraction industry in one way or another before obtaining their concession, therefore have a greater inclination for this type of work. Some communities are from agricultural backgrounds, while others have made their living for many years primarily by gathering non-timber forest products (xate, chicle, allspice). Some communities have had their concessions for up to six years while four communities (El Esfuerzo, La Unión, San Andrés Two, Arbol Verde) hope to initiate extraction activities in the 2001 season. These differences between groups must be taken into account when designing future assistance because each concessionaire will be starting from a different point and will need special attention and follow-up. "No single approach will fit all!"

Objective of the Proposed Assistance. The aim is to achieve organizational and financial self-sufficiency by 2004 of all community groups that will have gone through five harvest seasons by

that time. (Self-sufficiency in this context means that the groups would be able to pay for any further assistance they might need.)

Status Expected at the End of the Proposed Assistance. During the life of the project the capacity of the groups in several subject areas will have increased to the level required to reach this objective. Those community groups (including concessions and cooperatives) that already have several years of experience in managing their forests have progressed along most of these subject areas to some extent. For example, most of these groups have already graduated beyond any need for subsidized help with planning and carrying out forest operations, and some already have enough revenues to be able to pay for most of this kind of assistance (Suchitecos, Carmelita). It is expected that during the three years of this project all will be generating sufficient revenues so that they will be able to purchase any further assistance they might require in the first two areas listed (organization development and forest management). NGOs and private enterprises will retool to respond to this community-based demand. The processing and marketing of secondary wood species, as well as the negotiation of contracts with buyers and industry will probably require additional subsidized assistance beyond the life of this proposal, but it is impossible to predict how much more at this stage.

At the end of this project the number of secondary species being utilized and marketed in significant quantities will increase from the current two[1] to ten species. The processing facilities needed to introduce these species to the market by turning them into products with added value will be in operation locally and will be appropriate for these woods (for example sawmills, veneer, plywood, flooring, pallets, furniture).

Type of Assistance Needed. The assistance required during this next phase will include training, specialized technical assistance and funding to support the four areas described below. The type of training and technical assistance required by the concessions and cooperatives is detailed in Table 1. Because assistance in the area of forest management has already been provided for a number of years to several of the concessionaires, the table shows that the support in this area will be the first to phased out. In contrast, the support to develop the communities' business capacities, product development and marketing requires substantially increased effort over that provided at this time. One of the first tasks of the project will be to set precise, detailed, measurable results to be achieved by each community or group of communities during the duration of the assistance. These results will vary because of the different states of advance and potential of the communities.

Obviously the communities will require other types of services such as health, education, water supply, and agricultural extension. Although it is recognized that the communities must develop in an integrated fashion, these types of services should be provided through the same channels used for assistance to any other communities in the country, but not through this or other special donor projects focussed only on these communities.

Although the emphasis of this proposal is oriented at removing the obstacles to producing wood from the forest, this does not imply that other areas, such as non-timber forest products, are not important. The production of the latter will be promoted by most of the organizational and

[1] Santa Maria and Manchiche

administrative systems supported through this project. But also it is felt that many of the obstacles to improvements in the production of NTFPs are not of the type that require outside technical assistance for their solution. Below is a summary description of the assistance to be provided by the project:

Forest Management Planning and Implementation. Preparation of harvest plans; extraction; selection, use and maintenance of appropriate equipment; directional felling; bucking for quality; skidding to minimize damage to future crop trees; recovery; better utilization of short logs and large branches.

Community Organization for Business Management. Management skills, conflict resolution, accounting, basic financial analysis, marketing, production scheduling, quality control, product diversification, negotiation skills, contract management, human resource management.

Primary and Secondary Processing. Matching equipment needs with raw material supplies, development of drying schedules, adoption of stellite-tip sawing capacity, mill maintenance, quality control, lumber grading, matching processing with market demands, recovery.

Market Development for Lesser-known Species. Market development involves identification of marketable products that match local production capacity, identification of likely multi-year markets for valued added products and sources of capital for required investments to improve local capacity, assisting communities and industry in meeting market conditions related to price, quality, and delivery times. Other options are participation in trade fairs and preparation of marketing materials for species from the Petén.

B. Expected Results

Community Organization for Business Management. Community members will participate in decisions on major issues affecting the management of their enterprise based on an understanding of the related managerial, financial and social consequences. These decisions include investments and where along the production chain to sell their product.

All communities will be operating their forest enterprises using systems that assure transparency and protect against corruption. They will have accounting systems that meet common standards, including periodic external audits.

Each will have sufficient income from their forest to pay for the technical and organizational assistance required to sustainably manage their forest.

Communities will have increased capacity to negotiate and manage contracts with industry/buyers and at least four communities will have multi-year contracts established.

Support organizations, (NGOs, SCAF, ACOFOP), as well as CONAP, will improve their service delivery mechanisms, exchange information and experiences, and coordinate in productive fashion.

Forest Management Planning and Implementation. EIAs will be integrated closely with forest management planning and the primary monitoring mechanism for forestry operations will be FSC certification. Programmatic monitoring and evaluation will be efficiently carried out by CONAP and other organizations as necessary.

Ninety percent of the community and industrial concessions covering more than 400,000 ha will obtain and retain their certification status

A center will provide documentation services and information exchange and receiving copies of all new documents.

Permanent plots will be established according to a coordinated, efficient scheme; their analysis will be up to date and the results will be used to refine forest management prescriptions and important environmental variables.

Primary and Secondary Processing. The export value of secondary species and value -added products derived from them will increase 20 percent per year.

Market Development for Lesser-known Species and NTFP. At least two groups of communities will associate to sell wood jointly and obtain strategic advantages in the market as a result. Management and marketing for sustainable harvest of non-timber forest products will be integrated within the community concession management and xate and allspice will be managed according to standards established by CONAP.

Institutional Arrangements. In view of the existing complex institutional environment of the Maya Biosphere Project, it is tempting to go to the other extreme of over-simplification. The institutional arrangements for this new endeavor need to be carefully analyzed with the actors who are likely to be involved. Because the current set of organizations working in MBR does not house the skills required to provide the majority of the technical assistance and training proposed here, a new institution will probably be required. Three options that might serve as a basis for making a decision are presented below:

Whatever option is selected, the institution dealing with forest management should not be the same one involved in park management and pure protection activities. There are major differences between the two mandates that require distinct institutional profiles. Not only do the two mandates cover completely different geographic areas but also the skills and mentality needed to operate financially successful forest production operations are very different from those needed to protect and develop the parks. Another difference is that while the parks can never be expected to be financially self-sufficient, although they might not always require foreign assistance, most community forest enterprises should soon be able to make a profit so that outside assistance can be scheduled to terminate after a maximum of five years.

Option 1: The current three NGOs keep their present direct links with USAID. Plus one new institution is contracted by USAID to cover the new subject areas.

Under this arrangement Asociación Centro Maya, NPV, and ProPetén would continue their current relationship with USAID and continue to provide some of the services, especially in forest management, which they have been offering, although the need to subsidize these services will gradually diminish. A new institution would be contracted directly by USAID to cover the new areas of business management, processing and marketing.

Advantages: Apparently many of the difficulties of the USAID/NGO relationship during the early years have been alleviated. Much time and effort has been expended to arrive at the current arrangements. “If it isn’t broken, don’t fix it.” The inevitable delay of starting new arrangements could be avoided.

Issues: USAID would continue to deal directly with numerous actors.

Option 2: One umbrella institution, which subcontracts others, is contracted to develop this component of the MBR Project for the next three years. That umbrella institution will implement the assistance to the new subject areas (business management, processing, marketing).

The institutional contractor should have experience in project management, and preferably also in strengthening business management and forest processing skills at the community and industrial levels. When appropriate, this institution will sub-contract with NGOs, associations, private enterprise or other appropriate mechanisms to produce the desired results.

Given the turf battles between the NGOs currently providing forestry technical assistance, they should not be considered as the overall providers for this future assistance not to continue the current politicized situation. However, they could be contracted by this umbrella institution to provide whatever assistance is needed that they might be qualified to supply.

Possibly CATIE could be chosen as the contractor, however, in that case their present office would need to be radically restructured, to give the future direction the required importance and assure that it is not lost in CATIE's current mandate.

Advantages: USAID will only deal directly with one instead of four institutions. Coordination is likely to improve. The selection of CATIE would make continuity more likely.

Issues: Disruptions are inevitable in forging these new relationships. The new umbrella institution is likely to be biased in favor of its own subject areas to the detriment of the work of the subcontracted NGOs.

Option 3: One umbrella institution, which subcontracts others, is contracted to manage this component of the MBR Project for the next three years. But that umbrella institution does not do any direct execution of its own.

The institutional contractor should only manage but not directly implement the assistance described here. That institution would be limited to a very small staff with enough expertise to be able to guide and assess the work of the subcontractors. These would be the NGOs, a new institution that provides the assistance to the new subject areas, as well as any association, private enterprise or other appropriate mechanism.

Advantages: The conflict of Option 2 of giving preference to the direct work of the umbrella institution is avoided. Therefore quality control will probably increase and more demanding management such as payment for results is more likely to be instituted. This is the arrangement with the highest flexibility.

Issues: Two new contractors must be identified. The cost of one contractor to manage such a relatively small portfolio might be excessive.

C. Inputs

Personnel

Community Organizational and Business Management Specialist (12 months). The community organizational and business management specialist (COBMS) will support the communities in their internal organization to become successful community businesses. The COBMS will likely be Guatemalan and have experience working with rural cooperatives, business administration and training.

Accountant (12 months). The accountant will work with each community to help put the necessary accounting and book keeping systems in place. S/he will use a reiterative strategy whereby training sessions are followed by audits and then additional visits to give feedback and correct deficiencies identified in the audits. The accountant will be Guatemalan and have experience working with community businesses.

Contracting and Legal Advisor (6 months over 3 years). The Contracting and Legal Advisor (CLA) will advise the groups in legal and contractual matters. The work will include the development of model contracts for different strategic business relationships between communities and industry or buyers. S/he will be a lawyer, Guatemalan, and have experience working with either forest industry or community/company contracts.

Junior Sawmilling Specialist (36 months). The Junior Sawmilling Specialist will provide support to community transformation centers in the identification of equipment needs and sources, maintenance, and operation to improve their capacity to produce lumber and increase recovery. S/he will be Guatemalan with experience in working with sawmills. S/he will receive technical orientation from the Senior Milling and Secondary Wood Processing Specialist.

Junior Wood Processing Specialist (36 months). The Junior Wood Processing Specialist will provide support to community transformation centers in the identification of equipment needs and sources, maintenance, and operation to improve their capacity to produce wood products from secondary species. S/he will be Guatemalan with experience in working with industry that

produces secondary wood products. S/he will receive technical orientation from the Senior Milling and Secondary Wood Processing Specialist.

Senior Milling and Secondary Wood Processing Specialist (12 months spread out over three years). The Senior Milling and Secondary Wood Processing Specialist (MPS) will provide technical support to the Junior Wood Processing Specialist and the Junior Sawmilling Specialist. S/he will also advise the industrial transformation centers in the identification of equipment needs and sources, maintenance, and operation to improve their capacity to produce products from secondary species. S/he will make at least three visits per year and even at other times maintain close contact with the two Junior Specialists whom he oversees. S/he is expected to transfer the relevant skills to these Junior Specialists who will be available for other employment in the Petén after the end of the project. The MPS will likely be an international hire, costly, difficult to find, and crucial to the success of this program.

Junior Specialist in Marketing of Lesser-known Woods (36 Months). The Junior Specialist in Marketing will advise community groups on marketing of lesser know woods and develop contacts with domestic and international buyers. S/he will be Guatemalan or Central American with experience in marketing wood.

Senior Specialist in Marketing of Lesser-known Woods (12 months spread out over three years). The Senior Specialist in Marketing of Lesser-known Woods will develop contacts with international buyers and facilitate their entrance to Guatemala. S/he will provide technical support to the Junior Specialist in Marketing and also assist wood industry in introducing these species to the market. S/he will work closely with both the CLA and MPS to facilitate the community-industry/buyer contracts and orient the direction that the MPS takes the production from different woods. S/he will make at least three visits per year and even at other times maintain close contact with the Junior Specialist whom he oversees. S/he is expected to transfer the relevant skills to this Junior Specialists who will be available for other employment in the Petén after the end of the project. The Senior Specialist in Marketing will be international hire.

Specialized Short-Term Technical Assistance (12 months). Specialized short-term technical assistance for training or very specialized production issues should be budgeted for.

Operating Expenses:
1. Office rent and expenses
2. Training/workshop expenses
3. Continued but reduced support to NGOs to provide assistance to communities in forest management and planning
4. Assistance to CONAP for results indicated
5. Payment for certification of forest management by communities

Equipment: Vehicles, computers

A-V-1. Type of Subsidized Assistance Needed After the 2001 Harvest Season for a Maximum of Three Years

Unidad de Manejo	Group	Supporting NGO	Start of forest operations	Forest Mgmt planning	Woods operations	Processing	Community organization	Accounting & records	Business management	Negotiation & contracts	Marketing	
Community concessions												
Carmelita	Cooperativa Integral de Comercialización "Carmelita" R.L.	ProPetén/CI	1997	0	0	0	1	1	2	2	2	
Chosquitán	Sociedad Civil Laborantes del Bosque	Naturaleza para la Vida	2000	1	1	2	1	1	2	2	2	
Cruce la Colorada	Asociación	Centro Maya	2000	1	2	2	1	1	2	2	2	
La Colorada	Asociación	Centro Maya	2000	1	2	2	1	1	2	2	2	
La Pasadita	Asoc. Prod.	CATIE/Olafo	1997	0				0	2	2	2	
La Unión	Sociedad Civil Custodio de la Selva	Naturaleza para la Vida	pending	2	2	0	2	2	2	2	2	
Las Ventanas	Sociedad Civil Arbol Verde	Sin definir	2000									
Río Chanchich	Sociedad Civil Impulsores Suchitecos	Naturaleza para la Vida	1998	0	0	2	1	1	2	2	2	
San Andrés	Sociedad Civil Asociación Forestal Integral San Andrés (AFISAP)	ProPetén/CI	2000	1	1		1	2	2	2	2	
San Miguel	Asoc. Prod.	CATIE/Olafo	1994	0	0	0	0	1	2	2	2	
Uaxactún	Sociedad Civil Organización Manejo y Conservación	Naturaleza para la Vida	2000	0	0	1	2	2	2	2	2	
Yaloch	Sociedad Civil El Esfuerzo	Naturaleza para la Vida	Pending	2	2	0	2	2	2	2	2	
Industrial concessions												
Paxbán	PROFIGSA	None	1999	0	1	1	0	0	0	0	1	
La Gloria	Baren Industrial	None	1999	0	1	1	0	0	0	0	1	

Unidad de Manejo	Group	Supporting NGO	Start of forest operations	Forest Mgmt planning	Woods operations	Processing	Community organization	Accounting & records	Business management	Negotiation & contracts	Marketing	
Coops												
Bethel		Centro Maya	1994	0	0	1	1	1	1	1	0	
La Lucha		Centro Maya	1996	0	0	0		1	1	1	0	
La Técnica		Centro Maya	1995	0	0	1	1	1	1	1	0	
Monte Sinai		Centro Maya	1996	0	0	1	1	1	1	1	0	
Unión Maya Itzá		Centro Maya	1999	0	0	0		1	1	1	0	
Parcelamientos												
El Retalteco		Centro Maya	1999	1	1	1	1	1	1	1	0	
La Felicidad		Centro Maya	1999	1	2	1	2	2	2	2	2	
Yanabi		Centro Maya	1999	1	2	1	2	2	2	2	2	
Associations												
SCAF	Association of coops	Centro Maya	n/a	0	0	0	1	2	2	2	2	
ACOFOP	Association of community concessions	Various donors										
CONAP		n/a	n/a	0	0	0	0	1				

0=Not needed
1=Refinement needed
2=Essential for progress

Exhibit A-V-2. Residual Value of Mahogany and Lesser-known Species

Residual Value per Cubic Meter of Mahogany and a Typical Lesser-known Species Under Three Separate Sourcing Mechanisms

		Community Source		**Community Source**		**Industry Source**	
		Community Processing		**Sold to Industry**		**and Processing**	
		Mahogany	**Secondary**	**Mahogany**	**Secondary**	**Mahogany**	**Secondary**
Gross Revenue in Q.		**2375.4**	**1112.8**	**2375.4**	**1112.8**	**2375.4**	**1112.8**
Forest Mgnt Costs(FMC)		75	75			75	75
Raw Material Costs(RMC)		78	18.6	920	154	408	29.1
Extraction/Milling Costs(EMC)		672	672	672	672	672	672
Transport/Export Costs(TEC)		119	119	119	119	119	119
Total Costs		944	884.6	1711	945	1274	895.1
Expected Return(ER)		236	221.15	427.75	236.25	318.5	223.775
Residual Value		1195.4	7.05	236.65	-68.45	782.9	-6.075
Note: Gross revenues based on 40% FAS, 30%C1, 30%C2 at prices respectively of Q.15, 11, and 6 for mahogany and Q.7, 5, and 3 for secondary species							
1Meter^3 of standing timber = 200bdftDoyle							
FMC based on $30/ha for POA and road construction or maintenance							
RMC based on fees paid to CONAP and INAB or purchase price from communities of Q.5.1/mahogany grade A, and Q4.1 grade B logs and Q.7/bdft Dolye of secondary species-all grades.							
EMC based on Q3.25/bdft Doyle							
TEC based on Q.7/bdft for FAS and CI, C2 sold in local markets							
ER based on 25% return on costs, fixed costs asorbed in other costs							
Recovery rate from 1m^3 is 50% or 214bdft							
Calculations for Proceeds				Calculation for Raw Material			
	Mahogany	**Secondary**			920		
Fas	1284	599.2					
C1	706.2	321					
C2	385.2	192.6					
	2375.4	1112.8					

Exhibit A-V-3. Summary of Available Cost and Revenue Data for Forest Management by Communities

Summary of Financial and Economic Data Available for MBR as of August 2000

Concession/ Cooperative	Total Area (ha)	Production Forest (ha)	Annual Cut (ha)	Year	Source of Data	Expenses Quetzales	Revenues Quetzales	Revenue expense ratio	Net Present Value Quetzales	Per Family Income Quetzales	Production Scheme
San Miguel	7,036	4,800	80	1999	Annual Report	133,468	175,824	1.32			Flitches
San Miguel			????	1998	RFMP			1.69	324,967		Flitches
La Pasadita	18,817	12,043	306	1999	Annual Report	196,478	247,140	1.26			Alliance
San Andrés	51,939	48,883	1000	2000	Balance sheet	676,388	1,174,437	1.74			
			1,120	2001	Balance sh.-est.	741,515	1,208,446	1.62			
Rio Chachich	12,217	10,000	400	1998	Annual Report	676,241	1,230,882	1.82	1,058,838	27,243	Rented Services
Rio Chachich			400	1999	Annual Report	702,023	1,341,547	1.91		23,418	Alliance
La Colorada	22,067	15,866	110	1999	POA-estimate	36,080	90,498	2.50			Alliance
La Colorada			100	2000	Annual Rep.-est.	67,221	262,345	3.90			Alliance
Cruce a la	20,469	17,621	100	1999	POA-estimate	33,181	160,303	4.83			Alliance
Colorada			100	2000	Annual Rep.-est.	64,827	390,208	6.02			Alliance
Cooperatives											
Bethel	4,149	2,379	100	1998	POA-estimate	49,449	141,540	2.86			Rented Services
Bethel			105	1999	POA-estimate	27,147	106,964	3.94			Rented Services

Notes:

Annual Report, based on actual numbers unless noted differently
POA= Annual Operation Plan, based on projections
Balance Sheet, based on actual numbers unless noted differently
RFMP= Revised Forest Management Plan, projections base on 4 years experience

Information System for the Protected Areas of the Petén on CD

The CD with the SI PETEN information system (Sistema de Información para las Areas Protegidas del Petén) contains the complete texts of many documents used in this study. It is updated periodically by integrating new electronic files of interest to those working with the Petén protected areas. Readers are encouraged to contribute relevant files.

The latest version of the CD can be requested from:

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ANNEX A-VI ASSESSMENT FINDINGS

Project Partners and Management Structure

Project Partners and Management Structure

Three principal groups of organizations are actively involved as USAID's partners in the Maya Biosphere Project: CONAP, international NGOs, and local NGOs. Since the project's inception, CONAP has served as USAID's counterpart, playing multiple roles as coordinator, executing agency and client. Many of the international NGOs (CI/ProPetén, TNC, CARE, Rodale, and CATIE) have also been involved from the outset of the project and were instrumental in attracting USAID investments into the MBR. Through Cooperative Agreements and Letters of Implementation with USAID, these NGOs have directly executed project activities, provided local NGOs and communities with technical assistance and institutional strengthening, and have served as conduits of USAID funding to local groups. Four local NGOs were either created as a result of project activities (Cänan K'aax, NPV, Centro Maya) or attracted to the region as a result of project activities (defensores). Each of these local NGOs executes project activities and maintains close links with its international counterpart. Two of these groups have also gone on to sign coadministration agreements with CONAP for the management of protected areas within the MBR.

CONAP and other GoG Partners. CONAP has been the original GoG counterpart since the signing of the first project agreement on August 30, 1990. Subsequent amendments to that agreement have broadened the scope of cooperating GoG agencies to include the Ministry of Finance, SEGEPLAN, MAGA, CECON, IDAEH and even municipal governments. On August 5, 1994, USAID also signed a separate agreement with CONAMA to implement policy aspects of the MBP.

As with other agencies of the GoG, CONAP is plagued by institutional instability and a high rate of turnover among staff at both regional and national levels. With the change of government at the beginning of 2000, this problem was particularly pronounced: six different persons were appointed as executive secretary in as many months. This lack of institutional continuity had a disruptive effect on MBP activities.

The Portillo government is considering restructuring a number of government agencies, including CONAP, CONAMA and INAB, into a new Ministry of the Environment. While elevating these agencies and issues to the ministerial level is likely to have a positive effect in the long run, the plan has created speculation and doubts about CONAP's future, particularly since the plan is weak on details. The overall impact of this proposed change will center on the degree to which CONAP is able to maintain its financial and decisionmaking authority within the proposed ministry.

International and local NGOs. The roles and dynamic of international and local NGOs in the MBP are gradually changing. The original idea at the outset of the MAYAREMA project, as it was then known, was to have a consortium of international NGOs collectively execute project activities. What happened instead, was that TNC, CI and CARE ended up bidding on discrete pieces of the work (parks management, enterprise development and environmental education, respectively) and then signing separate Cooperative Agreements with USAID. Rodale and CATIE were brought on during later stages of the project. The original model was one of close

cooperation and mentoring between international and local NGOs, with the international NGOs implementing project activities, channeling funds to and creating local NGOs.

As a result of the MBP, several local NGOs have been created. Most of these groups have only been in existence for five years or less and they have been managing their own funds for even less time than that. TNC originally tried to partner with a local NGO, Arcas, which works on the rescue and rehabilitation of wildlife in the Petén. This first attempt to find a local partner was unsuccessful but eventually, TNC was able to attract Defensores, with whom they were already working in Sierra de las Minas, to the Petén and the MBP. TNC continues to work closely with Defensores in the management of Sierra del Lacandón and in institutional strengthening of Defensores itself.

CI/ProPetén, also one of the original members of the MBP, has a large local staff but functions as a chapter (sucursal) of Conservation International. CI played a major role in the creation of Cänan K'aax (which was created in large part to assume management responsibilities for Laguna del Tigre and several other local institutions including EcoMaya (a private company in which CI is the majority stakeholder), Alianza Verde, and several language schools and tourism committees. CI also has a sub-agreement with NASA and University of Maine, who provide the MBP with satellite imagery and analysis of forest cover in the Reserve.

The last of the original international NGO members, CARE, has not created or formed any direct mentoring relationship with a local NGO. Rodale and CATIE, the two international NGOs that more recently joined the MBP, have each had a role in creating local NGOs: Rodale actually had as an explicit goal the formation of a sustainable institution and thus, what started as the Centro Maya project finally became an independent NGO. CATIE, through its work with CONAP in the MUZ, gave rise to NPV, which works with community forestry concessions.

CATIE, in a different guise, has also played an important role in a recent attempt by USAID to provide more direct support to local NGOs. Starting this year (2000), USAID planned to disburse funds to Centro Maya, NPV, and Cänan K'aax through CATIE in Guatemala City, which is able to play this function due to its certification with USAID's Office of Private Voluntary Cooperation. CATIE/Guatemala, as this office is known, requires approval of CONAP as part of its integrated financial and planning process. Because of the political changes at CONAP that occurred earlier this year, disbursement of funds to local NGOs was seriously delayed. Cänan K'aax in fact opted to return to CI as the fiduciary agent responsible for disbursing its USAID funds.[1]

USAID and CONAP

Observations—Decentralization. Amendment No. 6 of the Project Grant Agreement between USAID and CONAP specifies as a "Conditions Precedent" (pg. 5, par. C) the decentralization of decision-making authority for project funding activities to CONAP/Region VIII (Petén).

[1] From the perspective of local NGOs, the use of an international NGO as a conduit of USAID funding carries with it one important advantage: these groups are not required to pay sales tax. On the other hand, they generally charge a signficant overhead rate.

Analyses. The recent problems approving YR 2000 budgets to NPV, Centro Maya, and Cänan K'aax is a strong indication that there has been little meaningful devolution of financial and decision-making power to CONAP Region VIII. The disbursement of these funds should have been approved by the Regional Director or some other official in the Region VIII office.

Recommendations

1) The SO5 Team should review the "…written proof that such agency [CONAP] has designated a Petén-based representative with clearly established decision-making authority for project-funded activities."

2) They should then review with CONAP personnel, the lines of authority that are required for making financial and managerial decisions related to USAID-funded components of the MBP and come to agreement on what to do when those lines of authority are not or cannot be followed.

Observations—Institutional Capacity. CONAP has not been able to commit the resources that it has pledged to under its coadministration agreement with Defensores. The same case may exist with Cänan K'aax

Analyses. CONAP has pledged to provide park guards and fuel for vehicles as its contribution to the coadministration of Sierra del Lacandón. It is unclear why these resources could not be provided since they were budgeted as CONAP contributions in the last Integrated Work Plan and the funds should have been available for their purchase. In any case, Defensores has been forced to use its own resources to cover these expenses. The coadministration agreements must clearly involve give and take by both parties and an ability to informally negotiate

Recommendations. USAID should only intervene in the coadministration agreements if absolutely necessary, but they can and should play a valuable role by tracking any departures from established agreements and making it their business to know exactly why either party is repeatedly failing to meet specific obligations.

Observations—Institutional Capacity. CONAP has a broad mandate and jurisdiction that are out of proportion with its financial and human resources.

Analyses. CONAP has achieved its greatest successes when it has realistically confronted its limited resources and developed innovative solutions to meet its mandate. The two shining examples of this type of creative pragmatism are community forestry concessions and coadministration of parks. Neither of these success stories involved garnering more funds for the institution. Instead, they were based on CONAP assuming a strong leadership role and forging strategic alliances with NGOs and local communities.

Recommendation. CONAP should place more emphasis on coordinating and leading, rather than on executing.

NGOs and Other Groups

Observations—Institutional Strengthening. Though a number of local NGOs have been created as a result of the MBP, there has been relatively little emphasis on institutional strengthening of local NGOs and other groups.

Analyses. Early in the project, international NGOs created or molded local NGOs in their own image and paired off into a one-on-one relationship with these groups. This has had both positive and negative impacts. International NGOs brought with them an ability to tap into a broader, international NGO community, access to outside funds, and important political contacts. They also brought relevant technical skills and conferred upon the enterprise a greater degree of legitimacy and credibility. On the negative side, they have duplicated some of their own institutional rivalries and biases and these have been passed down to local NGOs. Partially as a result of this phenomenon, the MBR has been effectively balkanized into management zones, each controlled by a different NGO.

Among both local and international NGOs, there is still little sense of belonging to a community of environmental NGOs that speaks with one voice and shares a common sense of purpose. Compared to NGOs working on social, economic, and other issues, environmental NGOs appear to be the weakest and most divided sector. NGO rivalries and lack of coordination have at times led to wasted resources and work at cross-purposes. Curiously, the same NGOs that are concerned with protecting the diversity of the natural world have little appreciation for the diversity that exists within their own community of NGOs.

A number of promising local NGOs and grassroots groups have been created; they must now be strengthened as part of the consolidation process recommended throughout this review.

Recommendations

- Eliminate the funding of local NGOs through multiple Cooperative Agreements with international NGOs.
- Provide broad-based institutional strengthening of local NGOs and grassroots groups that fosters a common sense of purpose and breaks-down traditional rivalries. Whenever possible, use local NGOs from other sectors with experience in this area.

Observations—Technical Assistance and Training (including agricultural extension) are not regularly evaluated. None of the NGOs could easily deliver a list of training or technical assistance (TA) that they had received or provided, along with accompanying evaluations. Though the capacity appears to exist in many cases, there is relatively little ta or training provided within the community of NGOs themselves. This same pattern appear to hold true at the level of grassroots groups and community forest concessions, where there is even surprisingly little informal exchange of experiences, information, and lessons learned.

Analyses. Without ongoing monitoring and evaluation of TA and training activities, it is impossible to determine their relevance or appropriateness. This can lead to a situation where an NGO or other group simply continues to provide what it knows how to provide. Even well intentioned TA and training can re-enforce patterns of dependency and paternalism.

Project NGOs have many areas of expertise and skills but they do not often share these among themselves. TNC has offered some training to project NGOs in areas such as anti-corruption and USAID project management, but there have been few attempts to tap into the competitive advantage of each NGO and have them provide TA or training to their colleagues. Similarly, among community forest concessions, there are some groups such as Suchitecos that are well organized with relatively strong business skills, but they have not been viewed or used as a resource to provide training to other concessions with less experience.

Recommendations

1) At a minimum, training and TA offered by NGOs and to NGOs must be systematically evaluated to determine its effectiveness and relevance.

2) Project NGOs should be encouraged to seek training and TA from their colleagues and from NGOs from other sectors. This would help increase the cost-effectiveness of providing TA and training and it would help foster cooperation among these groups.

3) USAID and project NGOs should experiment with fee-based TA and training whereby NGOs and other groups make their own decisions about what types of assistance they need and who should provide it.

Observations—NGOs and Environmental Policy. Local NGOs have played almost no role in analyzing and formulating environmental policies.

Analyses. We did not observe any significant independent analysis of governmental environmental policies by local NGOs. TNC is doing work on the economic costs of resettlement and a study park tariffs and fees, but they, of course, are not a local NGO. Regardless of whether or not this capacity exists within CONAP or other government agencies, we consider it imperative that NGOs develop a strong capacity to analyze and formulate policies, as an alternative vision to the government's and to provide a system of checks and balances.

Recommendations. In the long run, USAID should seek to develop an independent policy analysis capability within the environmental NGO community. The vehicle would have to be some type of forum or umbrella group that is representative of majority interests. If IRG's work on consensus-building fora for specific issues such as resettlement and petroleum reveals that there are significant and irreconcilable differences between the government's point of view and those of the NGO community, then they should seek to develop and disseminate a parallel policy analysis that relfects the point of view of NGOs.

Project Partners and Project Management Structure

Integrated Financial/Work Plan

Since 1997, Project Partners have followed an integrated financial/work plan (IFW)[2] coordinated by CONAP. This system was meant to provide better overall coordination of activities within the MBP and a standard reporting style to facilitate the SO5 Team's reporting of R4 information to USAID/Washington. The Work Plan (an Excel workbook) is broken down into geographical zones by MUZ and BZ, and includes specific activities ("resultados") with a line-item budget for each activity. There are also four columns for each quarter of the year and an "X" in one or more of the columns to indicate the duration and degree of completion of the result. Initially the partners met to review the work to be done to accomplish the intermediate results and divided the activities among themselves according to priorities and specialties. Each partner then submits a work plan to CONAP using this standard format. CONAP approves each of these workplans and sends an integrated version of the document to USAID on behalf of all partners.

Observations

- The IFW is essentially a process or system and a very good one.
- It has served as a useful planning and coordinating tool and in conjunction with the Team Charter, it has contributed to teamwork and common goals.
- It is less clear that the IFW has contributed to consensus-based decisionmaking, as we were told of instances where NGOs sent a workplan to CONAP and it was significantly modified (presumably without their input) before being sent to USAID.
- The IFW explicitly states IRs, but everything that comes underneath, (programs, sub-programs, results) does not have impact indicators and doesn't really appear to have a direct impact on the rest of the Results Framework.

Analysis. The IFW places CONAP in an appropriate role as coordinator and leader and creates a sound and logical structure for management activities that can be further refined and improved. USAID, NGOs, and CONAP all appear to use it as a guide for implementing program activities, though as a monitoring and reporting tool, it may be of more use to CONAP than others. CONAP gets a "big picture" view of activities in the MBR but several NGOs have separate reporting and monitoring systems that aren't included in the IFW, and USAID is still having to cull through the document as it is currently structured (i.e., without a summary spreadsheet) to fulfill its reporting requirements for the R4.

The IFW is essentially a planning/reporting procedure and system and it is a good one. However, it can only be as good as the information on which it is based, such as the entire Results Framework, and particularly the objectives and indicators. Further refinement and more input of NGO partners in its design will gradually increase its utility to all parties involved, as well as the sense of buy-in and ownership by NGOs.

Recommendation. Continue using the IFW and try and increase its utility to all partners by incorporating the recommendations given under Reporting below.

[2] We refer to the Integrated Work Plan as the IFW since it contains significant budgetary information.

Reporting

Partners use a slightly different version of Integrated Financial/Workplan for semi-annual and annual reporting. This version is modified to indicate what percentage of the result has been completed and includes an additional column for narrative comments. The holders of the Cooperative Agreements with USAID are reporting for their local NGO counterparts (TNC for Defensores and CI reports for Cänan K'aax).

Observations

- The projected results in the workplan are frequently overly ambitious.
- The IFW is used in a boilerplate fashion, with indicators often increasing in neat step-wise fashion that makes one wonder just how accurate they are as estimates.
- There is confusion among the partners about who should be reporting to whom, particularly with this last round of disbursements that went through CATIE/Guatemala to NPV and Centro Maya.
- CONAP does not always submit the IFW to USAID in a timely manner, and several NGOs told us they had received calls from AID asking for their reports.
- NGOs tend to view the reports and impact indicators as a USAID creation and imposition with limited use within their organizations. Some NGOs (CI, Defensores) have their own internal evaluation processes and these evaluations are not reflected in the IFW.
- Some NGOs also complained of multiple reporting requirements that they are required to fulfill for USAID, CONAP, and other donor organizations.
- The PMP/IFW system in its current form makes it difficult to meaningfully measure results.
- USAID, CONAP and the NGOs have different fiscal years and this has complicated reporting activities.
- Many NGOs do themselves a disservice by not having a more robust narrative in their reports. For example, when a result hasn't been achieved, there is often only a pat description of why, rather than a more analytical narrative.
- CONAP, CECON and FONTIERRA do not appear to have submitted reports to USAID to account for the expenditure of funds they receive.

Analysis. The quality of results produced by NGOs ultimately depends upon the quality of USAID's Results Framework and particularly the development of simple, clear, realistic

objectives and useful and measurable impact indicators. Without these elements, it is very difficult to meaningfully measure results.

Recommendations. Adopt the TNC reporting format (cf., their semi-annual report for 2000) as the standard format and have both a narrative that shows the results number and in addition, add a line-item budget and a spreadsheet summary of percent completion, e.g.

Exhibit A-VI-1. Recommended Standard Reporting Format

Logros en el primer semestre de 2000

Los logros en esta sección están divididos utilizando el mismo formato del plan operativo anual 2000 del CONAP y están divididos en tres áreas: el Parque Nacional Sierra del Lacandón, la RBM y el SIGAP.

Parque nacional Sierra del Lacandón – plan operativo anual 2000

Meta 4 – Mecanismos de financiamiento para el manejo del parque que aseguren su autosostenibilidad están funcionando (meta al final del ano 2001.)

Resultado 5.1 – ($36,000/$20,000) campaña de recaudación de fondos diseñada e implementada de acuerdo al plan financiero, incluyendo la identificación de mecanismos para la generación de fondo a través del manejo del parque.

Logros

Se avanzó en el desarrollo de la campaña de recaudación.

Before the end of this year, spend a half-day with Team Charter member to clarify proper reporting procedures discuss and adopt the standard reporting format proposed above or some agreed-upon variation. Collectively review several NGO reports as case-studies.

- Greater emphasis should be placed on producing results vs. simply completing activities. To do this USAID should: 1) work closely with Team Charter members to develop a realistic set of objectives and indicators that have NGO buy-in and that will be officially incorporated into USAID's Results Framework; 2) institutionalize the periodic revision of the Results Framework in the Team Charter and; 3) place much more emphasis on monitoring and evaluation of NGOs in the field.

- CONAP, CECON and FONTIERRA should be held accountable for results, particularly when they are responsible for executing project activities. These organizations should be required to submit semi-annual and annual reports to USAID, as is required of NGOs.

The Team Charter

The Team Charter was signed in May 2000 by USAID, CONAP Guatemala and Region VIII, international NGOs, and local NGOs to promote teamwork and harmony among project partners. Charter members have regular meetings as least once a quarter, plus a semi-annual retreat to discuss accomplishments, lessons learned, and new activities.

Observation. All the partners we spoke with think the Team Charter has been useful and valuable.

Analysis. The Team Charter has created a useful forum for coordination and discussion of project activities among team members. The underlying principles of the charter have been useful in establishing a new working environment, and the GTUMs (*Working Groups by Management Unit*) have been a good start at working in a cross-cutting fashion on issues of common concern.

USAID has a special ability as both a donor and relatively disinterested third party in convoking the meetings of the Team Charter. It is interesting to note that project members did meet on a quasi-regular basis before the creation of the Team Charter, but interest waned and eventually, meetings stopped.

Recomendations

- USAID should continue to convoke and coordinate Team Charter meetings, keeping in mind a focused agenda, concrete results, and consistent follow-up.

- The Team Charter should be used to institutionalize other activities such as periodic review of the Results Framework and Master Plan for the MBR.

- USAID should continuously look for mechanisms to increase ownership of the Team Charter by its members, so that eventually they have the interest in and responsibility for convoking and coordinating the meetings themselves.

Information Management

CEMEC is charged with collecting, storing and managing spatial data generated from and in connection with the MBP. A recent report by Corrales (2000) recommends the creation, as soon as possible, of an integrated information system for SIGAP, which would include both spatial and non-spatial data. The University of San Carlos's Conservation Studies Center also includes a CDC, which is responsible for collecting and managing conservation information.

Observations

- There is a wealth of material in the form of theses, dissertations, articles, reports, books, maps, financial figures, and other data related to the MBP. There is so much and it is so hard to get, that it's difficult to ascertain how much of it is potentially useful for management.

- Data related to the MBP are not readily accessible despite a number of institutions that collect and manage conservation data as part of or all of their mandate. It's very common when looking for maps, reports or other information to be told, "Oh, I/we don't have that, you should check with so and so," and then to be told after checking

with so and so that "Oh, no, I don't have that you should check with…" In other words, there is not a system or central repository of important information.

- Information does not appear to be openly shared among partners through formal or informal channels and even when it is, it is not well institutionalized. An example: our team received a computer copy of the 2000 integrated work plan from TNC, who had received it from CONAP. We tried to open it to manipulate and analyze the numbers, but we discovered that it was an archival ("read-only") copy. We called TNC, USAID, CONAP and none of them had the password. Finally, we spoke with Claudio Saito who informed us that no one else besides Hector Tuy, who has now left CONAP, has the password.

- Henry Tschinkel, one of the Chemonics' team members and a resident of Flores, has begun an informal crusade to foster information exchange among MBP partners with his "SI PETEN" (*Sistema de Información Petén*) program. As he goes about his consulting work, he asks individuals and organizations to supply him with reports and data. He then returns a CD-ROM to collaborating individuals/organizations with the information that he has collected. Even such a simple system can be effective in promoting better information exchange.

- There is no effective central repository for information (much less an information management system) for data related to the MBP.

Analysis. The proper collection, management and dissemination of data are critical for effective conservation and management of natural resources. Information is power: individuals and institutions covet information and are reluctant to share it for fear of diminishing their power.

Recommendations

- Considering the poor order of the information in the MBP, the program should move immediately to implement the SII-SIGAP system proposed by Corrales. The system should be equally accessible at CONAP/Petén and CONAP/Guatemala and periodically the updated information should be made available to partners and the public in CD form. This would be built upon the existing database at CEMEC and would strengthen CEMEC's role in the SIGAP. This system would also strengthen the organizational structure of the MBP as described below, because without the information storage and retrieval capacity, the MBP cannot generate timely reports nor systematically monitor the program. This same information should become part of CATIE's database so that there is a Central American source for the information. Thus there would be three backups – CONAP, CATIE and USAID as described in the next bullet.

- In addition to CATIE and CONAP as the recommended repository for the MBP information system USAID should archive and have available all of the information related to the biosphere. USAID should hire a student of library science, or anyone else with the interest and enthusiasm, to organize its library and provide a simple

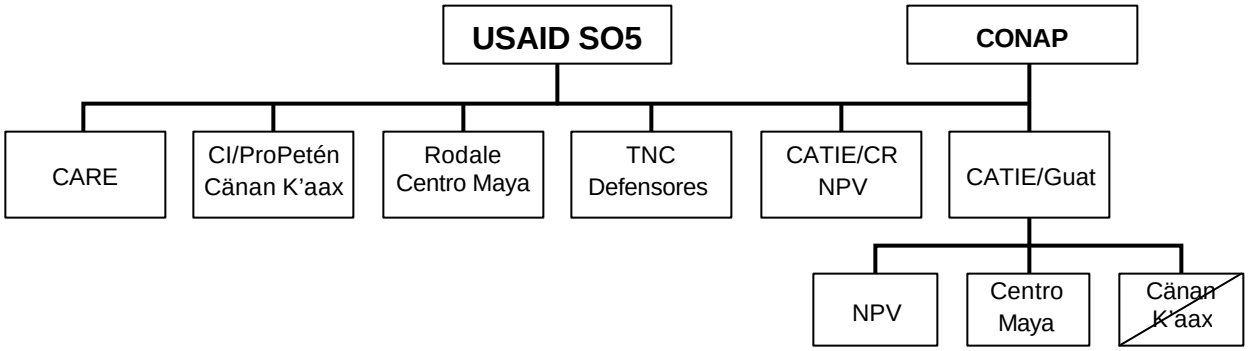
bibliography of maps, reports, journal articles, AID documentation (Results Framework, R4, PMP, Customer Service Plan, Cooperative Agreements). USAID should then circulate this list to all its partners and ask them for a similar list in return. USAID should collect both hard and electronic copies and build on Henry Tschinkel's "SI PETEN" program. All USAID-funded research and consultanciesshould be archived in this fashion.

- At the same time, USAID should consider contracting a local university or other group to annotate and synthesize this bibliography with a mind toward identifying information (economic, ecological, sociological) that could be useful in addressing management problems and knowledge gaps.

- USAID, through the Team Charter, should seek to institutionalize the management information system recommended by Corrales and, at the same time, coordinate with other national and international institutions working on similar efforts.

Observation. The present management structure is too complicated and needs to be simplified.

Exhibit A-VI-2. Existing Project Management Structure



Analysis. The MBP began with a series of bilateral Cooperative Agreements, contracts and inter-organizational agreements. This system of management was centered on USAID and, accordingly, placed burden on the SO staff for coordinating agreement activities, reviewing financial reports and letters of credit, and gathering/analyzing the data for the R4. Within USAID, a database and information management system was not developed beyond an assortment of unrelated files in cabinets and on the computer network. With the assignment of a PSC as an advisor to CONAP in 1997, the management structure began to evolve:

- An integrated and participatory planning effort was used as a management system;
- A uniform reporting system based on the activities and goals of the workplan was established;
- CATIE/CONAP was contracted as a fiduciary agent (in the same way international NGOs had been used in the past) to channel funds to local NGOs;
- A Team Charter of the SO partners formalized the integrated planning process and established a shared vision and mission for 2000.

An important aspect of this integrated financial management and planning structure is that it is an organizational structure for bringing together the donor, its GoG counterpart, and local and international NGOs in a participatory forum, with a clear division of labor to achieve mutual goals. This structure, though still under development, does the following:

- It combines the responsibility of the national counterpart (CONAP) to assure that the MBP responds to national needs and policies with
- USAID's need to channel and account for funds to multiple partners, while coordinating activities to achieve strategic and intermediate results without assuming the minutiae of accounting and disbursements (the responsibility for which was given to CATIE/Guatemala and other international NGOs), and
- For the SO Team Partners[3] to apply their expertise and on-the-ground experience in a participatory planning process.

Each executing member (NGOs) reports the results of their activities to CONAP, which then aggregates this information and sends it to USAID. USAID uses this information for its R4 report to Washington and to approve further disbursements through CATIE/Guatemala or other international NGOs. This system reduces USAID's management burden by assigning administrative responsbility for disbursement of funds to the international NGOs.

This reporting system also provides an excellent management structure for CONAP to use with other donor organizations, because it uses a third-party as a fiduciary agent to manage donor funds, thus avoiding the expense (to donors) of multiple contracts, as well as the inherent problems of donor funds channeled through local government systems.

What has been described to this point is the idealized project management structure (what we have sometimes referred to as the "model") that has been evolving over the last couple of years. While there have been numerous problems (particularly with the way disbursement were carried out by CATIE/Guatemala), the overall structure is a good one and its features worth preserving. We believe that with the right actors, the management structure that has been achieved could be made to work quite well.

Recommendation. Build upon the best features of the already established management structure described above.[4]

In spite of the transitional problems, this structure is the best route to go so that the MBP leaves behind a management system that will strengthen CONAP's ability to engage donors and partners in planning and executing MBP activities in a participatory manner.

To fully implement this organizational structure, the transitional problems mentioned above need to be resolved. The phasing-out of Cooperative Agreements between USAID and international

[3] The partners with USAID are: Cänan K'aax, CARE, CATIE, Centro Maya, CI, CONAMA, CONAP, Defensores, NPV, Rodale, and TNC.

[4] This organizational structure has been one of the main management and organizational development accomplishments of the MBP during the last four years.

NGOs will take place during the coming year. Future work by these organizations can then be planned through the integrated planning process, with USAID or other donors stating what types of activities they would like to fund. The contracts would be signed by a Project Management Organization (PMO)[5] using the existing model for planning, disbursement and reporting. The other transitional problem of this past year will not take place again until the next elections. There is, however, a much more important and potentially disruptive transition in the making: the formation of the new Ministry of the Environment. This transition may occur this fiscal year with accompanying budgetary hurdles for the new Ministry in fiscal year 2001. The key assumption is that the new ministry shares the same interests of CONAP and is willing to work closely with AID under already established systems.

If the transition is successful, then the goal of simplifying and systematizing the management of the MBP outside of USAID will be achieved. Each year USAID can work with the partners on the workplan, offer funding levels and areas of work that it wishes to fund, have the reports systematically generated, and transfer funds to the PMO.

We recommend a Project Management Organization be contracted[6] with the specific purpose of strengthening this organizational structure[7] by working through MBP partners. In general, it would play a coordinating and fiduciary role, not an implementing role; that is:

- The Project Management Organization would be a trustee for USAID to be sure that the Charter[8] is carried out.

- Subgrantees reporting on the execution of the annual operating plans and results would do so through CONAP, thus the Project Management Organization would have to be sure that CONAP aggregates the information and reports by IR and SO indicators to meet donor requirements.

- A data management system[9] is being developed in CONAP; the Project Management Organization would have the responsibility of working with CONAP and a contractor to assure that the system will generate the information needed and that it is synchronized with the financial accounting system as well as the Results Framework.

- The PMO would strengthen both CONAP and the proposed environmental trust in financial management and accounting. This information would solve the SO Team's present lack of a financial management system.

- Disbursements of funds to sub-grantees would be based on CONAP's approval of the liquidations and supporting reports from the sub-grantees. Until the recommended is

[5] We are proposing the term "PMO" because the role of this organization should be to manage rather than implement project activities.
[6] Any of the standard USAID contracting formulas could be used to acquire the services of this organization: RFAs, RFPs or IQCs.
[7] Because of the organizational development responsibility, a grantee with a proven record of building local organizations and foundations should be sought.
[8] "Convenio de Operación y Funcionamiento del Consejo Asesor de la Biosfera Maya. Mayo 2000.
[9] Corrales, Lenin, " Propuesta para SII – SEGAP" March, 2000.

registered with the US Government, the PMO would have to play an oversight role and periodically review reports to ensure that the system is functioning.

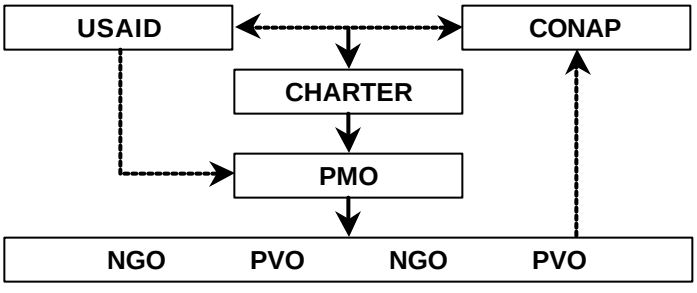
- It is also recommended that the PMO have the responsibility of working with an existing foundation[10] or trust fund with the result that the foundation/trust[11] meet the requirements of the Office of Private Voluntary Cooperation of AID. Then, in three years, this trust would be able to assume the fiduciary role of the PMO and there would be in place a complete institutionalization of the MBP with a capacity on the part of CONAP and the trust to manage other grants and bilateral cooperation for environmental purposes.

The PMO would also need to bring the following capabilities to the MBP:

- Experience from other biodiversity conservation and natural resources management projects.
- Personnel who can work with the National and Regional Directors of CONAP on management issues based on other, similar work in other parts of the world.
- Experience with the development of environmental trusts.
- Prior umbrella grant experience.
- Work with and coordinate between different donors
- The vision to grasp the potential for synergies between the Service Corridor and conservation and tourism, as well as forest production areas.

In summary, the recommendation is to build upon the organizational structure that the MBP has been developing and to contract a PMO that would have, among other responsibilities, the strengthening of CONAP, local NGOs, and the overall management structure.

Exhibit A-VI-3. Proposed Project Management Structure



[10] Candidates could be FONACON or FCG.
[11] It appears that CATIE/Guatemala was not able to efficiently play the role of purchasing agent for CONAP nor for the NGOs during the 1998-2000 period. It should be noted that most PVOs do not have this strength either.
[12] Typically the role of the government counterpart is to be involved with planning the annual work plans and to sign off on the work plan.

ANNEX A-VII ASSESSMENT FINDINGS

Environmental Education

Environmental Education[1]

Environmental Education by CARE with the Ministry of Education has been solid and so has ProPetén/CI's work with a municipal normal school. Both have contributed to the incorporation of the environment into the curriculum of the formal educational system. However, the remaining environmental education efforts have not added systematically to formal education.

Conclusions: The CISEA educational review and strategic plan would be the best way for the MBP to assure the coordination of supported MBP educational activities and their institutionalization if this strategic plan is implemented by the Ministry of Education.

Recommendations: An IR package should be added to the Results Framework that includes both environmental education and communication of environmental themes to assure that these two sets of activities are coordinated and are complimentary.

Only environmental education activities that are incorporated into the Ministry of Education strategic plan for Petén should be funded. Environmental communication activities should be supported too as per GreenCOM recommendations.

If the Ministry of Education/CISEA plan is not implemented, then the MBP should focus, instead, on communication and non-formal education rather than formal educational efforts that are not coordinated with the plan.

A. Commentary

The comments in this section are limited to observations and recommendations for the formal educational aspects of the MBP. We defer to "GreenCOM"[2] at this time to comment on and make recommendations on the communication aspects of the MBR to the public because, concurrently, they have a specialized team working on this aspect.

We found that USAID has been supporting environmental education in the MBP since the beginning. As reported in the 1994 MSI evaluation of the MBP, CARE began a systematic approach to environmental education aimed at the general population (communication is the term used for this effort) in 1992. At the same time, CARE began working with the Ministry of Education to provide materials to train teachers in the use of these materials for the primary grades in a program called EDUCAREMOS. Elementary school teachers interviewed at this time commented that they used the materials, liked the approach, and wanted more material. However these materials were not generally available from the Ministry of Education. CARE also assisted CUDEP in the development of the specialization college level program called Environmental

[1] We use the term "environmental education" to mean formal education in the curriculum of the primary and secondary schools. We do not mean informal education whereby "educating " the participants in activities means telling them or convincing them of the environmental impacts or other aspects. In other words, we are not restricting the collateral 'education" of people in program activities. We are focusing on the improvement of the Ministry of Education personnel.

[2] "GreenCOM" Had a team in the field concurrently with this consultancy. We had the opportunity to exchange observations and ideas with Rusty Davenport and Bette Booth while in Petén.

Education. This added to the curriculum at the university center in the central area of Petén preparing teachers and others for work in this area. This is a positive support for the MBR.

The other activity of the MBP that contributed, systematically, to formal education was CI/ProPetén's support and development of the Normal School in San Andres. It is a school started by the community so that their high school students would not have to travel by boat to Santa Elena. The important and interesting part of this activity is that the focus of the normal school is ecology, thus preparing teachers with a high school-level diploma to teach in elementary schools.

ProPetén/CI produced a very nice reference book[3] called "Learning about the Ecology of Petén." It has a very nice presentation of the MBR and ecological themes. However, as with the other material produced by the MBP, the maps do not include the communities nor municipalities. It is circulated among the MinEd and NGOs as a reference material. Each section has activities that the teacher can use as the basis for a lesson or field trip.

Material other than CI/ProPetén and CARE was also produced, but the material does not seem to be integrated into formal education programs. For example, Partners of the Americas published their seven-part series for teachers in 1993:

- Flora
- Fauna

B. Ecological Concepts

- Protected areas
- Forest species
- Conservation

The focus of this material was general ecology and not the ecology of Petén. We did not see reference to this material in the educational system; the series was found in CONAMA's office.

In December of 1999, CONAMA produced a coloring book explaining the Environmental Protection and Improvement Law (Decreto No. 68-86). They also produced a coloring book entitle "Guide to Environmental Concepts" that was based on materials that the rural roads program of the Direction of Roads produced. Unfortunately the material did not show the roads of Petén and the MBR!

Most of the partners produced educational material and interacted with the Ministry of Education during the first 10 years of the project. However, these efforts were not coordinated and did not add to a systematic Education and Communications program in support of the MBP. Only the CI/ProPetén and CARE programs can be considered systematic—in the sense that their effort strengthens the educational system from the normal school to the university level for teaching and materials for the classroom.

[3] Corazo, Amila, Orellana, Zucely, & Obando, Oscar, "Aprendiendo Ecología de El Petén" IRDC, USAID, & CISEA, July 2000.

Another example of material being produced is from REDFIA. It is a "Proposal for inserting the environmental component into the educational reform activities."[4] This booklet lists the themes and vocabulary that should be included in the environmental education program and is part of the whole MinEd realignment to include the environment in the curriculum.

It is important to keep in mind that, beginning in 1990, the government of Guatemala and approximately 40 NGOs and GOs began working on a National Strategy for Environmental Education that culminated with regional strategies to apply seven lines of action to the specific needs of each region. In the case of Petén, by August 1998 they had formed the Inter-institutional Commission for an Environmental Education Strategy CISEA, and in June 1999 the 20 government and non-governmental organizations incorporated into the process approved the strategy for the region. The Ministry of Education and CONAMA officially approved the regional strategy in 1999.

In 2000 the new administration stopped the training of teachers except for the work with Centro Maya and ProPetén because they had signed agreements. CARE's work had already stopped. It appears that the new administration wants to carefully analyze the strategic plan from 1999 before beginning the activities suggested in that plan.

It is important to keep in mind that the motives for the previous systematic review and the present decision by the Ministry to review the programs. In the opinion of the Ministry and the teachers:

- Too great a demand on the teachers' time to teach new material
- Too much time from teaching to participate in teacher training sessions
- Ministry personnel found that some teachers had been given training in the same theme by different NGOs
- The material and approach had not been tested as to effectiveness
- The Ministry of Education did not approve the material and curriculum

As mentioned above, there is a consultancy with the new administration to review the whole Environmental Approach. Interestingly, one of the areas of inquiry was a review of the law to defend the Ministry's legal role in this area. It is felt that the Ministry's role is being usurped by the NGOs and, also, that while everyone else was being supported financially by the MBR project, the Ministry was not being strengthened with funds, and materials.

Clearly coordination is necessary with the Regional Ministry of Education program so that the results will be achieved inefficiently and effectively. When CISEA did a SWAT analysis one of the problem areas identified was little inter-organizational coordination; this became strategic action number 6 of the regional plan in which CISEA is identified as one of the key actors. Many

[4] "Propuesta de inserción del componente ambiental al proceso de Reforma Educativa," August 2000, Guatemala.

of the Strategic Actions label the role of NGOs as sources of *funds* for training, printing and organizational development. This is an unrealistic expectation on the part of the CISEA and the Ministry of Education because the strength of organizations such as ProPetén and CARE is in the production of materials, training in their use and the promotion of the programs and not the provision of funds for government agencies.

For the work at hand, and future phases of the MBP, the systematic and participatory review of environmental education in Petén by the Ministry of Education, CONAMA and 18 other organizations forming CISEA, provides a sound basis for coordination, for future activities in environmental education by the MBR program.

We have to note the pros and cons of this 10-year process of re-examination. On the positive side it shows considerable, broad participation, thought and analysis; on the other side, we wonder if there is the decision and determination to go beyond the philosophical exercise and to start implementing. We are aware that the Ministry of Education is under funded with the resulting problem of over crowded classrooms and lack of teaching materials; thus, it is a weak counterpart. However, as was seen, [5] when environmental materials are available, the teachers will use them.

C. Recommendation

If there is the determination on the part of the Ministry of Education to go beyond discussion, debate and territoriality, then some activities (such as the mentioned CARE and ProPetén actions) should be part of the MBP. If not, then the MBP should avoid activities that have to do with formal education and focus on the communication and non-formal educational aspects that can be carried out independently.

Aside from the fact that NGOs cannot be a channel of USAID funds to the government for practical and legal reasons, the proposed NGO actions in the strategic plan would be for recurring costs. This is not consistent with the approach that support should be for systems or modules that the Ministry should continue to maintain by itself and not be dependent upon constant USAID funding. Startup or retraining costs may be very appropriate and necessary to assure that there is good a solid environmental education program.

Because some of the teachers are college-level graduates and some are normal school graduates with varying degrees of ability to convert the aforementioned books into lesson plans and field exercises, the materials produced to date should be carefully selected and reviewed. Also, an appropriate task under this activity would be train teachers how to convert these materials into group dynamics and lessons. Posters and materials for the students to use directly are needed.

[5] This was seen in this review and also in the review of the Cities in Transition program around Barrillas and Ixcan (Evaluation by ARD in 1999) and also found in study of Talita Kumi in Coban (Chemonics\IDB 2000).

D. An Additional IR is Proposed

For ease of management, as well as to track results, it is proposed that there be a separate IR package to be managed by the Mission and executed by a contractor[6]. Funds committed for this IR should only be used in program support of the Ministry of Education, in Petén, to strengthen the formal education system as long as it fits two, basic, concepts:

1. The activity fits the Region VIII strategic plan of the Ministry of Education.

2. The activity is for startup costs such as preparing modules for training teachers, establishing normal school curriculum in municipal seats as in the example of San Andres, working with the Ministry training personnel, for first run materials, and art materials for future printing of needed materials.

Environmental Communication should follow GreenCOM's recommendations and be an integral part of the new, proposed IR. That is, the messages and strategies need to be complementary; it should be the responsibility of the executing contractor to coordinate this work and assure that the two approaches are compatible.This kind of support, in the short run, would have programmatic impacts that are simply process indicators toward the final goal changing attitudes and behavior of the students. To measure impacts of this environmental education effort on the behavior of the present school population when it becomes adult, plus relate this to the management of natural resources, is beyond the time frame of the MBP.
Process indicators could be:

- Percent of teachers that are prepared in the use of the materials
- Percent of classes each year that use the materials
- Percent of classrooms that have a map[7] of the MBR, with municipal boundaries and communities, and the roads clearly marked
- The number of normal schools with environmental curriculum, and later, the number of graduates of the programs.

[6] We use the term "contractor" to mean any organization that the Mission contracts under any of the usual mechanisms – Cooperative Agreements, sub-grantees under an umbrella agreement, etc., as long as it is integrated into the remainder of the MBP activities.

[7] It was found, not only in the classroom but also in public places, that there have not been maps showing the geographic location of the municipalities and communities, and roads in relation to the MBR. This graphic material is necessary for everyone to visualize the whole.

Exhibit A-VII-1. Estrategia de Educación Ambiental de la Región VIII PETEN, propuesta en 1998

Línea de acción	Objetivo	Acciones	Responsables	Prioridad
1. Educación ambiental informal, sistema de información y comunicación	Establecer un sistema regional de información ambiental y de intercambio de datos y experiencias entre diferentes instituciones involucradas y promover la cooperación internacional en actividades relacionadas con educación ambiental.	Formar una red departamental de comunicaciones.	COREDUR (CONAMA)	2
		Creación de un centro u oficina de coordinación e información en educación ambiental.	CONAP	1
		Reactivar las comisiones de medio ambiente de las municipalidades para la divulgación en cada municipio.	CONAMA	1 - **A**
		Desarrollar [8]programas de conscientización ambiental a diferentes niveles, utilizando los medios masivos de comunicación. Utilizar los medios de comunicación (radio y periódico) y buscar la colaboración de los diferentes medios de comunicación (radio, T.V., periódicos). Impresión de trifoliares, tiras cómicas, afiches y otro material impreso.	CISEA[9]	1
		Utilizar Internet para obtener información e intercambiar proyectos de educación ambiental.	CUDEP Oficina de Coro de EA??	2
2. Investigación y experimen-tación educativa	Promover la investigación y experimentación sobre diversas metodologías educativas y contenidos ambientales y poner en marcha estrategias de organización.	Dar a conocer las investigaciones realizadas por diversas instituciones.	CISEA	3
		Desarrollar un diagnóstico de la problemática de la educación ambiental de Petén.	CUDEP MINEDUC	1
		Evaluar las actividades que se realizan.	CISEA	2
		Promoción de diferentes investigaciones ambientales.	Oficina de la Comisión ¿?	2
		Motivar PPS y EPS, tesis, etc. y un fondo de educación ambiental.[10]	CUDEP[11]	1
		Financiar proyectos de investigación por medio del fondo de educación ambiental.	ONGs CUDEP	2 - **A**
		Motivar y canalizar investigaciones extranjeras.	CUDEP	2
		Descentralizar las acciones de la Red Nacional de Formación e Investigación Ambiental, a nivel departamental.	CUDEP, UMG CONAMA (Asociación de Investigación)	2

[8] Esta acción incluye a los antiguos 4.2 unido con 1.4 y 1.6
[9] Al unir las acciones, la lista de responsables era tan larga y todos forman parte de la CISEA
[10] Sugiero cambiar por: Motivar PPS, EPS y tesis a través del fondo de educación ambiental.
[11] Sugieren que CISEA recomiende los temarios o enfoques de investigaciones de E PS y de tesis

Línea de acción	Objetivo	Acciones	Responsables	Prioridad
3. Educación ambiental en el sector formal y académico	Fomentar la educación ambiental en el sector formal mediante la elaboración de programas de estudio y materiales didácticos para la enseñanza general.	Promover la adecuación[12] curricular[13] en los programas de estudio de los diferentes niveles.	MINEDUC	1-2
		Promover la creación de instituciones educativas y compartir [14]los recursos producidos (material didáctico).	MINEDUC ONGs	**A**
		Facilitar la aprobación de carreras a nivel medio y universitario relacionadas con la educación ambiental.	MINEDUC Universidades	**A**
		Incluir la materia[15]de educación ambiental en el pensum de estudios y curricula (primaria, básicos y especialmente en la carrera de magisterio).	MINEDUC	**A**
4. Educación ambiental en el subsector no formal	Sensibilizar y conscientizar a través de programas de educación ambiental no formal para fomentar una ética ambiental. **A**	Capacitar a líderes comunales (alcaldes auxiliares, grupos organizados, presidentes comunales, líderes religiosos, empresarios, etc.) a través de seminarios, talleres, cursos, etc.	CISEA Municipalidades Gobernación	1
5. Capacitación de recursos humanos	Fortalecer la información y capacitación de recursos humanos en la temática ambiental a nivel departamental.	Fortalecer y motivar en el nivel medio carreras enfocadas al mejoramiento del medio ambiente.	MINEDUC	A
		Capacitación[16] de docentes[17] (pensum en educación ambiental, didáctica apropiada y enriquecimiento de contenidos).	MINEDUC	1 - 2
		Capacitación inter-institucional en el manejo de la temática del medio ambiente.	CISEA	1
		Capacitación a personal específico a nivel de grado y posgrado con orientación ambiental.	Universidades	2
		Promover becas en educación ambiental.	Universidades MINEDUC ONGs	2
		Crear un programa de capacitadores y promotores ambientales municipales para que éstos sirvan a la vez de agentes multiplicadores.	Municipalidades CONAP	3
		Formación de un Centro de Capacitación Ambiental	MINEDUC CUDEP	3
		Promover la capacitación a nivel nacional e internacional.	CISEA	1
		Desarrollar eventos de capacitación para la investigación y experimentación (seminarios, foros, etc.)	CUDEP MINEDUC CONAP CONAMA	2
		Capacitar al personal educativo, CTAs [18] docentes, catedrátic@s en CCNN en el ciclo de educación básica.	MINEDUC	1-2

[12] Qué es lo correcto adecuación o transformación??
[13] Existe guía curricular de EA de ARCAS, Oscar Ovando tiene copia.
[14] Sugiero separar: Creación de instituciones educativas con orientación en la educación ambiental. Y por otro lado colocar: Establecer los mecanismos para compartir e intercambiar material didáctico producido.
[15] Es muy arriesgado sugerir incluir una materia, sugiero unir con la 3.1 en algo así como: Fortalecer la inclusión de la dimensión ambiental en los programas de estudio de pre-primaria, primaria y nivel medio (especialmente en la carrera de magisterio), a través de un proceso de adecuación curricular.
[16] Pre y post adecuación, estudiantes y docentes respectivamente
[17] Quité maestros y coloqué docentes
[18] Eliminé supervisores y CTPs que ya no existen.

Línea de acción	Objetivo	Acciones	Responsables	Prioridad
6. Cooperación inter-institucional a nivel nacional e internacional	Estimular la cooperación a nivel del departamento, del país e internacionalmente entre las instituciones que realizan educación ambiental.	Fortalecer a los centros que imparten educación ambiental formal en el departamento.		1
		Creación de un fondo para desarrollar programas de educación ambiental en Petén, proveniente de la cooperación nacional e internacional.[19]	ONGs nacionales e internacionales y COREDUR	2
		Comprometer a las ONGs y OGs para canalizar a la oficina de coordinación de educación ambiental los recursos necesarios[20]	CISEA	2
		Obtener apoyo técnico a través de la cooperación interinstitucional.	CISEA	1
		Establecimiento de mecanismos de cooperación interinstitucional.	CISEA	1
		Intercambio de experiencias a nivel nacional e internacional.	CISEA	1
7. Evaluación y seguimiento	Evaluar y retroalimentar las actividades de educación ambiental para optimizar los resultados de la Estrategia de Educación Ambiental en Petén	Designar un sistema de evaluación y seguimiento para monitora la Estrategia a través de talleres y seminarios en forma periódica.	CISEA	2
		Evaluar y retroalimentar la Estrategia y a la CISEA para optimizar		
		Evaluación de programas[21] existentes para no duplicar esfuerzos y maximizar los recursos.	CISEA	
		Informar y difundir a lo interno de la CISEA, los resultados de evaluación y seguimiento.	CISEA	2

Fuente: CONAMA. S.F. Estrategia de Educación Ambiental Región VIII.

(xx responsable) agregado en reunión del 5-5-00 A=Analizar
1=año 2000 2=2000-2002 y 3=2001-2003
Ojo: Nivel departamental y regional se usan indistintamente. Sugiero usar Región VIII en lugar de regional.

[19] Este es el resultado de unir antiguo 1.5 con 6.2
[20] Antes era la acción 1.7 y por referirse a coordinación y fondos lo trasladé a la línea 6
[21] El 5-5-00 decidieron unirlo con el 7.1, pero si se hace así, se pierde la idea, decidí dejarlo separado y falta agregar el número de prioridad y su FODA.

Exhibit A-VII-2. Ejercicio FODA de la Estrategia de Educación Ambiental Región VIII

Línea de Acción 1:
Sistema de Información y Comunicación

Objetivo: Establecer un Sistema Regional de Información Ambiental y de intercambio de datos y experiencias entre las diferentes instituciones involucradas.

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	**OPORTUNIDADES**	**DEBILIDADES**	**AMENAZAS**
1.2 Creación de un centro u oficina de coordinación e información en educación y capacitación en Educación Ambiental.	• Hay bibliotecarios presupuestados por CONAP • CONAP tiene Centro de Información • Interés y voluntad de las instituciones ce la CISEA • La CISEA está avalada por las instituciones miembros. • Existen recursos humanos y para recibir capacitación dentro de OGs y ONGs.	• Las instituciones de la CISEA tienen información valiosa de EA • El CUDEP tiene información proporcionada por UNEPET • La Cooperación Española tiene interés en auspiciar la creación de un Centro de Documentación • Puede crearse un registro de información de EA	• El espacio del Centro de Información de CONAP es muy pequeño • No hay personal permanente	• Inestabilidad de las dependencias gubernamental por cambios políticos. • Cambio de decisores o políticas dentro de las instituciones no gubernamentales
	• Hay interés de parte de ONGs y OGs en utilizar instalaciones para el Centro.	• Podría generar ingresos y ahorrar gastos. • Existe la posibilidad de usar instalaciones de Gobierno.	• No hay terreno, no hay local físico. • No hay dinero para implementarlo. • Si no hay fondos para implementarlo el recurso se minimiza.	
1.3 Reactivar las comisiones de medio ambiente de las municipalidades para la divulgación en cada municipio	• Ocho municipalidades ya tienen activadas sus comisiones a través de SARN apoyado por el PMS • El código municipal establece la creación de estas comisiones	• La CONAMA puede asesorar a esta comisión en aspectos de EA • Los alcaldes pueden utilizar fondos del 10% para apoyar proyectos de EA.	• Los alcaldes desconocen muchas veces la temática ambiental • Los alcaldes dan poca prioridad a la temática ambiental	• Inestabilidad política

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	**OPORTUNIDADES**	**DEBILIDADES**	**AMENAZAS**
1.4 Utilizar los medios de comunicación del COREDUR (radio y periódico), y buscar la colaboración de los diferentes medios de comunicación (radio, t.v., periódicos)	• Existen programas radiales de algunas ONGs y Ogs • Existe material impreso elaborado • Hay medios de comunicación interesados en ceder espacio • Existen fondos de ONGs para programas de radio • Existe la Ley de Fomento y Difusión (Decreto 116-96)	• Se podría utilizar la red de difusores de CARE para dar continuidad a los mensajes • Podría utilizarse mejor los espacios de las emisoras Uyuyuy & Utan –kaaj • Podría utilizarse el manual de PROSELVA para producir programas radiales ambientales • Podrían hacerse programas bilingües	• Falta personal capacitado para producir programas de radio • Cobertura limitada de las emisoras nacionales • Algunas organizaciones carecen de fondos para programas de difusión • Los horarios de transmisión limitan la audiencia • Desconocimiento de la idiosincrasia de la población local	• Influencia de programas de televisión extranjera.
1.6 ????	????	???	???	???
1.6 Impresión de trifoliares, tiras cómicas, afiches, etc.	• Existe material impreso • Se aprovechan conceptos creados por otros		• Subestiman conocimiento popular • Afiches fuera de contexto • No se respeta las idiosincrasias de los Peteneros • No hay unificación de mensajes • Afiches no son aptos para analfabetas • Algunas ONGs y proyectos despilfarran dinero promoviéndose a si mismas • Despilfarro de dinero en medios no adecuados • Fondos de OGs desviados para favorecer momentos políticos • Distribución limitada de los materiales • Falta de comunicación, colaboración y cooperación	

Línea de Acción 2:
Investigación y Experimentación

Objetivo: Promover la investigación y experimentación sobre diversas metodologías educativas y contenidos ambientales **.**

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	**OPORTUNIDADES**	**DEBILIDADES**	**AMENAZAS**
2.2 Desarrollar un diagnostico de la problemática de la EA en el Petén	• Diagnósticos elaborados por CARE 1992 • Diagnóstico elaborado por estudiantes del CUDEP en 1999 • Actividades que realiza la FIA en Petén	• Puede ampliarse el diagnóstico elaborado en 1999 • Puede lograrse mas apoyo del CUDEP a estudiantes de la licenciatura en EA • Integración de CICEA • Comunicación y coordinación con MINEDUC en 2000	• Investigaciones de deficiente calidad • Falta de acceso a documentación • Deficiente orientación de la investigación • Egoísmo para facilitar información • Falta de apoyo del CUDEP a sus mismos estudiantes • Falta de apoyo logístico a estudiantes	• Las instituciones se debilitarán aún más en su capacidad de apoyar investigaciones.
2.5 Motivar PPS y EPS, tesis, etc. y un fondo de EA	• Existen recursos • Ha habido experiencias positivas	• Las ONGs pueden crear un fondo para EPS y PPS para fortalecer organizaciones	• Recursos financieros limitados para estudiantes de EPS y PPS y tesis • Inadecuada orientación a estudiantes que realizan EPS y TESIS. • Falta de priorización para temas a investigar • Incompatibilidad de horarios de estudiantes de licenciatura de EA que trabajan dentro del MINEDUC • Reglamento de EPS de EA no es adecuado	• La universidad podría eliminar el programa de EPS en licenciatura en EA

Línea de Acción 3:
Educación Ambiental en el Sector Formal

Objetivo: Fomentar la Educación Ambiental en el Sector Formal mediante la elaboración de programas de estudio y materiales didácticas para la enseñanza general.

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	OPORTUNIDADES	DEBILIDADES	AMENAZAS
3.1 Adecuación curricular en los programas de estudio de los diferentes niveles	• Existen libros de texto donde el ambiente es un eje formativo, • Decreto Ley 74-96 Ley de Fomento de la Educación Ambiental. •	• El MINEDUC podría tomar el protagonismo y la responsabilidad para la creación de currículum pertinente basados en problemas, necesidades e intereses de las comunidades locales donde la temática ambiental está inmersa	• Poco uso de los libros de texto del gobierno • Falta de voluntad política a nivel de gobierno para apoyar la EA. Formal y fortalecimiento al MINEDUC.	• Cualquier disposición podría ser cambiado por el gobierno de turno.

Línea se Acción 4:
Educación Ambiental en el Subsector No-Formal

Objetivo: Sensibilizar y Conscientizar a través de programas de educación no-formal a ... ¿¿ANALIZAR EL OBJETIVO

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	OPORTUNIDADES	DEBILIDADES	AMENAZAS
4.1 Capacitar a líderes comunales, grupos organizados, presidentes de comités locales, líderes religiosos, empresarios, etc. a través de seminarios, talleres y cursos	• Se cuenta con los recursos humanos de las ONGs • Existen experiencias en el campo	• Si se fortalecen las comisiones del Medio ambiente de las Municipalidades puede funcionar mejor. • Al organizar un programa de capacitación pueden ganar multiplicadores.	• Lenta respuesta a necesidades de comunidades por parte de las ONGs • Falta de fondos por parte de las ONGs • Imposición de los criterios de las ONGs • Falta de seguimiento • Incompatibilidad de intereses y horarios entre las ONGs y comunidades • Falta de credibilidad por parte de las comunidades en las organizaciones	• Politización del proceso de capacitación • Donantes cortan presupuestos.

Línea de Acción 5:
Capacitación de Recursos Humanos

Objetivo: Fortalecer la formación y capacitación de recursos humanos la temática ambiental a nivel departamental.

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	**OPORTUNIDADES**	**DEBILIDADES**	**AMENAZAS**
5.2 Capacitación de maestros (pensum en EA didáctica apropiada y enriquecimiento de contenidos)	• Disponibilidad de recursos humanos de las ONGs • Existen algunas guías y materiales que se pueden utilizar	• Interés del MINEDUC en asumir responsabilidades para el año 2000. • Los docentes rurales jóvenes están interesados, son creativos y innovadores, y apoyan la EA	• Falta de coordinación entre la Dirección Departamental de Educación y ONGs • Desconocimiento de la legislación que rige la EA por parte del Ministerio • Falta e recursos humanos y financieros dentro del MINEDUC • Desfase de las capacitaciones en contenidos y grupo meta por parte de las ONGs • Falta de monitoreo y evaluación de los programas de capacitación que realizan las ONGs • Las capacitaciones internas del MINEDUC, vienen definidas des las oficinas centrales • Los Donantes de las ONGs no son exigentes con la verificación de los resultados	• Terminación de los proyectos que financian la capacitación • Falta de interés de los maestros en el seguimiento de las capacitaciones • Apatía de algunos maestros del área urbana.
			• Las ONGs dan más énfasis al número de maestros y alumnos atendidos que a la calidad de la capacitación • Se ha dado más énfasis a los contenidos que a la metodología de enseñanza • Docentes del área urbana no tienen interés en procesos de capacitación	

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	OPORTUNIDADES	DEBILIDADES	AMENAZAS
Capacitación interinstitucional en el manejo de la temática del medio ambiente (¿¿ UNIDA CON 2.10)	• Experiencia a nivel local • Existen recursos humanos locales para fomentar la capacitación	• Puede mejorarse la voluntad de colaborar entre instituciones • Interés de las instituciones de capacitar a su personal	• Diferencias entre donantes repercuten en el trabajo • Favoritismo • Egoísmo entre instituciones • Capacitaciones obedecen a los intereses de los donantes	

Línea de Acción 6:
Cooperación Interinstitucional en el Ámbito Nacional e Internacional

Objetivo: Estimular la cooperación i a nivel de departamento, del país e internacional entre instituciones que realizan educación ambiental.

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	OPORTUNIDADES	DEBILIDADES	AMENAZAS
6.1 y 6.2 Fortalecer los centros de enseñanza de EA a nivel medio y universitario	• Existe recurso humano que puede fortalecer académicamente a los centros	• Pueden encontrarse donantes para fondos de apoyo a estos centros	• Burocracia para solicitar fondos • Falta de seguimiento • Falta de interés de los centros en solicitar apoyo • Falta de cooperación interinstitucional • Desconocimiento del mercado para los egresados • Inestabilidad del personal docente	• Desaparición de algunos centro por su deficiente funcionamiento • Saturación de la demanda para egresados
6.3 Establecimiento de mecanismos de cooperación interinstitucional	• Interés de las instituciones en reactivar y participar dentro de la CISEA	• Optimizar mejor los recursos disponibles para las organizaciones de la CISEA	• Los participantes de las reuniones de la CISEA carecen de poder de decisión • Falta de reglamento para dirigir el trabajo de la CISEA • Faltan planes • No hay un compromiso interinstitucional • No se ha aclarado la figura legal de la CISEA	• Los miembros de la CISEA se desmotivan ante la falta de cumplimiento de los acuerdos

Línea de Acción 7:
Evaluación y Seguimiento

Objetivo: Evaluar y retroalimentar las actividades de la educación ambiental para optimizar los resultados de la estrategia de educación ambiental en la Región 8.

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	OPORTUNIDADES	DEBILIDADES	AMENAZAS
7.1 Designar una junta de evaluación y seguimiento	Xxx			
7.2 Promover talleres y seminarios				
7.3 Evaluación de los programas existentes				

Línea de Acción 8:
Sistema de Información y Comunicación

Objetivo: Establecer un Sistema Regional de Información Ambiental y de intercambio de datos y experiencias entre las diferentes instituciones involucradas y promover la cooperación internacional en actividades relacionadas con educación ambiental.

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	OPORTUNIDADES	DEBILIDADES	AMENAZAS
1.2 Formar una red departamental de comunicaciones.	• Ya existe la SAR en 8 Municipalidades. • Ya existe oficina, ONGs o subsidios de proyectos, en algunos municipios. • Ya existe en algunas ONGs una red electrónica (INTERNET).	• Se pueden actualizar los informes en Educación Ambiental sobre el manejo de un mismo mensaje, uniformidad de conceptos. • Retroalimentación de información. • Evitar duplicidad de esfuerzos. • Optimización de recursos fortalece la comunicación entre Instituciones. • El mensaje llegará más rápido.	• Se carece de Equipo electrónico, no todas las Oficinas OGs y ONGs proyectan electricidad de comunicación en las Municipalidades. • No hay medidas definidas, como se va ha comunicar. • No en todos los Municipios tienen SAR.	• No cumplir con los compromisos adquiridas. • Formar una base de datos de todas las instituciones que trabajan con Educación Ambiental. • No existe reglamentación para trabajos de investigación.

Línea de Acción 9:

Objetivo: Promover la Investigación y Experimentación sobre diversas Metodologías Educativas y contenidos Ambientales y poner en marcha estrategias de Organización.

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	**OPORTUNIDADES**	**DEBILIDADES**	**AMENAZAS**
2.3 Evaluar las actividades que se realizan en Educación Ambiental.	• Existe recurso humano para hacer investigaciones. • Hay una asociación de investigadores de medio ambiente de Petén. • Se encuentra la Carrera de Licenciatura en Educación Ambiental. • Las Maestrías que se incorporaron al Depto. Actualmente.	• La FIA Foro de Investigadores de Medio Ambiente. • Existe la DIGI IIME de la USAC.	• No existe una base para temas de investigación.	• Falta de dinero • Tiempo de EPS limitado.
2.7 Motivar y canalizar investigaciones extranjeras.	• Asociación de Investigadores de Petén (motivarlos y Canalizarlos) • Universidades del extranjero que envían a estudiantes de tesis con maestría y doctorados con financiamiento.	• Las ONGs y OGs podrán orientar estas tesis de Investigaciones de Educación Ambiental. • La Región VIII representa una oportunidad para investigaciones y experimentaciones de Educación Ambiental.	• No existe un diagnostico de las prioridades para investigaciones en Educación Ambiental.	• Que la investigación no responda a los intereses nacionales. • El CUDEP y todas Universidades no cumplen con promover este tipo de actividades.

Línea de Acción 10:

Objetivo: Fomentar la educación ambiental en el sector formal mediante la elaboración de programas de Estudio y materiales didácticos para la enseñanza general.

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	**OPORTUNIDADES**	**DEBILIDADES**	**AMENAZAS**
3.2 Establecer los mecanismos para compartir e intercambiar material didáctico producido.	• Existe material didáctico. • Hay voluntad de compartir de las ONGs y OGs documentos y material didáctico.	• Existe equipo de OFF SET (COREDUR) • Coordinar con maestros la elaboración de material. • Los materiales de Educación	• No hay capacidad como para asumir a costos de impresión y reproducción de material. • No hay voluntad política de MINEDUC para apoyar el uso de	• Que el MINEDUC no autoriza la participación de los maestros. • No hay apoyo por parte del maestro para el uso del

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	OPORTUNIDADES	DEBILIDADES	AMENAZAS
		ambiental sean validos por los docentes.	los materiales. • Hay distribución limitada y equivocada (redactar) • No hay sistematización en el uso del material (propiedad del material) • Romper paradigmas en cuanto al uso del material didáctico de Educación Ambiental. • Los material del MINEDUC son de gabinete.	material.
3.3 Facilitar la aprobación de carreras a nivel medio y universitario relacionadas con la educación ambiental.	• El MINEDUC aprueba en 90 días la Ley 74-96.	• Oferta y Demanda	• Que se promuevan. • No hay interés de la iniciativa privada (colegios privados)	• Hay poca oportunidades de empleo para recién egresados. • Falta de experiencia. • Experiencia de 5 ó más años.

Línea de Acción 11:

Objetivo: Motivar y fortalecer la formación o capacitación de recurso humano en la temática ambiental a nivel departamental.

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	OPORTUNIDADES	DEBILIDADES	AMENAZAS
5.4 Promover la capacitación de recurso humano en E. A. A nivel de talleres, cursos, seminarios a nivel Nacional e Internacional	• Existe recurso humano dentro de Ogs y Ongs que pueden capacitar. • Existe una Licenciatura en Educación ambiental. • Existe material didáctico de apoyo para las capacitaciones dentro de las Ongs y Ogs. • Hay dinero en algunas Ongs para promover la capacitación de su personal a nivel local, nacional e internacional. • Existe interés de Ogs responsables del Medio Ambiente en apoyar las	• Existe contactos con Ongs nacionales e Internacionales para promover la capacitación a nivel de personal local. • Profesionalización del personal de Ogs y Ongs puede profesionalizarse a través de la capacitación. • Mejores resultados en la planificación y ejecución de los programas dentro de las Ongs y Ogs en E.A. • Mejores oportunidades de trabajo. • Intercambio de experiencias e información a nivel nacional e internacional en el campo de la Educación ambiental.	• No existe unificación de criterios que las metodologías para las capacitaciones. • Las oportunidades de capacitación no llegan hasta el personal técnico apropiado. • Existen buenos materiales, buena disponibilidad pero no hay una buena metodología para capacitar. • Que no se logra el efecto multiplicador de las capacitaciones. • No hay equidad de genero al momento de decidir quien se va a las capacitaciones.	• Los cambios de mandos en Instituciones Gubernamentales y No gubernamentales rompen con el seguimiento de las capacitaciones. • Los buenos elementos se van, una vez capacitados que debido a los bajos salarios de Ogs.

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	OPORTUNIDADES	DEBILIDADES	AMENAZAS
	capacitaciones de su personal.	• Intercambiar criterios en desarrollo de metodologías en E.A.		
5.5.Promover Becas en E. A. A nivel de Licenciatura pos grado en el ámbito nacional y difundir las Internaciones.	• Existen ofertas de pos grado financiadas por organismos internacionales. • Existe la Licenciatura en Educación Ambiental y un pos grado a nivel de Región VIII y Nacional. • Existe interés de Ongs Ogs locales de promover becas de licenciatura a nivel de la Región como incentivo a los trabajos realizados por algunos maestros o personal de las mismas. • Existe el personal técnico de Ogs y Ongs para mejorar su nivel académico.	• Profesionalización del personal de Ogs y Ongs puede profesionalizarse a través de la capacitación. • Aumentar el número de recurso humano calificado Petenero.	• No se produce el efecto multiplicador de las capacitaciones. • Falta de apoyo institucional a posibles becarios especialmente por Ongs. • No existe diversificación de carreras a nivel local para especializarse. • No hay equidad de genero y étnico. • Becas asignadas por criterios subjetivos e intereses personales.	• Oferta y demanda(ver 5.4) • Migración de recurso humano calificado hacia otros lugares por falta de incentivos económicos.

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	OPORTUNIDADES	DEBILIDADES	AMENAZAS
5.7 Desarrollar eventos de capacitación para la investigación y experimentación y divulgación en Educación Ambiental	• Interés por parte de Ongs por desarrollar Investigación. • Existe Asociación de Investigación.	• Podría sistematizarse la investigación y experimentación en base a experiencias desarrolladas por Ongs y Ongs. • Poner en practica los resultados de las capacitaciones en Investigación y Experimentación.	• Falta de recursos humanos y financieros para promover la Investigación y Experimentación. • No hay prioridad para fomentar la documentación de resultados. • Falta actualización de metodología para la Investigación y Experimentación. • El sistema educativo no fortalece ni promueve la Investigación ni la Experimentación. • Falta de seguimiento a la	• Nunca se documente nada y que no exista una memoria histórica del trabajo que se hace. • Que se dupliquen esfuerzo por el desconocimiento de lo que se hace.

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	OPORTUNIDADES	DEBILIDADES	AMENAZAS
			capacitación. • Falta de difusión de avances en el tema.- Falta incluir el componente de I. Y E. En el trabajo de Ongs y Ogs.	
LINEAS DE ACCION	**CARACTERISTICAS**			
	FORTALEZAS	**OPORTUNIDADES**	**DEBILIDADES**	**AMENAZAS**
6.2 y 6.3 Creación de un fondo para desarrollar programas de educación ambiental en Petén, promover de la cooperación nacional e internacional a través de las Ongs y Ogs.	• Existe esfuerzos de la Coordinadora Interinstitucional de Seguimiento a la Educación Ambiental. • Compromiso de Instituciones Ogs. Y Ongs en desarrollar acciones de la Estrategia. • Obligación de las Ogs. En ejecutar las acciones de la estrategia. • Algunas Ongs colaboran para acciones de la Estrategia. • Hay credibilidad en la Estrategia.	• Existen donantes potenciales para ejecutar las acciones de la estrategia. • Posibilidad de obtener sustento legal para manejo de fondos. • Se podrán ejecutar más acciones.	• No existe figura legal, plan operativo para la estrategia de Educación Ambiental. • Falta de apoyo financiero por parte de ONGs para el fortalecimiento de los entes. • Algunas Instituciones no han dado seguimiento a la estrategia. • Falta institucionalizar la estrategia. • Falta Plan estratégico y operativo. • Falta cartera de proyectos para buscar fondos y desarrollar acciones.	• Al no coercionarse la CISEA no se obtienen donaciones. • Falta de fondos suficientes para ejecutar acciones de la estrategia. • Falta de cumplimiento de responsabilidades de Ogs y Ongs en acciones contempladas dentro de la estrategia. • Al no conseguir fondos suficientes para actividades la estrategia de debilita.

LINEAS DE ACCION	CARACTERISTICAS			
	FORTALEZAS	**OPORTUNIDADES**	**DEBILIDADES**	**AMENAZAS**
7.1 Diseñar y sistematizar la evaluación el funcionamiento de la comisión interinstitucional en forma periódica y discutir resultados a lo interno.	• Existe documento base a medir. • El celo profesional ha sido mejor encausado a la competencia.	• Permitirá readecuar la implementación de la estrategia. • Resultado de la Estrategia y seguimiento podrán motivar a otras instituciones y incorporarse.	• No hay planes operativos para evaluar. • Falta de apropiación de la Estrategia por parte de Ogs y Ongs, lo que hace que cada miembro hace que trabaje en forma independiente. • Temor a la evaluación como fiscalización.	• De no evaluarse podría quedar obsoleta los resultados de la estrategia. • Temor al uso que se le dará a los resultados de la evaluación.
7.2 Diseñar y sistematizar la evaluación y seguimiento del funcionamiento de CISEA	• Existe voluntad para coordinar acciones. • La comisión esta formada por Ogs y Ongs.	• Al tener figura legal se podrá tener una base para evaluar un reglamento. • Al evaluar funcionamiento se podrá mejorar la coordinación para poder implementar la Estrategia.	• Falta de plan para motivar a otras instituciones para integrarse a la CISEA. • No se cuenta con figura legal, reglamento, plan de trabajo dentro de la CISEA.	• Perdida de interés por participar de las Ogs y Ongs. • Que la CISEA desaparezca.

Eliminado 2.1 porque forma parte del 2.9
Acciones de la Fase 3: Unir el 4.1

ANNEX A-VIII ASSESSMENT FINDINGS

Minority and Gender Issues

Minority and Gender Issues

Observation. There is not a minority issue in the MBR. The present Development Alternatives/WIDTECH gender strategy is appropriate.

Analysis. The modern social and cultural development of the Petén has been such that no specific ethnic minority has not been repressed or excluded. The probable reason, with one exception, is that the population density was low and that ethnic minorities have migrated to the region to occupy various areas and, in the process, have given up their ethnicity. In the case of the Itzá, they were able to evolve and negotiate a municipality with the "dominant" society in the 1800s, which serves as their basis today.

In the case of gender issues, the traditional gender bias in the cultural base continues, but there are signs that some of the groups compensate women equally for wage work, and, although late in starting, the MBP has begun a program of gender awareness.

Recommendation. In 2000, Development Alternatives, as part of the WIDTECH project, began an ongoing process to implement a strategy for increasing the participation of women in the MBP. This set of activities should be continued as planned. In addition to the USAID, CONAP, ProPetén\CI, and Centro Maya, attendees, the workshop should be expanded to include staff from the mayors' offices that have community development or gender offices.

The Question of Minorities. In the usual assessments the term minority refers to an ethnic group that is deprived and that needs to be taken into consideration programmatically to systematically include that group in the program.

In the case of the MBR, we found that it is difficult to identify an ethnic minority that has been left out or marginalized. The first candidates for "minority" category are the Itzá who make up 1.26 percent of the population.[1] In contrast to people of other linguistic groups where the younger generations consider themselves "Ladinos" and have dropped the use of their language, the Itzá people concentrated in the municipality of San José have been experiencing a cultural renewal in two ways. The first is through bilingual schools, which is logical when 95 percent of the people claim Itzá as their first language. The second is seen in the ejidal lands that they have set aside as the "Biotopo Itzá." A "Biotopo" is a park category of the national park system, and, in this case, they have management plans along cultural lines for the use of the area. Perhaps cultural renewal is just a continuation of a long history as a cultural group that has been able to negotiate and maintain itself vis-à-vis the dominant society. The Municipality of San José has been traditionally an Itzá ethnic municipality with Itzá mayors since Spanish colonial times. Studies have shown that the Itzá are generally better off than the poor immigrants from other

[1] All population statistics are taken from the 1998 census conducted by CARE. Grünberg, G., and Ramos, V.H. "Base de Datos sobre Población, Tierras y Medio Ambiente en la Reserva de la Biosfera Maya, Petén, Guatemala. Previous population statistics have been found to be inaccurate.

areas.[2] From these aspects, level of living, own municipality, a national park in their favor, it is clear that they are not a deprived or marginalized minority and have been able to deal with the remainder of the society on better terms than the other ethnic groups.

Another group that is a numeric minority (five percent), and that feels that it has been the subject of Guatemala City-centric policies over the decades, is the "Peteneros" — people of mixed ethnicity — who have been in Petén for at least two generations. They have felt that the programs promoted by the central government have not been in their interest. For example, when FYDEP was created, the Department of Petén was under military rule and FYDEP allocated forest concessions to outsiders. Below the 17-10 latitude, land titles for cattle farming were granted to outsiders. Later, the land in the lower part of Petén was used as a colonization area to relieve the population pressure from the remainder of Guatemala. When the biosphere was first promoted and CONAP was given the authority over land use, again, the Petenero reaction was that another wave of Guatemala City polices would be imposed. They resisted by burning CONAP district offices and by threatening personnel.[3] The Peteneros also feel that the outsiders who have come in have a more aggressive, rude, and boisterous personality, and that they do not respect local people and their positions.

If it were not for the results of increased hotel and restaurant business, the securing of forest concessions by Peteneros, the ecotourism routes that were built on local chicle tapper routes and that use guides and resources of the Peteneros, and also the fact that the director of CONAP and key personnel are from Petén, then one could make the case that they were an endangered minority. However, that is not the case. The case seems to be that the MBR, after the rough start due to the lack of communication as to the intentions, is an exceedingly good fit to the traditional cultural and land use customs of the Petenero.

The MBP forest concessions have included all groups; the parks settlement problems have not be biased against any specific group. Actually some Quiché-speaking groups that returned from Mexico after the peace accords have been settled and allowed to remain in park areas because of the indigenous rights honored in the accords.

The Gender Issues. The range of involvement or enfranchisement of women among the MBP activities varies greatly. The range depends upon the type of organization or activity. At one end, which is the result of the design of the forest concession by-laws, women are equal members with their husbands of the concessions. Typically, however, each family in the concession has one vote. One of the aspects of some of the forest concessions is that members work at different wage rates than non-members. In the case of Uaxactún, the women members, who worked as cooks for the field teams, were paid the same wage as the male members of the team (Q/50/day). This may be a traditional female role in the community, but it is difficult to envision women in forestry aside from administrative roles. Women could be trained as graders of wood at saw

[2] Conversation with Norman Schwartz, anthropologist with 30 years experience and studies in Petén.

[3] Explained by José Roman Carrera in relation to the history of CONAP, corroborated by Norman Schwartz, and implied in the opening speech by the Governor at the conference on settlements in parks on 21 July 2000.

mills.[4] In one of the concessions, there aren't any women members (Suchitecos), but in the remainder of the concessions, they make up between 24 percent and 28 percent of the membership. CARE had an important influence on the inclusion of women as owners on the titled land. This is an important impact.

The other extreme of the range is reported by Centro Maya in its attempts at income-generating projects for women in the Lacandón area where they encounter the traditional obstacles — reluctant husbands and too many children in the household so that women could be involved in extra-household activities.

In between these extremes are the cases where Centro Maya and CARE have helped women establish businesses, or where CI, in the case of Ecomaya, have established associations in which women are the managers and key personnel. CI's fund raising advisor to Alianza Verde is a woman. Alianza Verde is a CI-inspired trade association of hotel and restaurant owners aimed at a "green seal." It is an excellent example of conscience-raising in an area related to the MBP future success. With the exceptions mentioned, and the cases of CARE and Defensores de la Naturaleza with women directors, women are generally under-represented in the NGOs, PVOs and the government agencies involved.

Although the grantees dutifully report the numbers of men and women involved in MBP activities, we have not found that the information is used or analyzed to adjust the program. It appears to be a reporting formality.

We did not find that women were included in land-use mapping as part of the annual operating plans or the design of concession plans. If this is so then an opportunity was missed because, aside from the traditional chores and needs of women, such as water and garden plots, women also work in xate gathering and would have a perspective to share when planning the spatial distribution of sites.

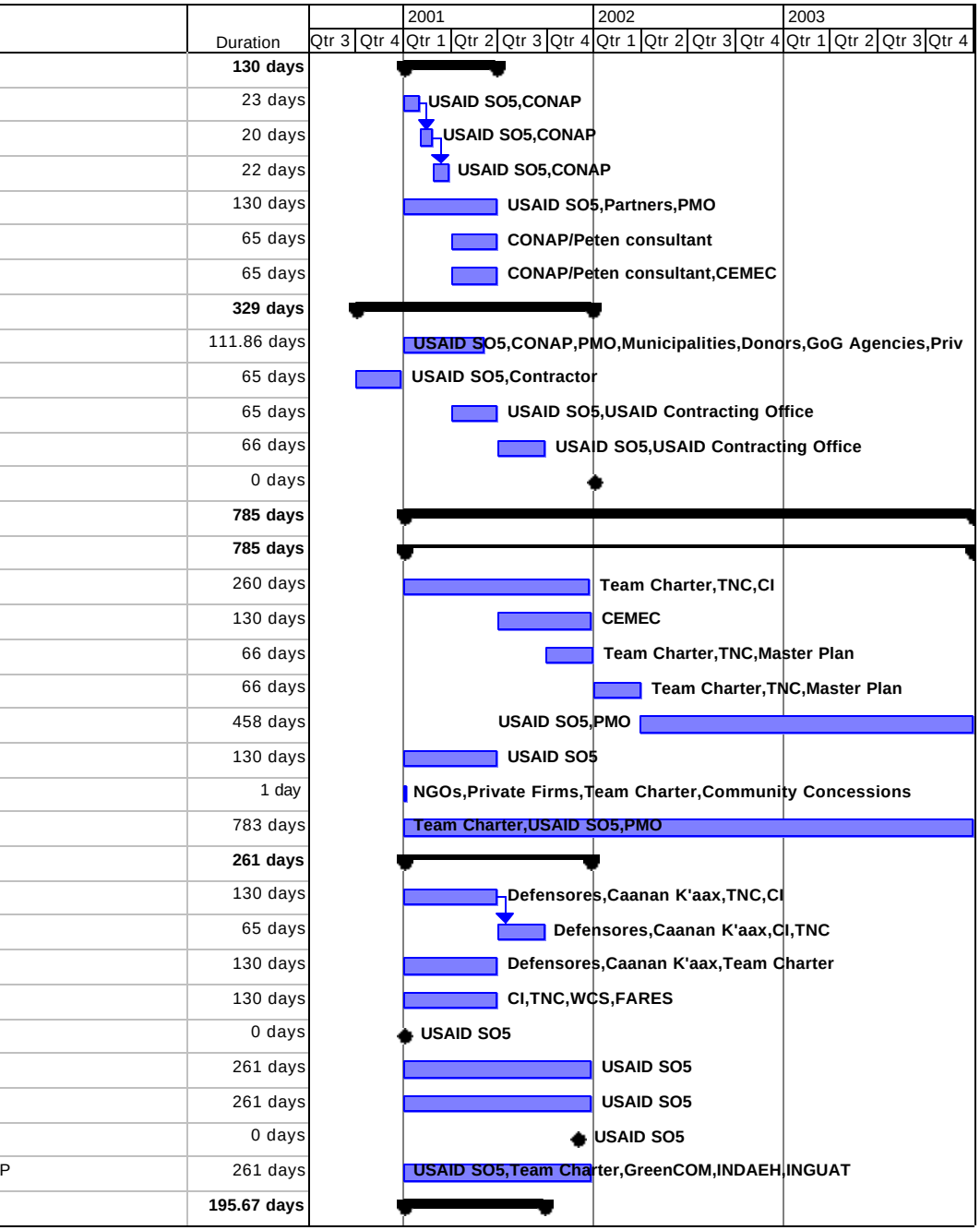
The Municipality of Flores has an office for the promotion of women with a small business effort. This represents the level of consciousness of the mayor's wife, a school teacher by training, who heads the office.

[4] Generally, women are better quality control personnel than men across industries, but the traditional culture is against their being lone women in male labor dominated organizations such as sawmills. One could look forward to women doing forest management plans, but it is unlikely that women would be free to work alone in isolated forest conditions.

ANNEX B

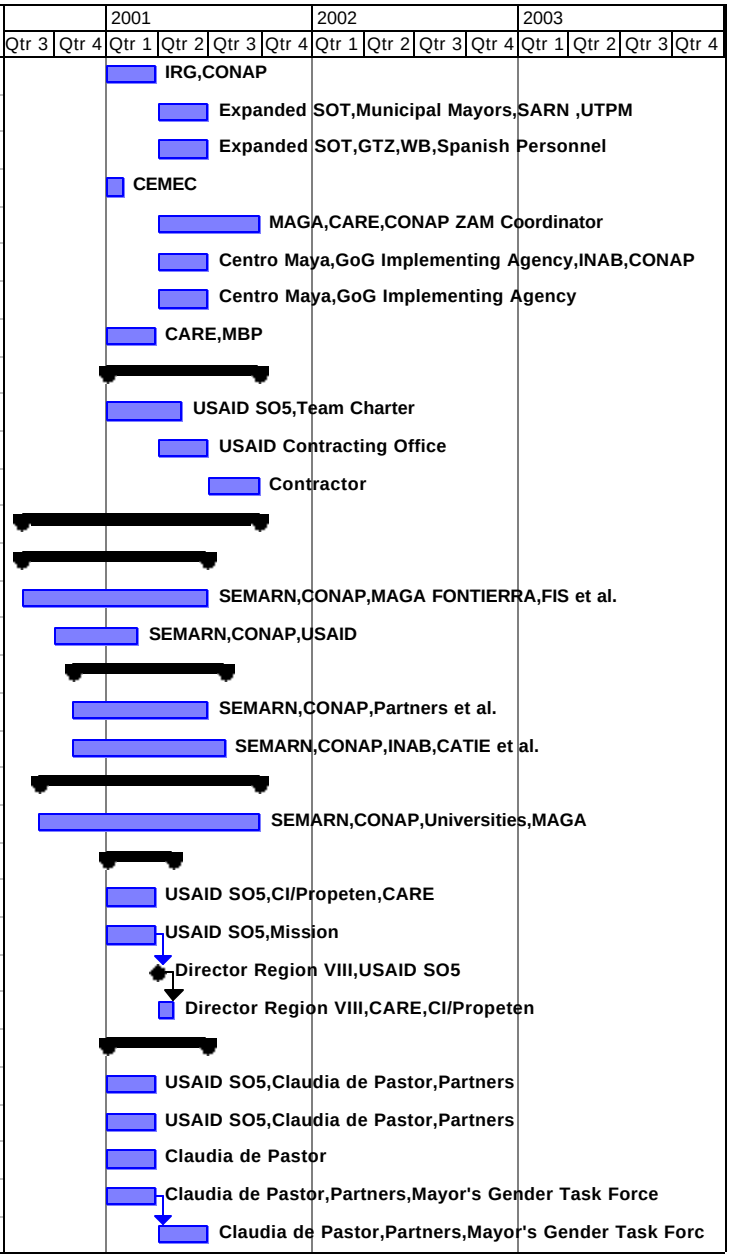
Implementation Plan

ID	Task Name	Duration
1	**New Results Framework, PMP, and M&E System**	**130 days**
2	Review RF & Indicators Recommendations of Report	23 days
3	Decide Financial Commitment of Donor and GoG	20 days
4	Establish Priority Activites	22 days
5	Contract Consultant to Facilitate Discussion of RF, Indicators, & Prep. of Final	130 days
6	Contract & Work with MIS Consultant to Incorporate Indicators & PMP into MIS	65 days
7	Develop MIS	65 days
8	**New Project Management Structure**	**329 days**
9	Start Meetings to Learn About Activities & Potential Conflicts with MPB	111.86 days
10	Draft TOR for PMO	65 days
11	Use IQC or Release RFP/RFA for PMO	65 days
12	Select Proposal & Issue Contract	66 days
13	PMO Installed	0 days
14	**Biodiversity & Protected Areas**	**785 days**
15	**Biodiversity**	**785 days**
16	Review Existing Literature	260 days
17	Convert Existing Information to Map Coordinates	130 days
18	Use Spatially Referenced Data: Determine Areas of Reserve Lacking Information	66 days
19	Based on Threats, Qualify Management Concern for Information Gaps	66 days
20	Contract Professionals for Rapid Ecological Assessment of Priority Areas	458 days
21	Establish Fund for Priority Research by Guatemalans	130 days
22	Establish Monitoring System for Permanent Plots, Esp. Plots with Baseline Data	1 day
23	Ensure Proper Management, Access to Information	783 days
24	**Parks**	**261 days**
25	Define "Core Areas" of PNSL & PNLT	130 days
26	Demarcate "Core Areas"	65 days
27	Analyze Possibility of Community Concessions in Non-Core PNLT & PNSL	130 days
28	Begin RAPs & Baseline Data Collection for Central-Eastern MBR	130 days
29	Begin Funding WCS Activities at Modest Levels in Mirador-Rio Azul Park	0 days
30	Scout Out Other NGOs Working in Central-Eastern MBR	261 days
31	Continue Support of Community Forest Concessions in Central-Eastern MBR	261 days
32	Discuss Mirador Area with Richard Hansen, NGOs, Concessionaires	0 days
33	Develop Public Education Exhibits in Tikal on Community Forest Concessions & MBP	261 days
34	**Service Corridor**	**195.67 days**



Legend Task Milestone Summary Split

ID	Task Name	Duration
35	Review Fiscal Policy MBR for Municipalities	65 days
36	MBP Informational & Coordination Workshop with UTPMs & SARN	65 days
37	Exchange Titling, Resource Management, & Fiscal Strategies	65 days
38	Create & Distribute Maps of MBR Zones with the Municipal Boundaries, Eijdos & Towns Clearly Marked	23 days
39	Coordinate with the MAGA to Transfer the Sustainable Agricultural Activites	130.67 days
40	Coordinate with INAB as Part of Forestry in Service Corridor Strategy	65 days
41	Promote Woodlot Management Among Large Land Owners	65 days
42	Population Census -- Depending on CARE/Austria's Funding	65 days
43	**Forestry Concessions**	**196 days**
44	Prepare SOW & TOR for Support to Forestry Concessions Activity Under New IR 1.1	97.5 days
45	Use IQC or Release RFP/RFA	65 days
46	Begin 3-Year Enterprise Development & Forest Industry Program	65 days
47	**Environmental Policies**	**305 days**
48	**Structural Issues**	**239 days**
49	Population: Human settlements in the MBR	239 days
50	Economic Activities: Oil in the MBR	109 days
51	**Operational Issues**	**196 days**
52	Coadministration of protected areas	174 days
53	Concessions in the MBR	196 days
54	**Institutional Strengthening**	**283 days**
55	Form policy unit of the Public Environmental Management System	283 days
56	**Environmental Education**	**86 days**
57	Review Report Recommendations & Min. Educ. Strategic Plan	65 days
58	Decide if Formal Environmental Education Will Be Supported	65 days
59	Meet with Min. Educ. Reg. VIII to Review Possibilities	0 days
60	Plan Activities for Min. Educ. Implementation of Formal Enviro. Educ.	21 days
61	**Minority & Gender Issues**	**130.33 days**
62	Review Recommendations & Plan by WIDTECH	65 days
63	Review Partners' 2000 Workplans: Are Gender Recommendations Considered?	65 days
64	Review Mayors' Gender Programs -- Melchor to La Libertad	65 days
65	Plan Workshop Timing for 2000 According to WIDTECH	65 days
66	Carry Out Workshops	65.33 days



Legend Task Milestone Summary Split

ANNEX C

Scope of Work—Chemonics BIOFOR

Attachment No.1

SCOPE OF WORK

ASSESSMENT AND ANALYSIS OF PROGRESS TOWARD SO5 GOALS
and
SUPPORT TO FORESTRY ACTIVITIES IN THE MAYA BIOSPHERE RESERVE

I. OBJECTIVE

The objective of this Scope of Work is to assist USAID/G-CAP to complete the activities described in Section III, under the Biodiversity and Sustainable Forestry IQC Task Order. This task order will be incrementally funded.

II. BACKGROUND AND NEEDS STATEMENT

The Maya Biosphere Project (MBP) was signed in 1990, and has been the primary contributor to USAID's Bilateral Environment Strategic Objective (SO), *"Improved Natural Resource Management and Conservation of Biodiversity,"* through the management of renewable natural resources and the protection of biological diversity and tropical forests in the Maya Biosphere Reserve (MBR) and improvements in the policy framework affecting the environment at the national level. Primary program components are park administration, sustainable income generation, policy and institutional strengthening. The project purpose is to: 1) strengthen Guatemala's capability to effect environmental policy improvements that will have nationwide impact (through an agreement with CONAMA which ended on December 15, 1999); and 2) improve the management of natural resources and protection of biological diversity in the MBR (through Agreements with CONAP and others).

The MBP is approaching its second decade of operations, and has generated impressive results, which have begun to change the way all Guatemalans, but perhaps most importantly those living in the Petén, view this unique area. USAID's commitment to the conservation of the reserve, through its support to communities, non-government organizations, and the National Parks Agency (CONAP), has been vitally important. In addition to the demonstrated impact on reducing biodiversity depletion of this globally significant site, the project has contributed to the region's economic stability and has promoted improvements in civil society. These impacts extend beyond the scope of the original project, and include:

- Measurable reduction in deforestation rates as a result of agriculture expansion.
- Reduction of immigration into the reserve
- Significant changes in conservation attitudes and management practices.
- Installation of market-based incentives for conservation practices

- Nearly 500,000 hectares managed under community and commercial concessions.
- Improved and diversified employment and alternatives.
- Increased income at the family and community level
- Increased investment in infrastructure by government and communities alike.
- Improved delivery of technical and administrative support services.
- Improved policy support for renewable resource valuation

Much of the support for the MBR activity's successes has come from conservation NGOs, through promotion of sustainable management practices that combine biodiversity conservation with income-generating activities for local communities. This includes commercial timber extraction. Communities are now capable of undertaking limited harvest activities, albeit with continuing external support.

While continued NGO support is still needed for refinement of biodiversity conservation methods and tools, the MBP now faces the challenge of consolidating its gains through improving the abilities of communities to develop viable business operations. Communities must increasingly absorb, or be able to outsource, their technical support requirements. These are currently subsidized through NGO partners. In order to transition these organizations to increased independence, knowledge, techniques and skills in several areas must be improved. Transitioning communities to diverse and profitable enterprises will take several years but it is important that the process begin very soon so as to maintain momentum and meet rising expectations.

III. STATEMENT OF WORK

The contractor will provide technical assistance to USAID/G-CAP in two general areas: a) To assess and analyze progress toward SO5 goals and provide recommendations for future program activities; and b) To support forestry activities in the MBR.

A. ASSESSMENT AND ANAL YSIS OF PROGRESS TOW ARD SO5 GOALS

To carry out this task, the contractor shall review files and program documents listed in Annex 4; conduct interviews with project staff and become familiar with the SO approach, results and structure. Based on this research, the contractor shall prepare a work plan.

The assessment team is expected to go beyond the simple examination of inputs, outputs and explore the broader issues and in particular to assess the utility of the MBR activity as a model to be used for assisting the Agency for International Development in attaining its environmental goal.

ADS Series 200 requires that all assessments examine several broad concerns that are applicable to any type of development assistance. These concerns are:

- Relevance: Are the development and conservation constraints the activity as initially designed to address still germane to Activity strategies? Are the principal technical, policy, and institutional constraints being addressed by MBP' six components?

- Effectiveness: Is the activity achieving satisfactory progress towards the Strategic Objective and the Results Framework? Are the SO statement and RF still valid?
- Efficiency: Are the effects of the MBR activity being produced at an acceptable cost compared with alternative approaches to accomplishing the same objective?
- Impact: What positive and negative effects are resulting from the MBR activity?

Specific areas of work under this task are as follows:

1. Assessment: Assess progress toward SO goals as set forth in Project Agreements, R4, Management Contracts, Customer Service Plan, and Work Plans for 1998-1999, and provide recommendations to improve management, client satisfaction, use of resources, and quality of results and impacts. Document program impacts to date qualitatively, both positive and negative. This will require to respond to the following questions:

- What has been the overall impact of the MBR activity? What are the most significant accomplishments? Have program interventions enhanced the conservation of biological diversity and what activities have made (or will make) the most effective contribution? Are activities cost-effective and replicable by others? What activities should be eliminated?
- Have the Integrated or Annual Operating Work Plans been adequate guides for implementing program activities? Have they contributed to team-work, common goals, and consensus based decision making? To what degree have they been implemented as scheduled and within approved budgets? When not, what are the most common causes?
- Are buffer zone strategies appropriate? Which have been most widely adopted or show promise for adoption? Which are the most effective in supporting program goals? Are strategies and efforts to promote the linkage between development activities and conservation effective? How can these be improved? What activities are being conducted to assure that benefits flow to client groups including buffer zone resource users to change behavior from resource mining to resource management? Will these activities promote the desired change in behavior? Are policy adjustments needed?
- How effective have been the approaches to promote local participation? Do the annual or operating work plans reflect participation by partners and customers? What do the principal clients of the Activity say about the nature and quality of the services provided by the MBR activity?
- Has the mix of contractual mechanisms and agreements been responsive to client requirements? Is the MBR activity effective in managing these agreements, (e.g. is staff capable, type of management required, etc.)?
- What have been the extent and impacts of public and private sector cooperation and collaboration in the planning, financing, and execution of activities? What recommendations can be made for strengthening this collaboration and cooperation? (Among others, co- administration of national parks; community forestry concession associations and related business enterprises, including private partners in timber processing; loan programs of ProPetén and CARE/BANRURAL, etc.).

- How have women and other minority groups been included in field activities and what has been their role? Is gender-specific data used for planning? How can the MBR activity improve its effectiveness in addressing gender and minority related issues?
- The relationship between human behavior and natural resource management is important for the SO's success. In this sense, what have been the impacts of:
    - Forest concessions in the Multiple Use Zone (MUZ);
    - Awareness activities and practices to promote a sound environment;
    - Co-administration with participation of civil society;
    - Community participation to protect the environment, including agreements with communities within core zones;
    - Economic alternatives; and
    - Participation of municipalities.
- Have training activities being effective in terms of increasing skill levels? Have training activities been coordinated effectively to maximize efforts? Have they been cost-effective? Cite specific examples where training activities have been beneficial. Provide recommendations to improve training activities.
- Are appropriate levels of staff and financial resources being dedicated for each MBR protected area? Have the staffing, equipping, training of park personnel, and provision of infrastructure been appropriate and adequate for protecting these areas?
- Has the MBR activity assisted CONAP in developing improved protected area management plans which include local populations, promote sustainable harvest of forest products, while reflecting CONAP personnel and budgetary constraints? Were all the resource users involved in the development of these plans and/or actively participating? Cite specific examples.
- What progress has been made in identifying and encouraging compatible resource uses? Are local communities' economies being integrated and benefiting from promotion of protection of the MBR? Are outreach activities to local communities generating support for CONAP and MBP activities?
- What extension strategies and information have been most successful in mitigating environmental problems which affect biodiversity in the conservation units? Specifically, examine attitudes, knowledge and behavior impacts.

2. Performance of Partners: Assess the compliance of partners (international NGOs, local NGOs, CATIE, CONAP) in the terms of their Agreements with USAID; compare progress achieved toward expected results, and examine causes of delay and non-compliance. This requires to respond to the following questions:

- Have partner's achieved established results? How are the impacts of activities being implemented by partners in relation to the strategic objective? Are partner's strategies cost- effective? What have been the causes of over- or under-compliance of results or planned activities?

- Is the support and technical assistance provided by partner's home office to the Guatemalan offices and the field, appropriate, on time and of quality? Do the international NGOs and CA TIE have a comparative advantage in terms of the required expertise for program implementation?
- How is the perception of clients in relation to partner's technical assistance in terms of quality, responsiveness and timely?
- To what extent the international NGOs and CATIE have facilitated the process of transferring the knowledge, technology, systems, etc. to the local NGOs? Are the local NGOs institutionally strengthened and to what degree? For example: have the international NGOs and CATIE facilitated the mechanisms for the continuation of activities by local NGOs when their agreements with USAID finish? How effective have been the technical assistance and training provided by international NGOs and CATIE for strengthening the capacity (management and technical) of local NGOs that have been selected for implementation?
- Do CI, TNC, Rodale, CARE and CATIE have the technical staff or consultants available on time and with the required expertise to support implementation of activities? Have their staff composition, level of effort and duties been sufficient to comply with the terms of the Agreements and the needs of the activity?
- How effective are CI, TNC, Rodale, CARE and CATIE approaches to promote adoption of more sustainable, environmentally sound, practices for improving people welfare?
- How effective are CI, TNC, Rodale, CATIE and CARE Monitoring and Evaluation Plans and systems for measuring progress towards the achievement of results? Are they managing for results, using performance monitoring indicators to measure progress towards the desired results of their Agreements? Are the data reported in semi-annual and annual reports valid? Are CI, TCN, Rodale, CARE and CATIE's information systems adequate for collecting, analyzing and reporting needed information for SOT management and decision-making?
- How effectively have partners worked together under a common agenda?

3. Assess achievement of Results included in Integrated Work Plan 1999: This will required a performance assessment to determine the progress achieved by partners in relation to the annual results approved and financed through the Integrated Work Plan 1999, and identify causes for non-compliance. Document quantitative and qualitative progress. Questions included in previous section should be applied to this assessment.

4. Performance Monitoring Plan (PMP) and Indicators: Assess the utility, validity and accuracy of the progress reported toward PMP indicators (as of 1999) sampling field data for verification. Recommend any necessary adjustments or improvements in the PMP. Assist the Mission to review, prioritize and more clearly define the objectives, desired impacts and appropriate indicators for the policy component. This will require to respond to the following questions:

- Is the monitoring and evaluation functioning as envisioned in the PMP? Does it generate feed-back for use by senior management to take mid-course corrections?
- Is the monitoring system capable of measuring threats to the MBR and capable of identifying local socioeconomic conditions that impact on interventions? Are progress indicators been developed and used to monitor progress? Provide recommendations to improve reporting, documentation management, and distribution of information.
- Are the MBR's biological research programs sufficiently focussed, organized, and financed to result in a steady flow of relevant information that will have a significant impact on revising policies for effective stewardship of renewable natural resources? Is this information reflected in management plans? Will research and biological monitoring programs develop a cadre of well-trained Guatemalans capable of conducting natural resources research programs?

5. Sustainability and Funding Mechanisms: Assess alternative mechanisms for achieving financial sustainability after USAID funding ends and make recommendations on how to reach independence in a sure but timely manner. This includes an assessment of endowment funds. See Annex 3 for more details (TNC draft). This will require to respond to the following questions:

- How can USAID support more directly the field activities? What are the pros and cons for establishing agreements directly with local NGOs? What mechanism is recommended?
- Are local NGOs and the host government increasingly assuming financial responsibilities for protected area management activities? What is recommended?
- What progress has been made in establishing sustainable funding sources? To what extent have increased receipts from departure tax, BASIC, forest concessions, and ecotourism activities put in place under MBP been able to contribute to financial sustainability?

6. Institutional Roles and Responsibilities: Review the roles, responsibilities and performance to date of USAID, CONAP and partner organizations to recommend more effective and clarified roles and the development of consensus on the SO vision and a Team Charter. Integrate an effective and efficient donor coordination mechanism into the SO.

- Has USAID/G-CAP allocated sufficient financial and personnel resources to assist implementation?
- Has the GOG allocated sufficient financial and personnel resources to assist implementation?
- What has been the role of the MBR activity on CONAP's ability to influence decision-making on natural resources and biodiversity matters.
- What have been the impacts (successes and shortcomings) of efforts to involve municipalities in the program? Based on experience to date and other donor activities in Petén, what is recommended to build municipal support for program objectives?
- What approaches are most effective and should be maintained, based on the experiences/activities implemented by other donors in Petén and with SIGAP? Identify success stories, problem areas,

and offer solutions. Design and test a mechanism to increase synergy and donor coordination for the SO.

7. Special Issues: Forest Concessions: Review status, issues and needs for successful development of the community forest concessions in the MBR, in terms of: economic alternative, promoting local participation; improving organizational and business management capacity of the communities administering forest concessions in order to promote sustainable management of forest resources; improving the ability to produce and compete in timber and non-timber products markets. Also apply other evaluation questions (e.g. sustainability, partner roles, etc. specifically to USAID's assistance to forestry concessions).

- .Community In-holdings: Conduct a detailed analysis of the population and land-use dynamics in communities inside core park zones. Assess CONAP's policy and approach (signing of agreements) to address this issue, and its impacts on program goals and biodiversity conservation. What aspects or elements need to be changed to improve compatibility between communities and parks? Have communities changed their behavior from resource mining to resource conservation?
- .Policy Issues: What should be the approach, focus, partner arrangements and key results for USAID's policy dialogue agenda and related program interventions? Has the activity established the appropriate framework of incentives to encourage the adoption of new technical options, e.g., improved access to markets, land tenure arrangements, shares of revenues from ecotourism, forestry management? What have been the impacts of the MBP's policy dialogue and analysis program regarding protected area laws and regulations, community concessions, park planning, community in-holdings, lumber, oil, and land tenure issues? Make recommendations on future directions. Have activity interventions encourage the development of institutional policies to influence Guatemala's natural resource policies regarding protected areas management? Cite examples.

8. SO Strategy and Results Framework: Based on the findings and recommendations from the assessment, the contractor will prepare a draft Strategy and Results Framework based on the following:

- Strategic Focus. Given USAID's comparative advantage, experience, policies and global objectives; local needs and policies; other donor interventions; and other relevant factors; what strategic focus would be most appropriate for USAID assistance in the environmental sector for the period 2001 -2005? Should our present SO statement be modified and, if so, how?
- What changes should be instituted under a new SOAG? What should be the major strategies for a second phase? What should the geographic coverage be? Who are most appropriate partners?
- Identify promising activities which will complement national- level policy dialogue efforts on policy reformulation to assure that conservation of biodiversity will be enhanced.

B. SUPPORT TO FORESTRY ACTIVITIES IN THE MAYA BIOSPHERE RESERVE

To carry out this task, the contractor shall provide short-term technical assistance in the following specific results:

- Increased community awareness and participation in the environmental assessment process.
- Enhanced ability of communities to manage concessions as viable business operations.
- Increased number of timber species and diversified products and markets from these species.
- Improved ability to produce and compete in timber and non-timber products markets.
- Development plan for new forest products marketing association and information center

The specific areas of work are as follows:

I. <u>Environmental Assessment Support:</u>

USAID's Programmatic Environmental Assessment (PEA) stipulates that concessions must have annual operating plans (POAs) and completed environmental assessments (EAs) to be eligible for continued USAID support. These are approved each year by the Mission Environment Officer. Currently NGO partners are developing tools to assess impacts and identify mitigating strategies. Concessions receiving provisional certification under Forest Stewardship Council Guidelines are following auditable standards which seem adequate to meet USAID's requirements under the PEA.

Communities operating concessions and NGOs have worked hard to meet requirements, but the results have been variable and uneven. While there has been significant internal USAID discussion as to what needs to be included in these POAs and EAs, there has been limited specific guidance as to what constitutes USAID (Reg. 216) environmental assessment requirements, and the extent that these comply with Guatemalan requirements (CONAMA, CONAP). Harmonization and standardization of procedures is also needed for timely submission and rapid review. But most important is the translation of these requirements into management and documentation practices that can be eventually transferred from NGOs to concession managers. This will serve to combine improved stewardship at the local level with reduction in the costs associated with environmental assessment.

Development of one-week courses to train NGOs in environmental assessment methods have proved successful under similar circumstances elsewhere. The practical course, which includes field exercises and hands-on examples for assessing and mitigating extractive forest management, will be a "training-of-trainers" course in that it is ultimately designed to help NGOs work directly with communities managing natural resources. The course will highlight the different elements of proposed management plans, identify possible environmental impacts, and propose mitigation strategies and tools.

The course will be developed with support from an *environmental assessment (EA) expert* with excellent working familiarity with USAID regulations and the ability to integrate local regulations and policies governing MBR activities. The team will work closely with the US Forest Service -International

Forestry which has developed an excellent video for EA training. To assure that the technical materials are adapted to the local audience an *environmental education expert* will team with the EA expert. The curriculum will include technical content, teaching guides and lesson notes for activities directly relevant to the MBR. It will include a short examination to assess effectiveness and guide revision as necessary.

Deliverables:

a. Guidelines for harmonizing USAID and CONAP environmental assessment requirements
b. A management system that incorporates continual environmental improvement
c. A detailed description of EA training
d. EA training curriculum for USAID partner organizations including industrial concessionaires
e. EA guidelines for NGO and industry partners and evaluation of one week EA course
f. Final EA guidelines and debriefing with USAID Mission and CONAP

2. <u>Support to Manage Community Concessions as Sustainable Business</u>

In late 1999, new concessions were allocated to communities, more than doubling the area under community management. In addition, two large concessions were allocated to industry. This expansion is remarkable, both for the rate of growth and the unparalleled size of the area targeted for sustainable management. Guatemala is quickly becoming a regional leader in community-based natural forest management.

However, neither the communities managing new concessions nor those that received concessions several years ago have the management skills required to manage these productive forest resources as viable business operations. Most communities lack the organizational cohesion needed to collectively make informed investment decisions (equipment, staffing, marketing), resource allocation (allowable cut, conservation easements, non-timber objectives), or reinvestment options (dividend distributions, social investments, portfolio diversification).

Assisting these groups to develop business skills and develop the internal learning capacity to improve their knowledge and practices beyond the life of MBR remains a priority.

The program will therefore contract a local *organizational development specialist* whose primary function will be to assist communities to:

- improve their internal organization.
- work together as a team
- learn from the experience of other groups
- identify gaps that can be addressed through a training support program.

The organizational development specialist will work with different concessions managed by several communities. This work will be carried out on an intermittent basis over a six-month period. Short

workshops with group leaders and members, and transfer of team building skills, will be used to identify and resolve issues with local authorities.

Early on, a short course will be offered in conflict resolution to all active members of the concessionaire groups. Because of the large number of individuals involved, the same course will be offered four times. A local *conflict resolution specialist* will be identified to work with MBR NGO partners to develop and implement the course.

The BIOFOR task order will also offer a short course in basic management of a small business. The course will be aimed at decision-makers in communities and those selected individuals who will be responsible for accounting, financial and secretarial matters. A locally recruited *enterprise development specialist* will offer this hands-on course spread out over a three-month period. This will allow follow-up and practical application of the subjects covered.

Deliverables:

a. One course of 15 days, during a three-month period, aimed at selected members of the communities, to develop the skills needed to operate basic financial and business aspects of the concessions.
b. Four workshops, each of two days duration, targeting all members of the groups holding concessions, to improve their capacity to resolve internal conflicts.
c. Six months of intermittent advisory services, organizational support and exposure to lessons learned from other groups.

C. <u>Support creation of a forest products marketing association that represents the concessionaires</u>

The development of a unified, efficient and independent commercial entity that enables concessionaires to harmonize and strengthen procedures for forest product commercialization and marketing is a critical activity. It will improve coordination and communication between concessionaires, through the development of a participatory planning, analysis and monitoring process. This will serve to increase organizational and administrative capacity of concessionaires, including financial management capacity, as well as technical capacity for product development. It will develop norms, standards and mechanisms for natural resources management that will enable concessionaires to develop, market and negotiate improved pricing of wood products, both locally and nationally. Chemonics has considerable experience in supporting the development of such organizations through its BOLFOR project in Bolivia.

An *organizational development specialist* will advise on the start-up of the association, working to achieve consensus among participants, drafting the rules on how the association would function, support the process of registration, and related activities. An *enterprise development specialist* will ensure that the new association is based on realistic business principles. A *market development specialist* (see also D., below) will also work to develop an information center as part of the forest products marketing association, first setting up the center, then helping to get it started.

Deliverables

a. A detailed development strategy for the new Forest Products Marketing Association, prepared with the participation of members of the Association.
b. A marketing information center as part of the Association

D. <u>Support of Marketing Forest Products</u>

Most of the concessions continue to rely on sales of "rough sawn" mahogany and Spanish cedar for a disproportionate share of their revenue. There is ample evidence that current allowable harvest of these two species is probably exceeding actual production. This will mean an eventual decline in this resource. In turn this indicates a strong need to maximize the value of the current harvest of these two primary species, while vigorously pursuing the development of uses and markets for secondary species to support management costs and continued revenue streams. Currently, only three or four other species are being used and their current low stumpage values are unlikely to cover the anticipated revenue shortfall. Improving the returns to diminishing mahogany resources and identifying secondary species markets is critical in the medium term.

Individual concessions, and individual communities within certain concessions, have different abilities to produce, market and sell products. Currently, each concession operates independently, selling small volumes to brokers and individual buyers. Market information is poor. Competition is more evident between individual producers than among the limited numbers of buyers. Production at concessions is unpredictable and of uneven quality.

There are many ways that the aggregate value of production at the community level can be increased. These include:

- improving the overall quality of products
- adding value through vertical integration, improving yield and reducing waste
- obtaining a premium for certified products, or selling round wood at substantially higher prices

CATIE/CONAP has collected good financial information from several areas that could provide a basis for setting some priorities on how to best enhance current and future harvests. Developing joint ventures with buyers or processors, combining sales with neighboring concessions, and contracting some management or milling operations, are potentially viable options. A *market development specialist,* intimately familiar with wood production and marketing under similar conditions, will review current and potential products and operations to identify opportunities to increase value. The specialist will work with CATIE/CONAP and other NGOs to identify markets and probable products, to identify potential customers for secondary species, and provide guidance for negotiations.

A *product development specialist* with proven expertise in quality control of milling and product development will work closely with concessions to reduce waste and maximize the value of current production. Hands-on training and review of current training materials will lead to practical improvements, which will improve production and unit returns.

Working as team the market and product development specialists, together with CATIE/CONAP staff will develop a strategy and action plan for i) product diversification, ii) organizing bundled sales and marketing methods into a new marketing organization, and iii) identifying viable options for secondary species development.

Deliverables:

c. Guidelines for exporting lumber from two primary species at acceptable prices.
d. Identification of between five and ten wood products made from secondary species, appropriate for production in the Petén, with high potential for marketing in Guatemala. Justification of the selection based on technical and financial analysis. Detailed description of the steps needed for follow up.
e. Identification of at least two potential joint ventures for production and/or marketing of the above products. Justification of the selection. Analysis of the advantages and disadvantages. Annotated list of points to be covered in an agreement.
f. One ten-day practical course in producing quality timber aimed at community and industrial concessionaires. We propose that appropriate assignment of course graduates be guaranteed as a condition to acceptance in the course.

IV. ANTICIPATED LEVEL OF EFFORT

The technical assistance required under this task order, with brief description and qualifications, is listed below divided by the two main tasks described in previous section:

A. ASSESSMENT AND ANALYSIS OF PROGRESS TOWARD SO5 GOALS

1. General Requirements

The team members are required to have strong skills, knowledge and experience related to environmental issues in Central America, especially, the Guatemalan protected areas system and policy issues. Additional areas of desired expertise include social/anthropological sciences, business, finance and administration as related to program implementation, institutional strengthening and sustainability, sustainable development projects in and around protected areas, park management; community based forest concessions; GOG and USAID systems; private sector roles in conservation; and financial sustainability mechanisms. The evaluation team is require to include the following members.

The contractor team shall be composed of the following individuals: Team Leader Ecologist, Natural Resources Policy Specialist, Institutiona1/Organizational/Financial Specialist, Wildlife/Park Management/Ecotourism Specialist, and Social/ Anthropology Specialist. Team members should be familiar with Integrated Conservation Development Projects and Programs, especially in the LAC region. The team should have extensive interdisciplinary skills with expertise in project management, and past experience in designing and evaluating projects. The team should have experience in Strategic Planning coupled with Monitoring and Evaluation.

2. <u>Specific Requirements and Responsibilities:</u>

a. Natural Resource Management Specialist and Planner (Human Ecologist)

- 10 years of experience in the design, implementation and evaluation of
- Latin American Natural Resources Projects.
- Must have participated in previous USAID evaluations and be familiar with USAID evaluation guidelines.
- Must have at least a Master's degree in Ecology or equivalent field. Exceptional organizational and writing skills.
- Must have the analytical skills to review the structure and function of the activity.
- He will be assigned as Team Leader. Fluent in the Spanish language.

b. Natural Resources Policy Specialist

- 10 years of experience working with natural resources projects, preferably with integrated conservation development projects.
- Must have at least a Master's degree in natural resources economics or equivalent.
- Exceptional analytical, organizational and writing skills.
- Must have a comprehensive understanding of buffer zone strategies.
- Must have participated in previous USAID evaluations and be familiar with USAID evaluation guidelines.
- The Natural Resources Policy Specialist is responsible for production of report components as assigned by the Team Leader. Fluent in the Spanish language.

c. Natural Resource Management Specialist and Planner (Wildlife/Park Management/Ecotourism Specialist)

- 10 years of experience working with natural resources projects, preferably with integrated conservation development projects.
- Must have at least a Master's degree in natural resources economics or equivalent. Exceptional analytical, organizational and writing skills.
- Must have a comprehensive understanding of buffer zone strategies relating to parks and people, as well as resource user groups living in protected areas.
- Must have participated in previous USAID evaluations and be familiar with USAID evaluation guidelines.
- The Wildlife/Park Management Specialist is responsible for production of report components as assigned by the Team Leader. Fluent in the Spanish language.

d. Institutional Development Specialist (Institutiona1/0rganizational/Financial Specialist)

- 10 years of experience working with natural resources projects, preferably with Integrated conservation development projects.
- Must have a degree in Business Management or related field and a Master's degree in the Financial/Economics Sciences or related field.
- Exceptional analytical, organizational and writing skills.
- Must be experienced with communities and/or NGOs working in natural resource and rural development projects.
- Must be familiar with USAID evaluation guidelines.
- The Social/ Anthropology Specialist is responsible for production of report components as assigned by the Team Leader. Fluent in the Spanish language.

e. Social/ Anthropology Specialist

- 10 years of experience working with communities,
- preferably with integrated conservation development projects. Must have a degree in Social Sciences or related field.
- Exceptional analytical, organizational and writing skills.
- Must be experienced with NGOs working in natural resource and rural development projects.
- Must have participated in previous USAID evaluations and be familiar with USAID evaluation guidelines.
- The Institutional/Organizational Specialist is responsible for production of report components as assigned by the Team Leader. Fluent in the Spanish language.

1. Work Days Ordered

To carry out the Assessment and Analysis, the evaluation team is expected to work for a total of 30 working days per member. Six working days per week are authorized. The Team Leader is authorized to work an additional 10 working days to put the evaluation report into final form after receipt of comments from USAID.

2. Performance Period

The Assessment and Analysis is to commence o/a July 10, 2000 for a period of 7 weeks. The final report is due on August 25, 2000.

B. SUPPORT TO FORESTRY ACTIVITIES IN THE MAYA BIOSPHERE RESERVE

The required level of effort and description of technical assistance is as follows:

Activity	BIOFOR Labor Category	Level	LOE (days)
Environmental Assessment Support	Environmental Impact Assessment Specialist	Senior	24
	Education/Communication Specialist	Senior	24
Concession Business Development	Conflict Resolution Specialist	Local	30
	Enterprise Development Specialist	Local	24
	Organizational Development Specialist	Local	20
Forest Products Marketing Association	Market Development Specialist	Senior	18
	Institutional/Organizational Development Specialist	Senior	30
	Enterprise Development Specialist	Senior	20
Forest Product and Market Development	Market Development Specialist	Senior	18
	Product Development Specialist	Middle	18

This task will begin as soon as the Task Order is signed and will end o/a December 31, 2001, taking into account the workplans prepared for each activity.

VI. MANAGEMENT RESPONSIBILITIES

Contractor shall be responsible for all logistic support needed to successfully complete the task order.

VII. REPORTS

A. Assessment and Analysis:

The report structure will include an executive summary, body of the report and relevant annexes. Both the draft and final versions shall be provided in both hard copy and electronic formats (Word document, on 3.5 inch diskettes.)

The executive summary will include the development objectives of the project, purpose of the evaluation, findings, and recommendations.

The body of the report should include: 1) the purpose of the evaluation; 2) description of the project structure, clients, questions and issues to be addressed; 3) team composition and study methods; 4) observations and comments supported by findings; 5) conclusions and related recommendations stated as actions to be taken to improve project performance; and 6) lessons learned. It shall not include a repetition of descriptive material available elsewhere in the project documentation.

The report should not exceed fifty pages (excluding annexes). The executive summary should not exceed three pages in length. Annexes should include a copy of the scope of work for the evaluation, a list of documents consulted and individuals contacted.

B. Support to Forestry Activities

All reports and other documentation will be prepared in English and Spanish, unless otherwise agreed to by USAID in advance using Word, unless requested by USAID to use a different format.

The Contractor will present work plans for each specific task, with their time lines to USAID/G-CAP for approval. Contractor will provide USAID/G-CAP with Quarterly, Semiannual and Annual Progress Technical and Financial. A Final Report must be presented at the end of the project. Quarterly, annual and final reports will be delivered to USAID/G-CAP within 30 days after the period ends. Contractor will deliver copies of technical reports as follows: one (1) copy in English and four (4) copies in Spanish to Guatemala counterpart institutions and two copies (one in English and one in Spanish) to USAID/G-CAP. The reports shall describe in sufficient detail the status of contract implementation activities. The report shall include a discussion of operational problems and policy constraints encountered, proposed solutions, and subsequent work plan modifications. The report shall include, as attachments, all reports (draft and final) from contract-funded consultants. These reports shall be due at the end of September, December, March, June, and September and December of every year. A workplan update of contract person months and budget status, and a planned schedule of consultant and project activities for the next quarter will also be attached.

The Contractor shall provide a draft final report to the USAID/G-CAP sixty (60) days prior to the task order completion date. The report shall discuss all activities and achievement of the task order performance objectives from the start of the task order through its completion. The report shall follow the format of the Quarterly Progress Reports but shall also include a major section on recommendations for performance objectives for the option period, if exercised. The final report shall be submitted in draft form to the USAID/G-CAP. Any comments on the draft report are to be made by the USAID/G-CAP CTO and provided to the Contractor within ten (10) days.

The final report shall then be resubmitted in final form, five (5) copies to the USAID/G-CAP CTO and five (5) to Government counterpart, no later than thirty (30) days prior to the completion date of the task order. An electronic version of the final report will be required.

Performance Monitoring Indicators:

Contractor will propose indicators to be used in a performance monitoring plan, and will report on this information in the progress reports.

VIII. TERMS OF PERFORMANCE

A. Schedule for Assessment and Analysis

The contractor will meet with USAID/G-CAP and other Mission staff for an initial entry conference upon arrival to Guatemala. During the first week of work, the evaluation team will propose a schedule to the USAID/G-CAP Program Officer for review and concurrence, and propose any changes in this scope of work.

An initial draft of the report should be delivered (10 copies) to USAID/G-CAP 30 working days after initiation of the work order. USAID/G-CAP will return the draft report with comments within five (5) working days after receipt of the draft report. The final draft report will be delivered (10 copies) within 40 working days after initiation of the work order.

An oral presentation of the initial draft will be made by the team to the USAID/G-CAP, approximately 25 working days after initiation of the work order. The exact date will be arranged between the USAID/G-CAP CTO and the Team Leader. A final exit briefing to USAID/G-CAP and the MBP staff will be made by the team before departing Guatemala.

B. Schedule for Support for Forestry Activities

Technical assistance will be provided based on workplans for tasks described in Section III.

ANNEX D

Scope of Work—IRG EPIQ

Improved Natural Resources Management

and Conservation Biodiversity

USAID/G-CAP

EPIQ Contract No. OUT-PCE-I-836—96-00002-00, Task Order 836

SCOPE OF WORK

Activities under this Task Order will support the USAID/Guatemala Strategic Objective 5: *"Improved Natural Resource Management and Conservation of Biodiversity in Priority Areas."* Specifically, these activities will support achievement of Intermediate Result 2: *"Policies Affecting the Environment are Improved and Applied;"* but also will contribute to the achievement of Intermediate Result 1: *"People Adopt More Sustainable Practices"* and Intermediate Result 3: *"More Effective and Sustainable Institutions."*

The contractor will work primarily with GOG agencies to strengthen the policy and institutional framework of the overall protected areas system and natural resources base, as well as non-government organizations (NGOs), civil society (universities and associations), local government officials in the development of legal/regulatory frameworks, policy issues, strategies and institutional strengthening conducive to sustainable development.

Specific activity work plans are to be developed by the contractor during preparation of annual work plans, in close coordination with counterparts. Work plans will be reviewed and approved by USAID. Long-term technical assistance activities will be focused on policy design, analysis and implementation, and policy instruments, inter-institutional collaboration and cooperation, environmental finance and economics, development of strategies, preparation of best management practices and lessons learned, and team building. Capacity to address other related, but unforeseen, short-term technical assistance needs related to emerging environmental issues will be provided in the work plan, and will be activated as requested by the USAID/Guatemala CTO.

The contractor will undertake specific activities at the direction of USAID/G-GAP CTO and SO5 team, in the following areas:

1. **Support the Protected Areas System of Guatemala (SIGAP)**

The contractor will provide technical assistance to support policy analysis, design, dialogue, formulation and application of more effective policies, legal framework and regulations, strategies, actions plans, financial and institutional mechanisms, etc. Also, the contractor will provide technical assistance to improve the quality and effectiveness of management of Guatemalan protected areas system. Activities will include the following:

- Analyze existing policies, legal regime, strategies, structures, and programs that impede or constitute an obstacle to an effective protected areas management. Propose necessary reforms/changes and develop an adequate strategic plan to implement proposed actions.

- Make recommendations for defining and assigning responsibilities and roles for protected areas management to different actors (GOG institutions, NGOs, communities, private sector, local governments, etc.). Propose strategies to strengthen participation of these actors.

- Provide technical assistance to CONAP in priority policy issues related to management of protected areas, such as: land use (i.e., clear use rights in multiple use zones or other zones, community land use claims/invasions/occupation of parks and reserves), financial sustainability (mechanisms such as property and user rights, entrance fees, etc.); economic valuation of natural resources and identification of environmental services; review, application and implementation of EIAs and propose recommendations and reforms; improve policies for ecotourism, co-management system, economic incentives, research, etc.

- Provide technical assistance to CONAP in the implementation of the "National Policy and Strategy for Development of SIGAP," and of priority policy issues contained in the National Strategy for Biodiversity (i.e., incorporation of economic value of biodiversity and natural resources in the national accounts).

- Provide technical assistance to CONAP in strengthening its management capacity and structure for addressing policy issues. Conduct a need assessment and propose an action plan.

- Propose mechanisms, and promote and support policy dialogue through participatory processes, involving stakeholders and civil society, to review and analyze policy issues.

- Review existing institutional development and training resources in Guatemala. Develop and implement a training program for GoG institutions and other sectors involved in the management of protected areas.

Deliverables:

- Specific priority policy instruments, strategies, financial mechanisms, etc. are developed, discussed and approved, to improve management of SIGAP.

- Written strategies for other cooperating and collaborating GOG institutions, NGOs, PVOs, private sector, local governments, communities, and other partners describing their respective roles and responsibilities for cooperatively implementing a national protected area management plan.

- A needs assessment for CONAP to identify areas to strengthen its capacity to address policy issues

- A training program developed and implemented.

- Workshops, forums, meetings, with the participation of involved sectors, to discuss issues.

2. Inter-institutional Collaboration and Cooperation Management Mechanisms

The contractor will develop mechanisms/models to facilitate Guatemalan inter-institutional (governmental and non-governmental) collaboration and consensus building on management of protected areas and natural resources. Activities will include the following:

- Identify specific priority policy areas related to protected areas management, develop a common agenda, and propose and support implementation of strategies, mechanism/models to strengthen inter-institutional collaboration and cooperation.

- Propose and develop written agreements (i.e., MOUs and others), and establish mechanisms that promote, among different government entities, full understanding of their respective responsibilities, roles, authorities and capacities in protected areas management.

- Support the organization of working groups, with the participation of different sectors (GOG and non-governmental organizations, private sector, civil society, local groups) to address and make proposals for policy issues.

- Develop and implement action plans, models and mechanisms to ensure transparent and public involvement in protected areas decision making.

- Organize and carry out workshops, forums, and meetings, training activities with the participation of different sectors, to discuss priority and selected issues. Identify and organize visits to other countries to look for success experiences and propose action plans for replication.

Deliverables:

- A common agenda of work for specific priority policy areas related to protected areas management identified, and mechanism/models developed and implemented to strengthen inter-institutional collaboration and cooperation.

- Written agreements on responsibilities, roles and authorities of institutions involved in integrated protected areas management.

- An action plan for transparent and public involvement in protected areas decision-making.

- Mechanisms and models for working groups.

- Team building seminars, workshops, and forum for policy level organizations to support consensus building among stakeholders as well as local-level officials and stakeholders. A proposed plan for visits to other countries.

- Inter- and intra-communications strategies e.g., newsletters, email list-serves) within Guatemala.

3. Increased Decentralization for the Environmental Sector

Provide technical assistance to support the decentralization efforts and processes for environmental and natural resources management. This will include:

- Propose mechanisms and models to increase the involvement and participation at regional, municipal and community level (municipalities, rural development councils, environmental units, etc.) in environmental issues. Select organizations, including communities, and provide technical assistance to develop strategies to increase their participation in management of natural resources and protected areas.

- Review decentralization cases, identify success experiences for replication at the local level, and propose strategies and action plans for a pilot area and support implementation.

- Develop training activities for strengthening regional, municipal and local groups in a specific area.

Deliverables:

- Mechanisms/models to increase involvement and participation of selected local organizations.

- Success experiences identified and documented for decentralization cases in the environmental sector at the local level and a proposal for replication.

- Strategies and action plans to improve decentralization.

- A training plan.

4. Environmental Financing and Business Plans

The contractor will provide technical assistance to develop options for environmental financial management and strategies for selected GOG environmental agencies, local NGOs, local governments and other partners. Activities in this topic area will include the following:

- Analysis and design of potential use of permits, charges, and fees, that could be used to support protected areas and other environmental management activities;

- Identify potential financial resources, loans, grants for operations and/or special projects;

- Identify and develop financial strategies, mechanisms/arrangements, and support structures for management of resources (e.g., a trust fund or foundation for environmental management, debt for nature swaps, tolls, corporate sponsorships, Tropical Forestry Act, Clean Development Mechanism, a Protected Area Institute).

- Develop and support implementation of environmental financial management plans and mechanisms.

- Develop specific studies and economic analysis/assessments to show the value of natural resources to decision-makers and increase environmental investments and support. Propose financial mechanisms to capture economic values for specific resources/activities.

- Support public participation and dissemination of information for showing the value of natural resources.

- Identify target population to develop and implement training activities on environmental economics.

Deliverables:

- Strategies and mechanisms for achieving financial sustainability of selected GOG agencies and key partners.

- Business plans for selected GOG environmental agencies and other partners.

- Actions plans and financial mechanisms (use of permits, charges, and fees) for selected areas of work (i.e., ecotourism, hunting, non-timber products, logging).

- Specific studies on valuation of natural resources.

- A training program on environmental economics.

5. Support to USAID Management

Technical assistance is required to assess options and prepare background documents and analyses the Mission may use to design a Strategy for a new Environmental Program. This will include reviews and discussions with Partners concerning the current environment strategy, start discussions on possible options, review intermediate results packages, and indicators leading to a revised Results Framework. Assistance will also include support to the development and implementation of an expanded environmental policy agenda.

- Review current strategy and lead the process and discussions to develop options the Mission may wish to consider to design a new environmental strategy;

- Review intermediate results and indicators and propose alternative Results Frameworks;

- Assist the Mission to prepare a Strategic Objective Agreement (SOAG) for a new Environmental Program.

- Identification, review, consultation and assessment of an expanded environmental policy agenda, strategic priorities, expected results and performance indicators;

- Propose alternative mechanisms to institutionalize donor coordination and cooperation, and to increase their participation; define their roles and responsibilities. Identification of organizations to work as partners in policy issues. Define areas of work and potential roles. Propose mechanisms and strategies to build alliances with other organizations.

Deliverables:

- Assessment documents and materials enabling the Mission to develop and design a strategy for the new environmental program, including a revised Results Framework.

- Assessment documents and materials enabling the Mission to draft a new SOAG.

- Assessment documents and materials enabling the Mission to prepare a revised environmental policy agenda, strategy, results and performance indicators for policy activities.

- Processes, mechanisms and strategies for donor coordination and cooperation.

- List of potential partners with roles and areas of work and proposed mechanisms and strategies to build alliances.

- Proposals for agreements between AID and potential partners to work in policy issues.

ANNEX E

Contacts

Contacts

Institution	Name	Title
ACOFOP	Macedonio Cortave	President
Alianza Verde	Saul Blanco	Coordinator
	Billy Cuz	Administrator
	Luis Panté	Director
Baren Industrial	Carlos Barrios Quan	Gerente
Cänan K'aax	Mario Mancilla	Director
CARE	Teresita Chinchilla	Sub-Regional Director
	Antonio Fion	
	Georg Grunberg	Advisor (Census)
Centro Maya	Mauro Salazar	Forestry Advisor
	Nery Solorzano	Forestry Technician
	José Manuel Chavez	Field Technician
	Oscar Cobarrubia	Accountant
	Luis Fco. Baraquín	General Coordinator
	Juan Carlos Morera	
	Christian Claveria (M&E)	
CATIE/CONAP	Fernando Carrera	Project Leader
	Spencer Ortiz	Specialist in Marketing
	Julio Morales	Specialist in Monitoring and Evaluation
CATIE/Olafo	Reginaldo Reyes	Coordinador
Chapas del Petén	Emilio Tajer	Gerente
CONAMA	Carlos Emilio Matus	Regional Representative, VIII
CONAP	Juventino Gavlez	Ex-National Director
	Juan José Narciso	Current Director, Formerly with TNC
CONAP/Region 8	Orlando Aguilar	Jefe Regional
	Byron Castillanos	Coordinador Zona de Amortiguamiento
	Victor Hugo Ramos	Director CEMEC
	Sergio Perez	Technician Dept. Vida Silvestre
	Juan Miranda	Also ex-gerente Banrural
Conservation International	Carlos Soza	Director CI Guatemala
Defensores	Marie Claire Paiz	Director Lacandón National Park, Petén

Institution	Name	Title
	Oscar Nuñez	National Director
		Head Accountant
EcoMaya	Carmen Mazá	Sales
	Sandra Cocón	Director
GreenCom	Bette Booth	Environmental Education and Communication
	Rusty Davenport	Environmental Communication
GTZ	Ivo Bockor	Principal Advisor Programa de Manejo Sostenible (PMS)
	William Ordoñez	Technical Advisor (PMS) – Petén
INAB	Jorge Ariel Morales	Tech. Director Region VIII
INFOM	Luis Ocaña Lopez	Executive Director
INGUAT	Xiomara Escoba	General Representative in Petén
Just World Trading	John Canning	Eco-Timber Trade Officer
MAGA	Luis Castañeda	Region VIII
Ministry of Education	Maria de los Angeles	Consultant to Min Educ. on Review of CISEA Strategic Plan
Mundo Perdido	Julio Cesar Ayala	Director
NPV – Naturaleza para la Vida	Carlos Gómez	Director
Oak Ridge (ex)	Romeo Martinez	Environmental Policy
	Claudia Santizo	M&E in Flores
PROARCA/CAPAS	Jan Laarman	Team Leader
PROFIGSA	Israel Girón	Gerente de Planta
	Harry Page	Broker
ProPetén	Carlos Soza	Director
	A. Calderon	Extension
	José Contreras	Forester
	Scott Stewart	Peace Corps Volunteer
	Gonzalo Ochaeta	Field Coordinator Las Coloradas
TNC	John Beavers	Director Petén
	Andreas Lehnhoff	Director Guatemala
	Rudy Herrera	Planning and Administrative Consultant

Institution	Name	Title
USAID/Guatemala	Ron Ruybal	Chief SO5
	Anne Dix	Regional Environmental Officer
	Brian Rudert	Chief SO4
	Claudio Saito	Advisor to CONAP
	Mike Alban	
	Claudia de Pastor	NGOs SO5
	Sharon Van Pelt	Chief SO Local Governance
	Steven Hendrix	SO Local Governance
	João de Queiroz	PROARCA
World Bank - Cadastro Project	Guillermo Ruano	Director since 1997; left in August 2000
Others	Román Carrera	Student at CATIE
	Cornelius Prins	Rural Sociologist, CATIE
	Juan Carlos Godoy	Rep. Meso-American Corridor Ex-TNC advisor to CONAP
	Juanita Sunberg	University of British Columbia
Members of the Board of Directors of Concessions and Cooperatives	Carmelita	
	San Andrés	
	Suchitecos	
	Arbol Verde	
	Uaxactún	
	Los Labradores	
	Unión Maya Itzá	
Departmental and State Government	José Adan Regalado S.	Governor of Petén
	EdAmilcar Munguía L.	Mayor of Flores
	Julían Tusucún y Tusucún	Mayor of San José
	Cruz Ularico Chatá M.	Mayor of San Andrés
	Francisco Javier López M.	Mayor of San Benito
	Danilo Ariel García O.	Mayor of La Libertad
	Jorge Cohuoj V.	Mayor of Melchor de Mencos

ANNEX F

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