EVALUATION OF USAID/BRAZIL INITIATIVES RELATED TO THE CONSERVATION OF THE ATLANTIC FOREST IN PARTNERSHIP WITH THE NATURE CONSERVANCY (TNC) AND CONSERVATION INTERNATIONAL (CI)

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Brasilia-DF, December 2001

Executive Summary

From October to December 2001 a consultant from *Elabore Assessoria Estratégica em Meio Ambiente*, carried out an evaluation of USAID Brazil's Parks in Peril (PiP) and Biodiversity in Regional Development (BiRD) projects in Paraná and Bahia states. The main elements of the approach and methodology of the evaluation were the use of relevant evaluation criteria and indicators and multi-level consultation. The findings are based on quantitative and qualitative data collected through consultant meetings and interviews with representatives from all actors and interested parties involved in the projects, review of literature and documentation and field visits and observation.

The evaluation has found that the USAID initiatives to protect the Mata Atlântica are:

- Adequate regarding the choice of the focal themes
- Demonstrate effective potential for protection and replication at local and regional levels
- Lessons learned need to be organized in a systematic way to influence the management of Environmental protection areas in the Mata Atlântica
- Long-term financial sustainability being achieved through income generation and carbon sequestration
- Need to to increase the change of experience among executing organizations (TNC, SPVS, CI and IESB)
- The Brazilian NGOs (SPVS and IESB) have become eligible for receiving international funds by achieving a senior level of technical expertise

Regarding the Pip Program the main results are:

- A change in the models of planning, use and management of the Guaraqueçaba EPA (organic rice, rational rotary buffalo raising, organic certified banana, handicrafts, pebble mining)
- Reduction and stabilization of deforestation
- Recovery of forests in the margins of rivers
- Enhancement of protection of the fauna
- Enhancement of social relationship and site constituency (health, education, sewage, water, epidemics, training)
- Enhancement of environmental education
- Creation of RPPNs
- Consolidation of institutional relationships
- Consolidation of the use of GIS technology
- Leverage of funds for other projects
- Market evaluation of natural pharmaceutical and cosmetic products

The main recommendations for the continuation of the PiP Program are:

- Reinforce the institutional relationship and turn the GIGA into an effective management group for the Guaraqueçaba EPA
- Complete the regulation of the zoning of the EPA integrated to Superagui National Park management plan
- Develop fully-fledged commercial models of sustainable development according to the zoning of the EPA
- Integrate the management of production activities with carbon sequestration
- Stimulate the creation of new RPPNs among the existing private properties inside the EPA
- Continue to train teachers and improve public school libraries
- Improve communication and dissemination aspects with local communities
- Establish continuous exchange of experience with the BiRD project in southern Bahia

Regarding the BiRD Program the main results are:

- Support to social organization and participation (creation of Cooperuna, Cabruca and rural producers' associations)
- Influence in public policy (agreement with Incra and negotiation of the ecological ICMS tax)
- Development of organic agriculture and agroforestry systems (cloning gardens, cocoa, vegetables, black pepper, rubber and piaçava)
- Support to marketing and commercialization
- Forest recovery (seedlings, shoots, "floresta viva" and "click árvore")
- Creation of the Municipal Environment Council of Una
- Creation of the ecopark of Una, support to other private ecotourism initiatives and a local policy for tourism, including the support to organize a think-tank enterprise ("incubadora") for ecotourism
- Creation of a management plan and management council for the the Itacaré-Serra Grande EPA
- Institutional partnerships (Ibama, CRA, DDF, health and education state secretariats)
- Partnerships with land owners interested in conservation to create RPPNs
- Protection of the forest as a result from an increase in the families' income
- Environmental education and training of teachers and producers
- Implementation of Geographic Information Systems, as an instrument for planning
- Support to create public and private protected areas (RPPNS and Serra do Conduru State Park)
- Support to create the Associação de Proprietários de RPPNs of Bahia (PRESERVA)

The main recommendations for the continuation of the BiRD Program are:

- Continue to support the completion of the demarcation of the limits of the Serra do Conduru state park
- Continue to provide technical and organizational support to the communities to be removed from the serra do conduru state park, to create sustainable economic alternatives
- Increase support to creation and implementation of RPPNs
- Increase support to consolidate the "descobrimento" corridor
- Improve the commercialization of the organic and sustainable produce
- Consolidate alliances with institutions of education, research and extension to disseminate the principles and results of the sustainable agriculture
- Consolidate the financial sustainability of Cooperuna
- Improve the management and infrastructure of the Una Ecopark to replicate the model
- Develop a management plan and consolidate the demarcation of the state park of Conduru
- Establish continuous exchange of experience with the PiP project in Paraná
- Improve the biodiversity knowledge on key endemic and endangered species,

  distribution, status, forest fragmentation process and current threats available

  for planning purspose and development of scientific and economic-based strategies

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Foreword

The following report is related to the evaluation of USAID's initiatives to conserve the Atlantic Forest (Mata Atlântica) biodiversity, namely the Parks in Peril (PiP) and Biodiversity in Regional Development (BiRD) projects. USAID contracted *E.labore Assessoria Estratégica em Meio Ambiente* to carry out this evaluation and provide technical recommendations to improve the implementation of the projects' activities and strengthen the relationship between USAID and their partners.

In accordance with the ToR prepared by USAID and E.labore's Work Plan, the consultant spent seven days visiting The Nature Conservancy – TNC's and the Society for Research on Wildlife and Environmental Education - SPVS´s offices, in Curitiba-Paraná to interview executive directors and technical staff from these NGOs, staff from IBAMA's local office and technical public servants directly involved in the management of Guaraqueçaba's Environmental Protection Area (EPA) and the National Park of Superagüi (PARNA Seragüi), that together with other organizations, work on the PiP project. The consultant also visited the project sites in the protected areas to colletect basic qualitative and quantitative information and know *in situ* the reality of local communitties.

On a a second phase, the consultant spent four days visiting the southern coast of the State of Bahia, particulary the municipalities of Ilhéus, Una and Itacaré-Serra Grande, where the Conservation International – CI, together with the Institute for Social and Environmental Studies of Southern Bahia – IESB, are developing the Project Biodiversity in Regional Development (BiRD), specially the work on ecotourism, and with small farmers on organic Cocoa and forest nurseries for restoration of the Atlantic forest. All in all, the assignment took around eleven days of fieldwork and twenty-eight days on desk, reading documents, planning and preparing the evaluation report.

List of Abbreviations

The following abbreviations are used in this report:

Abbreviation	Definition
ABUPAR	Association of Bubalin Breeder of Parana's State
AFBR	Atlantic Forest Biosphere Reserve
AMURC	Cocoa Regional Municipalities Association
EPA(s)	Environmental Protection Area(s)
BiRD	Biodiversity in Regional Development
BPFlo	State Forestry Police Battalion
BR	Biosphere Reserve
CBD	Convention on Biological Diversity
CEPLAC	Executive Commission for Cacao Production Plan
CI	Conservation International
CNUC	National Council for Protected Areas (IBAMA)
CONAMA	National Council for the Environment
CRA	Council of Environmental Resources
DDF	Department of Forestry Development
DPU	Federal Land Agency
EOP	Environmental Operational Plan
FNMA	National Environmental Fund
GAMBA	Environmental NGO in Bahia State
GEF	Global Environmental Facility
GIGA	Integrated Group for Environmental Management
GIS	Geographic Information System
GO	Government Organization
ha	hectare
IBAMA	Brazilian Institute for Environment and Renewable Resources
ICMS Verde	Green Tax Deriving from Circulation of Products and Services
IEF	State Institute for Forest
IESB	Institute for Social and Environmental Studies of Southern Bahia
INCRA	National Institute for Agrarian Reform
INPE	National Institute for Remote Sensing
ITR	Rural Territorial Tax
MMA	Ministry of the Environment
NGOs	Non-Government Organizations
PA	Protected Area

PAMTA	Action Plan for Atlantic Forest
PD/A	Demonstration Projects/Environment
PPG7	Pilot Program for the Protection of Brazilian's Rain Forest - Group 7
PiP	Parks in Peril
RMA	Atlantic Forest Network
RPPN	Private Reserves of Natural Patrimony
SCP	Species Conservation Plan
SEMAD	State Secretariat for Environment and Sustainable Development
SISNAMA	National System of the Environment
SNUC	National System Law for Conservation Units
SOS MAt	Environmental Atlantic Forest Network - SOS
SPVS	Society for Research on Wildlife and Environmental Education
TNC	The Nature Conservancy
ToR	Terms of Reference
UESC	State University of Saint Cross
UFPR	Federal University of Paraná
USAID	United States Agency for International Development
WB	World Bank
WWF	World Wildlife Fund

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EVALUATION OF USAID's INITIATIVES FOR CONSERVATION OF MATA ATLÂNTICA BIOME

SECTION I: BACKGROUND AND CONTEXT

In accordance with the Environmental Program for Brazil and besides its main focus on the Amazon biome, USAID/Brazil started in 1995 to developed conservation initiatives in the Mata Atlantica biome. The call for such efforts stemmed from the urgent need to protect the few remaining fragmented natural areas in a region long characterized by large scale forest destruction, loss of biodiversity, land conversion for urban expansion and threats to watershed and riparian areas.

As a result, USAID/Brazil launched two projects: a) Parks in Peril (Pip) – Cooperative Agreement LAC-A00-95-00026-00 with The Nature Conservancy – in Guaraqueçaba, Paraná, and partnership with SPVS, and; b) Biodiversity in Regional Development (BiRD) – Cooperative Agreement LAC-A-00-98-00059-00 with the Conservation International – in southern Bahia, and partnership with IESB.

1. Relevance of the Mata Atlântica Biome Within The National Context

"Mata Atlantica" refers to most of the forest ecosystems of Brazil's coastal states from Rio Grande do Sul to Rio Grande do Norte. The Mata Atlantica vegetal landscape is characterized by dense ombrophilous forests. Originally, the Mata Atlantica spreads over 17 states covering more than 1.29 million km^2 and representing 15 percent of Brazil's entire land surface. According to ISA (Social Environmental Institute), the Mata Atlantica had been reduced to less than 7 percent of its original size by 1999.

Conservation International has classified this forest as one of the seven most threatened regions in the world. Unsustainable logging, burning, and forest conversion to agriculture, extensive cattle-ranching, monoculture reforestation, and housing developments in urban expansion are mentioned as responsible for the large-scale forest destruction and degradation. The problems are currently compounded by subsistence and commercial extraction in the south of Bahia and the southern states, as well as by real estate speculation and uncontrolled tourism in the coastal zone.

Despite the disturbances and fragmentation, however, the forest and its associated ecosystems (restinga and mangroves) still contain high levels of diversity and endemism and centers of endemism have been recognized in the Atlantic forest (Kinzey, 1982). Fifty percent of its tree species, 250 species of mammals (55 endemic), 340 amphibians, with 92 percent occurring nowhere else in the world. Also 1,023 birds are already identified, 188 endemic, and for some higher rates, like primates, more than two-thirds are endemic.

During the last twenty years national and international NGOs have focused their efforts on the Atlantic forest and, as a result, nearly 6.8 percent of the remaining forest is under protection, while another 21.45 percent is included in the sustainable land-use category.

With less than 7 percent of its original area remaining, the ecological integrity of the Mata Atlantica is threatened even in officially designated conservation areas. Protected areas in the Atlantic forest account for less than 1 percent of the original forest biome (MMA 1999). Conservation units have mostly turned into ecological islands surrounded by agriculture, cattle pasture, and human settlements and experience little opportunity to expand or be fully rehabilitated into ecologically sound areas.

In addition to biodiversity value, the Mata Atlantica supplies more than 100 million people with water. The protective function of the watersheds is jeopardized by land use change and inappropriate economic practices.

1.1 The Guaraqueçaba Environmental Protection Area as a Conservation Unit: Characterization in the Atlantic Forest Context

1.1.1 Physical and Biological

Even under increasing pressure, the Guaraqueçaba region is still one of the last significant areas of Atlantic forest and estuarine complex and one of the best-preserved area of continuous primary Atlantic forest left in Brazil. It presents different types of habitats such as mangroves, restinga, moist lowland forest and marshes, moist submontane, montane and upper montane forest (2.000 meters above sea level). The biodiversity is enormous, the Guaraqueçaba region is part of an Environmental Protection Area – EPA, created in 1985, that still remain without regulations instruments in order to establish the use of natural resources and restriction to non-sustainable development. Notwithstanding existing fragile legal instruments of protection, the constant pressure from agricultural, buffalo-ranching, extractive and leisure activities continues to be a major threat to this ecosystem.

The importance of preserving this area was recognized internationally in 1991, when UNESCO announced the creation of the Ribeira Valley-Graciosa mountain biosphere reserve as the first stage of a new project to include other remaining areas of At1antic forest. The Guaraqueçaba region is at the center of this first biosphere reserve in Brazil. This initiative will raise awareness of the importance of protecting, defending and recovering what remains of the Atlantic forest, using all possible forms of cooperation, including technical and financial support from both domestic and foreign organizations.

The estuarine region, situated between the sea and the mountain range, is one of the largest in Brazil, with 550 square kilometers of underwater area. The main characteristic of the estuarine complex is the state of conservation of the water and surrounding ecosystems. The plant formations in the mangroves and marshy areas near the coast around most of the estuarine system

are extremely important because they play a decisive role in the sedimentation and nutrient circulation processes, provide shelter for the associated fauna and allow a large quantity of organic matter to enter the water system.

On the mainland, the forest covering the Serra do Mar provides an essential balance to the regional ecosystems. The forest cover ensures the stability of the slopes, preventing silting of water courses and mud slides. The plant formations range from mangrove to forests in the plateau region, resulting in one of the most significant biological varieties in the world.

According to studies conducted by SPVS and Scherer-Neto (1990, IPARDES) 224 bird taxa were identified within the Guaraqueçaba EPA. Forty five of these species are endemic to southern Brazil, and 25 to Serra do Mar. Fifty of the 131 species of endangered mammals in the region are endemic. IBAMA lists 38 mammalian species known to inhabit the Coastal Atlantic forest, of which seven are known to occur within the Guaraqueçaba EPA.

Among canopy species there is a high proportion of *Ficus, Manikara,Virola oleifera, Astrocaryum, Cocos, Jacaranda, Roupala, Tiboichina, Rapanea,* and *Pseudobombax*. Main hardwood species such as *Ocotea pretiosa* and *Callophylum brasiliense* are increasingly rare and even extinct in many local sites. The source of hearth-of-palm, *Euterpe edulis*, is likely to become extinct in the coastal plains if current trends are not reversed. It provides year-round supply of nutrient-rich fruit, a major part of the diet of many frugivorus animals and income asset for many local populations. Its over-exploitation has serious implications to the overall health of the costal and submontane forest ecosystem.

The estuarine shores, black (*Avicenia schaueriana*), white (*Laguncularia racenosa*), and red (*Rhizophora mangle*) mangrove swamps dominate the area vegetation. Between these swamps and terrestrial communities are occasional grass areas dominated by salt-resistant *Spartina*. The restinga is defined by a group of species tolerant to marine influence, such as: *Ilex theexans, Erythroxylum cuspidifloium, ocotea pulchella, Weinmania sp., Schinus terbinthilolius,* and *Byrsonyma ligustrigolia*.

Currently, there are four different categories of protected areas inside the Guaraqueçaba EPA:

- **Superagüi National Park.** Created in 1989 by the federal government, it has 34,254 ha. of forest and coastal vegetation (restinga) in the mainland and two islands (Superagüi and Peças);
- **Guaraqueçaba Ecological Station[1].** This 13,600 ha. conservation unit consists of 14 mangrove swamp areas around the bays of Laranjeiras and Pinheiros;
- **Areas of Special Ecological Interest of Pinheiro and Pinheirinho Islands[2].** These islands total an additional 109 ha. of protected area. (Lowland and submontane forest)

[1] At least 90 percent of an ecological station's total area must be protected in perpetuity and the remaining may be used for scientific research.

[2] This category is defined as tracts of less than 5,000 ha., possesing extraordinary natural features or home to rare regional biota requiring special legal protection. They were established to protect the roosting habitat of the endangered Atlantic forest red-tailed parrot (*Amazona brasiliensis*);

- **Official Private Natural Reserves[3].** The first RPPN in Guaraqueçaba EPA is the 1,716 ha. Salto Morato Reserve owned by Boticario Foundation for the Protection of Nature.; and
- **Atlantic Forest UNESCO Biosphere Reserve.** In 1991, the United Nations declared a Biosphere Reserve in southern Brazil, stretching from the southern coast of São Paulo to the mountains behind Paranaguá, in the state of Paraná.

There is also a State Environmental Protection Area Superposed to the federal one, and also not regulated.

1.1.2 Socio economic

The Guaraqueçaba EPA is home to approximately 10,250 people, 1,700 of which live in the town of Guaraqueçaba. The remaining is scattered among 55 islands, estuarine and coastal communities varying from 30 to 500 people. Demographic density within the EPA is approximately four inhabitants per square kilometer. Census data indicated zero population growth between 1970 and 1996, a trend still maintained.

The geographic distribution of these communities is directly related to economic activity, and migratory trends occur within the EPA relative to natural resource distribution, changes in the job market and state and regional economy. Approximately 26 communities are continental, predominantly agricultural in their economic base, and 28 are estuarine and insular, with fishing being the primary economic activity. Fishing, extractivism and municipal government jobs are the main income sources for the Guaraqueçaba population.

Despite its proximity to the nation's major urban centers, Guaraqueçaba remains one of the least developed regions of Brazil. Most of the area's small communities and villages lack basic services such as water and sewage treatment, health care, education, electricity, and communications. The region's educational facilities and resources are among the most disadvantaged in Parana; approximately 70 percent of the population (18 years old and more) are illiterate or semi-iliterate.

The county of Guaraqueçaba is extremely poverty-stricken. In 1992, the per capita income in Guaraqueçaba was lower than Parana state average and seventy-nine percent of local families had income equivalent to less than R$ 200 per month. Further public funding to improve social services for Guaraqueçaba citizens is likely far off.

Banana is the main crop but coffee, manioc, maize and rice are also produces in the local economy. The main income-generating commodities within the EPA are heart-of-palm extraction, buffalo ranching, agriculture and fishing. Heart-of-palm extraction is the most profitable produce accounting more than 50 percent of county income. Harvesting is conducted

[3] The most recent conservation unit type created in Brazil (1990) the RPPNs play important role within the Atlantic forest context. While these reserves are considered to be under federal protection, land owners bear the responsability of monitoring, detecting, and reporting property violations, and do not receive federal or state funds to ensure their effetive management.

without proper permits and always in a non-sustainable manner. Problems are so rampant that this important crop is likely to disappear in the near future, thereby worsening economic problems.

The conservation units of Guaraqueçaba have not yet been fully implemented. The original landscape of the banks of main rivers - the Serra Negra, Guaraqueçaba, Tagaçaba, Potinga, Abobreira and Cachoeira - are lost, with the tops of some hil1s deforested and some planted with exotic species. This process of degradation is mainly caused by agricultural and other activities not duly regulated, controlled or supervised. No microzoning or management plans are available for the conservation units to serve as a basis for the rationa1 use of land resources and the regulation of economic activities.

1.1.3 Main social actors and institutional relationships

The need for environmental protection in the the Guaraqueçaba EPA has contributed for a process of better organization and integration of several social and institutional actors working in conservation in the state of Paraná.

Main social actors involved in the region and more specifically in the PiP project are IBAMA, SPVS, UFPR, buffalo ranching association; producers association of certified banana; dwellers' association of Guaraqueçaba and barra de Guaraqueçaba municipalities; women's association of Guaraqueçaba and Peças island; municipal government of Antonina and Guaraqueçaba municipalities; fishermen association of Guaraqueçaba and other NGOs (IPE TNC). Institutional activities are centered in the GIGA[4] group currently developing the process of regulating the use of the EPA.

1.2 Characterization of the southern coast of Bahia context

1.2.1 Physical and Biological

The southern coast of Bahia state located in the Mata Atlantica biome is characterized by a very high biological diversity and many endemic species. The long lasting economic exploitation and anthropic activity based on unsustainable land use practices for cattle ranching, timber extraction, agricultural crops, mainly the cocoa (*Theobroma cacao*) plantations and urban growth have caused the region to suffer great environmental impacts with severe depletion of natural resources and intense devastation in a landscape enriched with multiple ecosystems.

The southern coast region of interest to IESB and CI work lies between the rivers Jequitinhonha and Contas. Local extinction of large mammals by hunting, and predatory birds due logging,

[4] EPA management Group: IBAMA/PR; Secretaria de Estado do Meio Ambiente e dos Recursos Hídricos (SEMA/PR); Instituto Ambiental do Paraná (IAP); Program de Proteção da Floresta Atlântica (PRÓ-ATLÂNTICA); Divisão de Polícia Naval da Capitania dos Portos de Paranaguá; Batalhão de Polícia Florestal (BPFlo); Polícia Rodoviária Federal; Promotoria de Proteção ao Meio Ambiente; Procuradoria da República no Estado do Paraná; Delegacia do Patrimônio da União (DPU); Sociedade de Pesquisa em Vida Selvagem e Educação Ambiental (SPVS).

have impoverished the fauna of many fragments, such as the vicinity of Una. Hence, species richness and composition are affected by patterns and history of human occupation. Caves are concentrated in patches of calcareous terrain, as in Camacã and Pau Brasil. These areas have rich and distinctive communities of bats, and cave invertebrates. During the last two years CI and IESB started to work jointly in the Central Corridor of Biodiversity of the Atlantic Forest or the "Corridor of the Discovery" of the State of Bahia. The strategy among these NGOs for the "Corridor of Biodiversity" or "Ecological Corridor" include a network of different categories of Conservation Units" and other areas for intensive use that will be managed on na integrated bases in order to garanttee the survival of several species in the region. These concepts area being recently use in Brazil after the implementation of the Project Parks and Reserves of the PPG7.

Pastures and plantations are progressively separating inland and coastal areas. This increases the extinction risks for species that occur in both areas, due population isolation. Deforestation is increasing sediment load in the rivers of the Jequitinhonha Basin, which impacts directly on the reefs and marine biota

Inland area has a distinctive biota (bats, trees, birds, invertebrates) and also comprises large part of the ranges of species extending to the coastal area, including *L. chrysomelas and Cebus xanthosternos*. This area has the better soils in the region, and are under strong pressure by logging and coffee plantation. There is no reserve in this area.

Logging may reduce the abundance of monkeys and birds (Thiollay 1992 Cons. Biol. 1: 47-63; Stallings & Robinson 1991 in "Primatologia no Brasil-3").

The regeneration potential of pastures and non-forest plantations can be greatly enhanced if some trees are kept or planted for attraction of seed dispersers (birds, bats). A potential problem is that cattle crowds under tree shading causes erosion or soil packing. Hedgerows are a good alternative for this problem and can be better corridors than isolated trees.

Main primary vegetation types found in the region include Restinga (arboreal and shrubby coastal vegetation), Campos Nativos (sandy coastal grasslands), brejos and mangroves . These several ecosystems are of great biogeographic importance, because harbor many endemic species and genera, most of them with scattered distributions. An area of campo nativo neighboring Conduru state park reserve is being invaded by coconut plantations.

Species of primates threatened of extinction and endemic to the south of Bahia are the (*Leontopithecus chrysomelas*, *Cebus xanthosternos* e *Callithrix kuhli*), and the ouriço-preto (*Chaetomys subspinosus*).

The Central Corridor of the Atlantic Forest represent one of the main areas of endemism if compared with other parts of this biome, for example, for plants, butterflies and vertebrates[5,6,7].

[5] *Brown, K.S.Jr. (1975). Geographical patterns of evolution in neotropical Lepidoptera. Systematic and derivation known and new Heliconiini (Nymphalidae: Thomiinae). J. Ent. (B)44(3):201-242.*

[6] Prance, G. (ed). (1982).Biological diversification in the tropics. Columbia University Press, New York.

The region[8, 9, 10, 11], detain one of the biggest records on botanical biodiversity on the world, especially in the forest near the Serra do Conduru[12], State Park and around the mountains in the State of Espirito Santo. The Corridor also shelte a huge number of vertebrates including more than 50% of endemic birds and 60% of the endemic species of primates of the Atlantic Forest, such as the *Leontopithecus chrysomelas and the Cebus xanthosternos*.

The situation concerning mammals is very critical. Although it is rich in endemic species there is a great reduction in the number of individuals among these communities, mainly related to large and medium sized species. These are directly affected by hunting and intense logging in the region.

Despite the region's high species richness and endemism, recent studies have revealed new species in the "Descobrimento Corridor". At least 5 new species of anuran amphibians have been described recently in the region and five new species of birds and a new genus (*Acrobatornis fonsecai*) recently described in the mountainous and coastal cocoa-growing regions. The lack of information about biodiversity in the Descobrimento Corridor makes most of the evaluations of extinction threats largely speculative. In this context, the CI and IESB are investing to produce, administer, and distribute information about biodiverdsity and to establish management plans and protective measures of communities and species.

The cabrucas (cocoa plantations in the understorey of the original forest) are biologically important and can work as corridors for fauna and help preserve tree species of high biological value.

1.2.2 Socio economic

The Southern coast of Bahia, including the municipalities of Ilhéus, Una, Itacaré and Serra Grande, Maraú, Jussari and Uruçuca is home to approximately 409.335 people, sixty five percent livinge in urban areas . The remaining is scattered among the rural area in official agrarian reform settlements and coastal small villages, varying from 30 to 500 people. Demographic density

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[7] Kinzey, W.G. (1982). Distribution of primates and forest refuges. In: *Biological Diversification in the Tropics,* (Ed: Prance,GT) Columbia University Press, New York, 455-482.

[8] Thomas, W.W., Carvalho, A.M.V., Amorim, A.M.A., Garrison, J. & Arbeláez, A.L. (1998). Plant endemism in two forests in southern Bahia, Brazil. *Biodiversity and Conservation 7*: 311-322.

[9] *Brown, K.S.Jr. (1975). Geographical patterns of evolution in neotropical Lepidoptera. Systematic and derivation known and new Heliconiini (Nymphalidae: Thomiinae). J. Ent. (B)44(3):201-242.*

[10] Prance, G. (ed). (1982).Biological diversification in the tropics. Columbia University Press, New York.

[11] Kinzey, W.G. (1982). Distribution of primates and forest refuges. In: *Biological Diversification in the Tropics,* (Ed: Prance,GT) Columbia University Press, New York, 455-482.

[12] Kinzey, W.G. (1982). Distribution of primates and forest refuges. In: *Biological Diversification in the Tropics,* (Ed: Prance,GT) Columbia University Press, New York, 455-482.

within these municipalities is approximately eleven inhabitants per square kilometer. The IBGE´s Census data indicated 1,84 percent population growth between 1986 and 2000.

The geographic distribution of the regional population is directly linked to several economic cycles since the Portuguese arrived in Southern Bahia in 1500. From a history of extensive logging and harvesting tropical timber and sugar cane, built on indigenous and slave labor, the region's modern development has closely created its varying ecological conditions.

During the second half of the 16th century the Brazilwood tree (*Caesalpinia echinata*) became a major commodity. Its beautiful, dense, red wood was in great demand for lumber and as a source of dye for the European textile industry. But by the beginning of the 17th century, the tree itself had nearly been forced into extinction from uncontrolled logging.

Over the next two centuries, much of the forest was lost to large sugar cane plantations and cattle ranching. Forest was often burned both to make way for pasture and to displace the native people. The Southern region of Bahia has been the heartland of cacao cultivation by large properties in Brazil. Small landowners, descendants of indigenous people, immigrants, African slaves, slave owners and landless rural workers are responsible for the production of manioc, piaçava, dendê (African oil palm), black pepper and tropical fruits. Large rubber plantations, owned by companies such as Michelin, are also prominent features of the landscape.

Despite its proximity to Salvador, the State capital and major urban center, the southern region of Bahia remains one of the least developed regions of Brazil. Most of the area's small rural settlements and villages lack basic services such as water and sewage facilities, health care, education, electricity, and communications. The region's educational facilities and resources are among the most disadvantaged in the Northeast; approximately 50 percent of the population (18 years old and more) are illiterate or semi-literate [13].

The municipalities of the Southern Bahia are extremely poverty-stricken. In 1992, the per capita income in Una was much lower than average of the state and eighty-six percent of local families had income equivalent to less than R$ 200 per month. Further public funding to improve social services for these municipalities citizens is likely far off.

In the 1990s, low prices and a devastating fungus known as witch broom eliminated nearly one-third of the 600,000 ha dedicated to cacao cultivation at the peak of production in 1987. Nonetheless, this region´s rare climate, without a marked dry season or temperatures below 20 °C, ensures that cacao cultivation will persist on the best soils. It is doubtful, however, whether the cabruca system of cultivation[14] will enable cacao plantations to serve their historical function as landscape links between remaining natural forests, unless new public policies provide a mechanism to compensate this particular land use.

Today, other economic activities can bring a new perspective to maintain the natural forest landscape. The State government has created several EPAs to control environmental impact along

[13] Source: IBGE demographic census
[14] low-density plantations with shade from native tree

the cacao coast and the private sector has also become active to create RPPNs and take advantage of conservation initiatives.

1.2.3 Main social actors and institutional Relationships

Besides CI and IESB executing organizations, main actors involved in the project are government institutions and social organizations mainly via the EPA Itacaré-Serra Grande environmental council. Members at federal level include Ibama and Incra. At state level CRA, DDF, SEAB, Education Secretariat, Health Secretariat. At local level Una, Itacaré-Serra Grande municipalities, companies like Michelin and M&M Mars, Cabruca association, cooperuna, instituto ambiental boto negro, council of city councilors from itacaré and urussuca, Santa Cruz State University, Bahia state urban development company CONDER, superintendency for the development of tourism SUDETUR, Serra Grande inhabitants association, Serra Grande small producers association, Itacaré rural workers union, Itacaré shop vendors association, "Porto de trás" neighborhood association, "Rua da linha" association, Bahia public defense body (ministério público), NGOs, ISA and SOS Mata Atlântica,

SECTION II - EVALUATION OF PiP AND BiRD PROJECTS

2. Evaluation of the Nature Conservancy's Parks in Peril (PiP) Program

2.1 Approach and Methodology

The evaluation process took place from October to November 2001, comprised the review of pertinent project documents, interviews with executing NGOs and relevant stakeholders, field visits and questionnaire application and analysis. Project visits were held from October 29 to November 5, starting at TNC and SPVS offices in Curitiba and proceeding to field visits in the Guaraqueçaba region.

2.2 Introduction to TNC PiP Program

The Parks in Peril (PiP) program is a public-private partnership that seeks to bring long-term protection to the most threatened, biologically significant parks and reserves in Latin America and the Caribbean. It has been successful in transforming former "paper parks" into functional protected areas. Today, this represents 34 protected areas, covering around 25 million acres, in 15 countries, where PiP has helped protect, tropical forests and other endangered biomes and ecosystems.

In order to give more quality and consistency to TNC work, the PiP project adopted four main guidelines, as it follows:

1. **Build on-site logistic and scientific basis to manage parks in the hemisphere's most imperiled ecosystems**. This is the fundamental component of the Program and includes basic protection, infrastructure construction and maintenance, and applied conservation science activities.
2. **Integrate PiP protected areas into the economic lives of local societies**. Community outreach activities such as environmental education, creation and empowerment of local management committees that represent the interests of nearby communities, and sustainable resource-use pilot projects are included in this component.
3. **Create long-term mechanisms to sustain the local management of these areas**. This component promotes the development of long-term protected area management and financial plans, provides technical assistance in the development of NGO self-sufficiency strategies, and assists conservation organizations to promote local, national, and international policies that advance conservation.
4. **Use the PiP site-based activities to influence conservation in other sites in the region's most imperiled ecosystems**. This includes the balancing themes component of PiP that seeks to leverage the experiences gained through the Program in the areas of conservation science,

community conservation, conservation finance and policy, and institutional strengthening (in this case for NGO self-sufficiency and ecotourism). Also, this component emphasizes technical assistance to local organizations in the development of creative solutions to conservation problems, providing funding to implement those solutions, developing and testing tools to assist partners, providing training, and producing publications to assist the wider conservation community.

2.3 Introduction to TNC/SPVS PiP Brazil Project

In 1996, USAID/Brazil decided to co-finance the inclusion of a Brazilian protected area in the PiP program. Building up from the general guiding purposes and experience of the PiP Program in Latin America and the Caribbean, the site chosen to initiate the program in Brazil was the Guaraqueçaba EPA, a multiple use area with 313.000 ha, on the coast of Parana State. TNC and SPVS pre-analysis showed that the Guaraqueçaba EPA would be an important addition to PiP because of its remarkable biological diversity, real and imminent threats facing the ecosystem, and the potential to achieve tangible, long-term conservation impacts in the region.

After a year of project preparation, the final agreement term between TNC and SPVS was signed on September 10, 1997 and TNC and SPVS began in 1998 the implementation of conservation activities in the EPA area funded by USAID/Brazil. As a matter of fact, both NGOs had been involved in Guaraqueçaba since 1991, especially SPVS that prepared in 1992 the first Integrated Conservation Plan for the Region.

2.4 Project Evolution and main results

To guarantee the protection of the Guaraqueçaba EPA site, TNC and SPVs originally adopted four main objectives:

a. **Basic Protection Activities.** Infrastructure; On-site personnel, training, land tenure, threats' analysis, and official declaration;

b. **Long-Term Management**. Site zoning, management plan, science needs, and monitoring plan;

c. **Long-Term Financing**. NGO self-sufficiency, site financial plan;

d. **Site Constituency**. Management committee, sustainable resource use, policy agenda, and environmental education.

The following sections describe and comment the current status and achievements of each of these PiP components.

2.4.1 Minimum Protection Activities

2.4.1.1 Infrastructure

In fact, this is an important aspect to organize the work, because the EPA of Guaraqueçaba is not a conservation unit of full protection. The planned infrastructure normally required for a national park or similar "indirect use" units, as in other TNC sites, is very different, and the original program had to be adapted to this local reality. Most of the land is privately owned and there's a mosaic composition of conservation units inside the EPA, needing different types of infrastructure.

Despite also having declared this area a state EPA, the government is not investing or putting efforts to conserve it, concentrating his work on the rest of the Parana coastal region. The federal government also has insufficient funding and material limitations, and recently decided to close the official position of manager for the Guaraqueçaba EPA.

Therefore, SPVS has focused on developing the infrastructure of "indirect use" reserves, both public and private, inside the EPA. For instance, SPVS is helping with technical support the negotiation between the DPU - the federal land agency - and IBAMA to allocate infrastructure for control and visitation center at the Superagüi National Park, in the Superagüi Island. Management infrastructure has already been installed for SPVS private reserve at Serra do Itaqui, and more infrastructure will be built in the short-term for the new Cachoeira River Valley project.

2.4.1.2 On-site Personnel

Guaraqueçaba EPA is not designed to work as a conservation unit of indirect use, but an administratively regulated one, so there is no reason to establish a high level of permanent government staff dedicated to control the whole area, as it was foreseen by the program.

Progress in general has been slow, and more political institutional negotiation has to take place in order to secure effective implementation. Still, SPVS has worked on the idea of having a security check point, to be constructed by Pro-Atlantic Program/IAP, on the PR 405 road (only way to the area), at the Cacatu locality, just in the entrance of the EPA. This is also being discussed by the GIGA[15], but has not as yet resulted in effective changes regarding law enforcement and control agents.

Currently there have been some positive signs: IBAMA hired two inspectors and assigned them to the EPA since February 2001, and one IBAMA biologist is living in the town of Guaraqueçaba. In addition, IBAMA has also taken over management of a new reserve known as Bom Jesus, adjacent to SPVS's private reserves, and has placed about five guards to guarantee some presence in the EPA. The PiP Project has made a priority of increasing the level of protection personnel at the private reserves inside the EPA, and SPVS has hired 30 guards to take care of its reserves at Serra do Itaqui and Cachoeira.

[15] Grupo Integrado de Gestão Ambiental (Integrated Group for Environmental Management), a multi-institutional management group appointed by Ibama to plan and enforce protection legislation in the APA.

Also, in order to have a permanently monitoring for the Morro da Mina reserve, near the entrance to the EPA, SPVS hired new guards already trained by the state forestry police battalion, with whom they are coordinating activities. They will also add to our knowledge in the EPA overall.

2.4.1.3 Training

SPVS also organized and held some workshops for guards and inspectors of the forestry police related to the access and use of geographic information systems developed by SPVS for the EPA. The basic needs to be achieved refer to good capacity in map interpretation, GPS use to feed GIS for monitoring, and a broader understanding of conservation issues. Naturally, there needs to be re-training and other courses to benefit the entire group of guards and inspectors, not all at once, besides changes in personnel always requiring more training.

On the other hand, Forestry Police have given two training to all guards hired by SPVS, on how to face dangerous and delicate situations that commonly occur in the EPA. SPVS is planning another course on general management techniques for guards, to be provided by its own technical personnel previously trained on the topic. However as the technical cooperation agreement still waits a reply from the Secretary of Public Security, this initiative did not evolve. To fill the gap, the Pro-Atlantic program is providing training in different areas and equipment to control agents.

2.4.1.4 Land-tenure Issues

The entire EPA has been mapped for soil use and occupation, using satellite imagery. The land tenure survey has been improved as more land has been surveyed. The total number of properties mapped is currently 396, equivalent to 81,200 ha. out of a total 169,600 ha. with less than 600 m². Most of the large properties are located on the costal plain, where the majority of economic activities take place (48% of this area). As mentioned before, most of the land in the EPA is privately owned. This includes the areas of the PiP project bought by TNC and SPVS from 1996.

Another important point is the ongoing negotiation with the ABUPAR related to land-tenure information available to large property owners, especially buffalo ranchers, in order to establish a network of rotary buffalo grazing at Private Reserves and Forest Rehabilitation Project. The protocol of intentions referring to the exchange of animals between SPVS and ABUPAR and to environmental adjustments to rural properties will finally be discussed soon.

The project at Fazenda Ana Terra underwent some final adjustments in area and number of paddocks. SPVS is now ready to start replication of this model with other ranchers but, it still needs more time and technical discussions to get more sympathy from ABUPAR members. Although, a meeting held with ABUPAR in December showed good prospects of new partnership and ABUPAR demonstrate an interest in a carbon project with SPVS, generating adequate buffalo ranching, forest restoration and carbon benefits.

About rancher's request to conserve the roads to the milk-producing farms, the process has evolved and today it is possible to see public servants from the Antonina City Hall coming to

SPVS in order to get geographic information to support the administrative license process within IBAMA to explore pebble mining activities on a legal basis.

There is no reason to map community and small-scale land-ownership, since legal documentation is scarce and rarely relevant. The GIS laboratory has been overlaying land-use on top of the property files, and working with IBAMA and the Forestry Police to use this information for enforcement of the EPA, according to the environmental legislation.

Currently, an update in the data bank for land tenure is in progress and due to be available in March 2002. SPVS has identified and compiled information on all illegal residents in the Island communities around the Superagui National Park and has made this information available to Ibama. This information made it possible for IBAMAto start prosecuting illegal owners and demolishing illegal second homes on Peças and Superagui Islands, reducing ongoing construction and illegal occupation.

2.4.1.5 Threat analysis

A workshop planned to be held in September to design a site conservation plan (SCP) for the EPA and update the threats' analysis, was rescheduled for March 2002. This was explained by the need for in-depth planning, careful definition of institutional invitees and methodology refining. The goal of the workshop is to generate a useful document to guide multi-institutional management efforts, in addition to training planners to use the methodology. IBAMA together with GIGA are the main organizations involved, and local stakeholders from the communities and City Hall will be invited to participate in the discussions. GIGA members are implementing a management committee, and the result of this workshop is intended to become the committee's guiding document.

2.4.1.6 Official declaration of site status

Because the EPA has already been officially established there are no actions programmed for this item. SPVS is investing in zoning regulation to enforce the development of environmentally compatible activities. Several new private conservation[16] units have been established in the EPA by SPVS and other land owners.

[16] Cachoeira, Serra do Itaqui, Morro da Mina and others.

Box 2.1 below summarizes the main impacts related to objective 1:

- SPVS is providing technical support to DPU - the federal land agency - and IBAMA for the use of land to allocate infrastructure for the visitation center at the Superagüi National Park.
- Management infrastructure installed for SPVS's private reserve at Serra do Itaqui, and more infrastructure to be built in the short-term for the new Cachoeira River Valley project.
- Discussions with the Pro-Atlantica program of the State government to build a security check point on the PR 405 road at the Cacatu village, in the entrance of the EPA.
- IBAMA hired two inspectors and assigned them to the EPA since February 2001, and one IBAMA biologist is living in Guaraqueçaba.
- IBAMA placed five guards in the new reserve of Bom Jesus, adjacent to SPVS's private reserves.
- SPVS has hired 30 guards to take care of its reserves at Serra do Itaqui and Cachoeira.
- SPVS hired new guards trained by the state forestry police battalion to monitor the Morro da Mina reserve, near the entrance to the EPA.
- SPVS prepared workshops for guards and inspectors of the forestry police on access and use of geographic information system developed by SPVS for the EPA.
- Forestry Police provided two training courses to all guards hired by SPVS, on how to face dangerous and delicate situations common in the EPA. .
- The entire EPA has been mapped for soil use and occupation with satellite technology.
- Increase in the number of properties less than 600 m2 mapped to 396, equivalent to 81,200 ha.
- SPVS has identified and compiled information on all illegal residents in the communities around Superagui National Park, and has made this information available to Ibama and to the DPU.

2.4.2 Long-Term Management

Long-term management is one of the most desirable results pursued in conservation and development projects. It provides the basic elements to ensure the effective continuation of positive impacts in the long term and is the main responsible for constituency build-up and *ex-site* replication.

The main achievements of this component of the PiP project in the Guaraqueçaba EPA are:

- SPVS and IBAMA, are working on the zoning procedures which will use the state zoning made by the state agency (IPARDES) as a basic reference in order to aprimorate the identified homologous zones;
- Eighteen illegal resort homeowners being prosecuted by IBAMA with the support of DPU, and four houses at Ilha das Peças were demolished upon a court order. Although this action appears to be very controversial between the public local opinion and several authorities, it makes clear that it is not possible to build week-end resort houses in the Superagüi National Park. Despite the limited result, it is an unprecedented event that creates jurisprudence in the subject and will guarantee higher protection of biodiversity. It has also disencouraged new constructions by tourists on the Islands.

On the other hand, the following limitations have been identified:

- Demolition of houses in the islands demands support from the Federal Police, who has been reluctant to help IBAMA. For this reason, the last demolition of resort houses was undertaken solely within IBAMA's administrative powers without a court order;

2.4.2.1 Site zoning and buffer zone management

The work together with IBAMA and others institutions within the GIGA has been delayed but is expected to be finished by March 2002, when the process of establishing regulations in a legal fashion will be pursued by SPVS' lawyer in conjunction with IBAMA.

The discussions related to agriculture, cattle ranching, agroforestry systems, and fishing management are completed, and proposals about tourism regulations have just ended. The idea is that contractors will take the different zoning recommendations prepared by specialists and compile them into a document that, with technical legal assistance, will be submitted to IBAMA to guide regulating uses of the EPA. Now SPVS lawyer, the coordinator of institutional inter-relations, and IBAMA are working to put the regulations into legal form.

As of now, it will not be possible to make most of the land-use patterns to conform to the zoning regulations, for these are still being developed according to GIGA objectives and SPVS executive help. Because the EPA is a buffer zone to three RPPNS, ecological station of Guaraqueçaba and National Park of Superagui, the discussions about the zoning and management plans of these indirect use reserves are concentrated inside the EPA.

2.4.2.2 Site-based long-term management plans

In 1992, SPVS, through an agreement with TNC and IBAMA, produced a consistent Integrated Plan for Conservation and Sustainable Development of the Guaraqueçaba region, but due to lack of better political articulation between GO agencies and NGOs this plan was not implemented. The workshop planned to be held in September and postponed for March 2002, will design a Site Conservation Plan for the EPA, that SPVS plans turning into a guiding document for use by IBAMA's management committee. Currently existing documents for the EPA were produced by several different organizations, but none employed TNC's "5 S" methodology.

IBAMA has announced the intention of establishing an agreement with SPVS to prepare a management plan for the National Park of Superagüi. Therefore, SPVS has prepared a proposal for the National Environmental Fund – FNMA, worth R$ 300,000 (Three hundred thousand reais). This project will be sent to the Fund until December and will take about 4 months for analysis.

Also related to long-term management, SPVS has initiated three climate change projects[17] with Texaco, General Motors and American Electric Power and the work is currently focused on planning.

Two projects were designed for the SPVS-owned Morro da Mina RPPN : a CD-Rom with data of the properties, images and natural attractions, to attract further investments, and; a project for a butterfly nursery, to become a tourist attraction in the coastal region and unfold into environmental education activities.

2.4.2.3 Science and information needs assessment

Desk reviews of the documents so far produced for Guaraqueçaba and a list of research priorities for the EPA are completed. An agreement has been signed with the Catholic University PUC of Parana for a partnership in health assistance and biological research, expected to build constructive partnerships in the near future. Meetings with professors of the Federal University of Paraná - UFPR, however, have not produced any formal partnership because of conflicting views on generating scientific information.

The UFPR tends to value basic and more abstract research, and have looked upon SPVS as a financial agent rather than research partner. For example, the Forestry Department of UFPR was looking for an authorization to clear-cut 1 ha. of primary Atlantic forest to measure the biomass, and SPVS did not agree with such research, because IBAMA has banned all possible types of deforestation. On the other hand, SPVS need to generate real results to be applied in conservation, cannot afford giving support to theoretical research that will not generate practical results.

2.4.2.4 Monitoring plan development and implementation

The restrictive standing of the EOP as developed by GIGA needs modifications and become more pro-active in the sense of providing proposals rather than sole restrictions, to make the most of the land-use patterns.

Consistent information for monitoring the main threats is available through SPVS' GIS laboratory to reinforce regulatory strategies and judicial action. Satellite images from 1990, 1997 and 1999 were used to produce a temporal analysis showing recent deforestation, and then made available to government inspectors. The main threats monitored so far are the building of illegal resort homes, deforestation, pebble mining, buffalo ranching, rice cultivation and other land-use activities. Currently IBAMA is concentrating efforts on monitoring extraction of pebbles out of rivers undertaking impact mitigation work, recovering riparian forests and requesting authorization from the Federal Mining Agency to mine pebbles out of dry areas on the plain in their properties.

[17] Antonina pilot reforestation project, Atlantic rainforest restoration project and Guaraqueçaba climate action project

SPVS is assisting the landowners to use its GIS laboratory to identify areas on the dry plain feasible for mining, and currently the Antonina City Hall looks for SPVS's GIS laboratory to get geographic information to subsidy the administrative license process within IBAMA to explore pebble-mining activities on a legal basis. Red-tailed parrot populations, as an indicator of environmental quality, are being monitored at Ilha Rasa, Ilha das Peças, Superagüi, Ilha do Mel and Guaraguaçu.

Box 2.2 below summarizes the main results related to objective 2:

- 18 owners of illegaly built resort house in ilha das peças sued by Ibama
- 4 houses already demolished and one dock for boats
- Proposals for site zoning in the subjects of agriculture, cattle ranching, agroforestry systems, fishing management and tourism regulations prepared.
- Proposal for the National Environmental Fund – FNMA, worth R$ 300,000.00 for the management plan of the National Park of Superagüi.
- Climate change project initiated
- CD Rom with data and images of the property Morro da Mina
- Butterfly nursery project prepared for the Morro da Mina Reserve
- Agreement with the Catholic University PUC for partnership in health assistance and biological research
- Satellite images used to produce analysis of recent deforestation, made available to government inspectors
- Private landowners and local authorities use the GIS system to plan pebble mining activities and IBAMA to help the licensing process.

2.4.3 Long-Term Financing

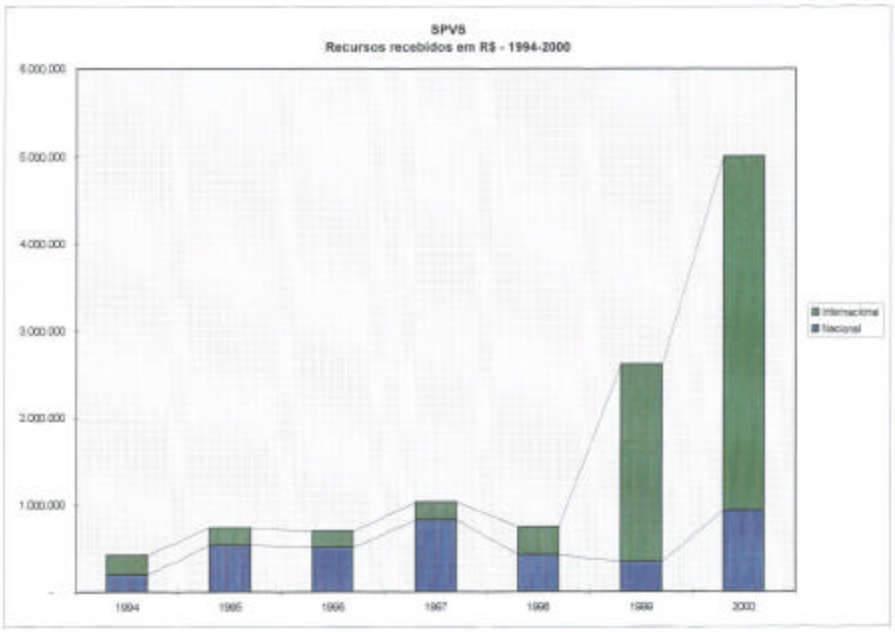
World-wide, the long term financing and economic sustainability of NGO's conservation and development projects are one of the most challenging and critical aspects of planning daily and future activities. Therefore, the implementation of the PiP, program allowed SPVS to become more robust on long-term financing and opened new possibilities of financial support as shown below:

- A state level project submitted to GEF funds shall have funds available by the first semester of 2002 (US$ 8 million dollars);
- A SPVS project submitted to GEF under negotiation could bring in US$ 1 million dollars in 2002;
- A project on public policies submitted to the summit foundation (US$ 110 thousand dollars);
- A project for the management plan of Superagui national park submitted to FNMA (R$ 284 thousand reais);

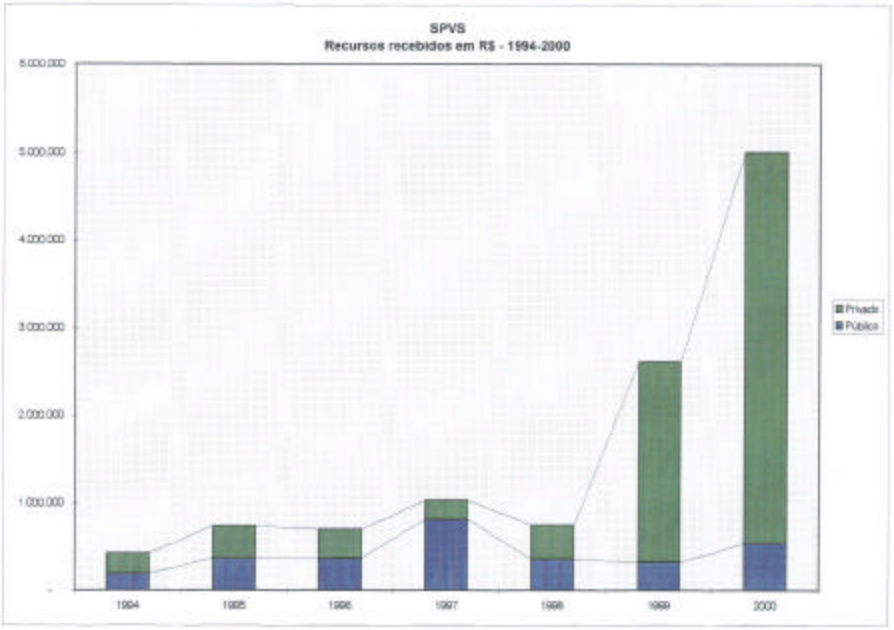
- A project for the management plan of Superagui national park already approved and an agreement is being written by IBAMA (R$ 160 thousand reais);
- A project with the Avina Foundation allowed SPVS to sign partnerships with five different enterprises in services, advertising and materials to strengthen SPVS institutional image. An atlas of Guaraqueçaba and a portfolio for SPVS have been produced and distributed to local Guaraqueçaba schools (atlas), and to different enterprises (portfolio) in fundraising efforts.

Also it is important to mention the carbon sequestration projects already approved among Texaco, General Motors, American Electric Power and SPVS/TNC, which will generate long-term funding (US$ 18,400 millions) to SPVS for the next 40 years.

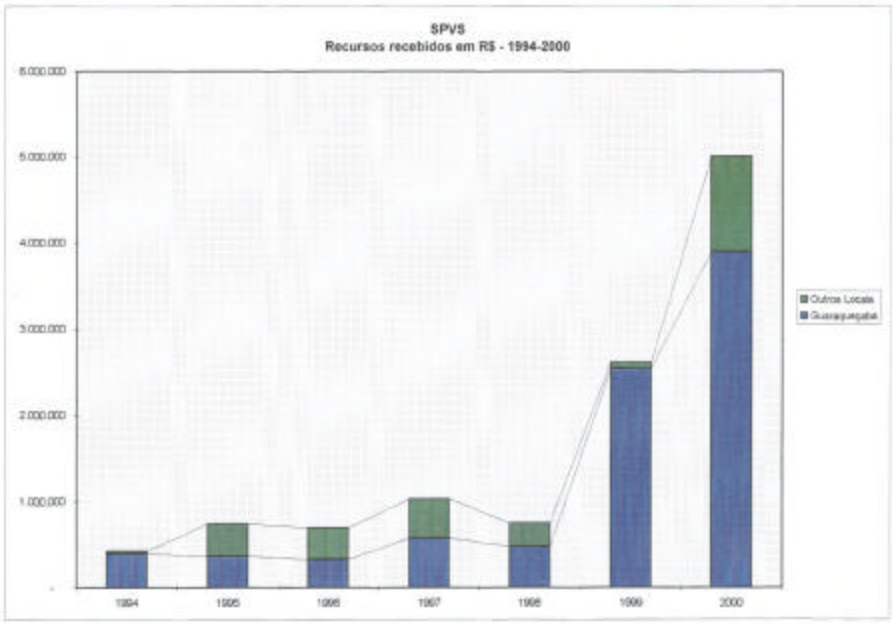
The graphics below demonstrate that since 1996, funding at SPVS has been changing in comparison to the 1994 strategy. As more funding sources became available funds were concentrated in the Guaraqueçaba EPA. In addition, since the inception of USAID funding in 1997, there has been a substantial increase in private funds - - mainly from large funding for carbon sequestration projects from private enterprises - and a decrease in public funds available for SPVS.



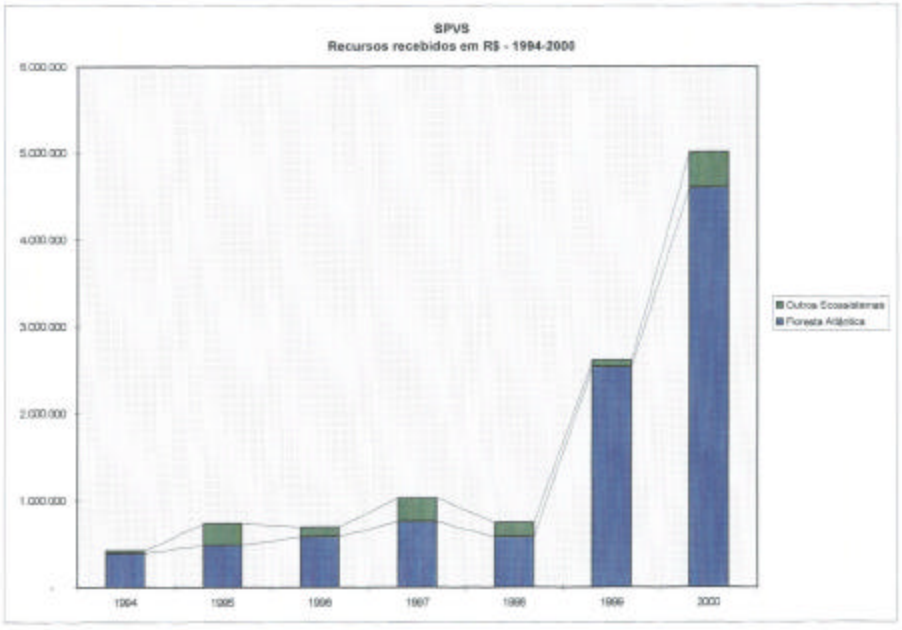
Received resources in R$ (1994-2000) – International and National



Received resources in R$ (1994-2000) – Private and Public



Received resources in R$ (1994-2000) – Guaraqueçaba and Other Places



Received resources in R$ (1994-2000) - Atlantic Forest and Othe Ecosystems

2.4.3.1 NGO self-sufficiency plan

A portfolio was printed (2,000 copies) to be used for contacts with enterprises and partner institutions. The HSBC bank has donated US$ 30,000 for training in environmental education with teachers of elementary and secondary schools in the Paranagua and Guaraqueçaba areas,

adding force and resources to the initiative sponsored by PiP. Leaflets of the "adopt a parrot" campaign were inserted in 615,000 phone directories in the Curitiba metropolitan region and Parana coast regions. Up to now, the effort has resulted in 254 "adoptions" providing US$ 3,500 in donations to the red-tailed parrot project, also adding funds to actions inserted in the PiP. Another proposal with HSBC is under negotiation for environmental education in the Curitiba metropolitan region, as well as other three proposal including an Atlas of Curitiba; rescue of the original landscape in the metropolitan region.

An agreement was signed with the toll road administrator Ecovia, resulting in 50,000 newsletters distributed every two months with texts on environmental matters written by SPVS, and 20 billboards on conservation themes (with SPVS logo) along the road to the coast. Another agreement was signed with Brasil Telecom, a telephone holding company, to issue 7,000,000 telephone cards with SPVS logo, images and information about conservation. Recently, SPVS sent a new proposal to Ecovia, to produce social environmental analysis of their area of influence. This proposal is worth R$ 100,000 (one hundred thousand reais) and intends to produce data on the public using the road and build closer relations with the enterprise.

New contacts were made with the Pão de Açucar group, and funds for institutional support are being negotiated. Also, negotiations with TIM Cellular are also being defined, and funds will cover the payment of one person in the Strategic Partnerships Department.

There is a possibility to transform the rotary grazing buffalo ranching project into an economic self-sufficient SPVS activity but, it will require SPVS to have more practical focus to give economic viability to this initiative. This issue is being internally discussed.

SPVS' self-sufficiency strategy is being developed together with the governing board through partnerships with the private sector. The idea is to create an endowment fund for SPVS in the coming three years, while working at the same with corporate associates and affiliations. This is linked to an internal and external communication program also in development.

2.4.3.2 PiP site long-term financial plan

A project entitled "Conservation and Protection of Biodiversity in the State of Paraná" was concluded in July 2000 and presented to GEF. As part of the project, extensive financial projections and budgets were prepared for the management and sustainable development of the EPA. Participant organizations included SPVS, IAP (state environmental agency) and the State of Paraná Secretary of Planning. This proposal, worth US$ 16,263,000.00 (sixteen million and two hundred and sixty three thousand dollars) has been approved. The first disbursement for phase one worth US$ 8 million, (8 million dollars) originally expected to be available by the end of 2001, has been delayed for the first semester of 2002.

The initial focus of this phase will cover areas of the Parana upland plains, not in the coast, and due to strategic objectives from the state environmental agency, Guaraqueçaba might not be directly included in this first phase. This is the first large project at state level focused on

biodiversity with an emphasis on enforcement and technical training so the environmental agency will be strengthened.

A mid-sized grant project for assistance in the EPA management, worth US$ 980,000 (nine hundred and eighty thousand dollars) to be managed by SPVS, has been endorsed by the state government for submission by SPVS to the Secretary of International Affairs of the UNDP for approval. The final project presentation was made in July 2001 in Brasilia and chances are it will be approved.

Box 2.3 below summarizes main results related to objective 3:

- State level project submitted to GEF (US$ 8 million dollars);
- Project under negotiation with GEF worth US$ 1 million dollars;
- Project on public policies submitted to the summit foundation (US$ 110 thousand dollars);
- Project for the management plan of Superagui national park submitted to FNMA (R$ 284 thousand reais);
- Proposal for the management plan of Superagui national park approved by IBAMA (R$ 160 thousand reais);
- Project with the Avina Foundation has allowed SPVS to establish partnerships with five different enterprises;
- Atlas for Guaraqueçaba and a portfolio for SPVS produced and distributed to local Guaraqueçaba schools and fundraising organizations;
- Leaflets of the "adopt a parrot" campaign inserted in 615,000 phone book directories
- Support to public schools in the EPA through the donation by SPVS of books to organize environmental libraries in each of these local schools;
- Agreement with Ecovia and 50,000 newsletters distributed every two months;
- 20 billboards on conservation themes along the road to the coast;
- Agreement with Brasil Telecom, to issue 7,000,000 telephone cards with images and information about conservation;
- Several negotiations with private enterprises for fund raising;
- Project presented to GEF.

2.4.4 Site Constituency

This is an important aspect of the project in the sense that it made possible the creation of strategic alliances with the local communities and built up a sense of local social constituency. The PiP added the provision of basic health and education services, not originally planned in the program, but with a great positive impact in establishing a reciprocal baseline relationship between project staff and local population. For instance, the project has contributed to the following achievements:

- A sewage treatment plant using native plants at Ilha Rasa is working and can now be replicated. Fifteen new plants are planned to be installed during the new fiscal year of

2002;

- The environmental education program designed for Guaraqueçaba (70% of teachers receiving training this fiscal year) was expanded to Paranaguá (100 teachers already trained and another 645 to be trained) and Antonina municipalities (50 teachers to be trained) with funds received by SPVS;
- A local fisherman from Guaraqueçaba in partnership with an Italian technician in agriculture established a private reserve designed for ecotourism and environmental education in 2000.

On the other hand, the following limitations have been identified:

- The Federal University has given up the handicraft production project for lack of funding, and SPVS has stopped working on the topic due to staff restriction and lack of specific funding;
- The current IBAMA representative in Parana state has strong political interests and has not been supportive of public participation in environmental management initiatives.

The following tables show population distribution in the EPA area and its participation in consultation and decision-making in education and conservation and health assistance projects.

Population information:	**Popu-lation in Communities**	**Number of Communities**	**Population in Cities**	**Number of Cities**
Approximate population living in the core zone of the EPA	5776	55	2259	1
Approximate total population living inside the EPA "buffer zone"				
Approximate total population living nearby the EPA "zone of influence"	28,415	N/A	146,351	3

Source: IBGE (Brazilian Institute for Geography and Statistics), 1996 census.

Community Conservation Indicator : *Index of participation by local constituency in consultation and decision-making (by gender and age group; by number of meetings; by % of participating stakeholder groups)*
Red-tailed parrot environmental education and research project + Health assistance at Ilha Rasa

	Baseline	**FY 00 (1998)**		**FY 01 (1999)**		**FY 02 (2000)**	
	Actual	**Planned**	**Actual**	**Planned**	**Actual**	**Planned**	**Actual**
Number of meetings held	48	48	94	24	12	16	
Total number of participants (double counting)	720	960	1056	960	115	960	
Men (double counting)	230	267	633	267	80	267	
Women (double counting)	490	693	423	693	35	693	
Number of stakeholder groups participating							
Number of stakeholder groups identified (Ilha Rasa)	11	11	12	11	14	11	
% of participating	60	70	70	75	80	80	

stakeholder groups							

2.4.4.1 Broad-based management committee/technical advisory committee

The GIGA was formerly under the responsibility of the state-led government Pro-Atlantica program, which eventually lost interest in conducting the group because of the approaching end of the program. This situation created a leadership vacuum expected to be filled by IBAMA however, it did not become reality for Ibama Brasilia eliminated the existing position of EPA manager. As a consequence, SPVS took over the role of executive secretariat for the GIGA and is currently planning together with Ibama to promote regular meetings to adapt the GIGA into Guaraqueçaba's EPA management committee. A new approach to this reality is that the GIGA will no longer address problems related to the entire Paraná coast as before, limiting its focus to Guaraqueçaba instead.

2.4.4.2 Community involvement in sustainable resource use

SPVS is currently developing a sustainable development plan for the EPA that covers buffalo ranching, organic agriculture (dried bananas and other crops), tree nurseries and, in the near future, forest products. The pilot projects already running are the buffalo ranching and organic bananas. The first initiative is a demonstration model at one private property in Guaraqueçaba, using rational rotary grazing. The second initiative is producing dried bananas exported to Switzerland by a company in Curitiba, partner to SPVS, working with 57 different producers. A producers association formed with SPVS assistance between 1996 and 1999 is currently requesting technical assistance for conversion to organic agriculture.

2.4.4.3 Policy agenda development

The common agenda conceived by the GIGA has not yet been put into practice and, since the management group was not officially implemented at the time, the agenda has not been recognized as an official guiding document. Land-use zoning regulations will help to establish guidelines. The Site Conservation Plan to be produced (see objective 1.5) can be used as a guiding document in the future, taking into account all the other existing documents.

Box 2.4 below summarizes main results related to objective 4:

- Sewage treatment plant using native plants at Ilha Rasa
- Environmental education program and teachers training for Guaraqueçaba, Paranaguá and Antonina municipalities
- A private ecotourism and environmental education reserve established in 2000 by fisherman from Guaraqueçaba
- SPVS and Ibama are turning the GIGA into Guaraqueçaba's EPA management committee
- SPVS is developing a sustainable development plan for the EPA
- Pilot projects on buffalo ranching and organic bananas, implemented.

- Producers association formed with SPVS's assistance between 1996 and 1999 is converting to organic agriculture

2.5 Conclusions

The Guaraqueçaba Environmental Protection Area (EPA) is a conservation unit that allows direct use for economic activities, in principle under restrictions that should guarantee very low impacts to the environment. The extraction of natural resources, fishing, agriculture and grazing is the principal income source for local communities. Deforestation is still a reality, as is animal trafficking, which especially affects the endangered red-tailed parrot, *Amazonas brasiliensis*. Specific implementing legislation concerning land use in the EPA is being develop for the EPA, but enforcement is still limited and not sufficient to abate the existing threats.

The PiP program, together with other SPVS projects in the area, has enabled SPVS to train guards and establish a solid partnership with governmental institutions responsible for overseeing the site. After some time in the hands of the state government, in 1998, SPVS catalyzed the formation of an interagency coordination group called GIGA (Integrated Group for Environmental Management), now adopted by the Federal Environmental Agency IBAMA as a permanent forum for environmental matters regarding the Guaraqueçaba EPA.

SPVS strategic engagement of government agencies, made possible by PiP and other complementary projects, has resulted in state and federal representatives increasingly asking SPVS for technical support and input on key decisions affecting Guaraqueçaba. At the request of IBAMA, SPVS is working on defining land-use regulations for economic activities in the EPA, involving a number of other organizations. This work is expected to be concluded by March 2002, and shall then be converted into appropriate legal language, thus enabling better enforcement. SPVS has also provided assistance to government agencies on local options for controlling both the illegal construction of resort homes in the islands around and inside Superagüi National Park and forest invasion and conversion by ranchers on the mainland.

The PiP funding also helped make possible the launch of the first climate-action project in the Atlantic forest, enabling SPVS to create a 7,000 ha. private reserve in the center of the EPA and staff it with 10 full-time guards and project staff. A second private reserve in the EPA is underway, with an additional 10-15 fully funded on-site staff, and approximately 12,000 ha.

The PiP project had to be flexible to be applied in a protection area of direct use (Guaraqueçaba EPA) despite PiP design was originally set for protection units of indirect use. Furthermore, when PiP started in 1997, SPVS had already been implementing other projects in the EPA (protection of the red-tail parrot, Probio and PD/A from PPG7). Therefore, PiP strategy focused on supporting the continuation of the activities of these projects previously developed by SPVS rather than starting brand new activities of their own. As a result of this flexibility, PiP helped these projects to pay consultants, print brochures and carry on monitoring and research activities. This shift of focus explains why some items of PiP were not fully completed.

With the support from PiP the project to protect the red-tailed parrot was able to create commitment among local residents to provide integral protection to this endangered species. Conversely, PiP has not been able to prevent predatory extraction of palmito (*Euterpe edulis*) within the EPA because of economic driving forces behind this natural resource. While the parrot is not a great source of income, the palmito is the main responsible for income generation for locals within the EPA. This suggests that the project still has a big challenge to overcome that of generating sustainable economic alternatives to compensate for environmental protection of the palmito.

It has been found that the majority of locals do not know the PiP program, although they know that SPVS works in the EPA. As a consequence, the project has to improve communication and dissemination efforts to better achieve its results. It has an open and flexible concept design, adequate for implementation by CI and SPVS however, it seems to be a gap from the beginning it did not include a general coordinator responsible for integrating all work.

3. Evaluation of the Biodiversity in Regional Development (BiRD) Program

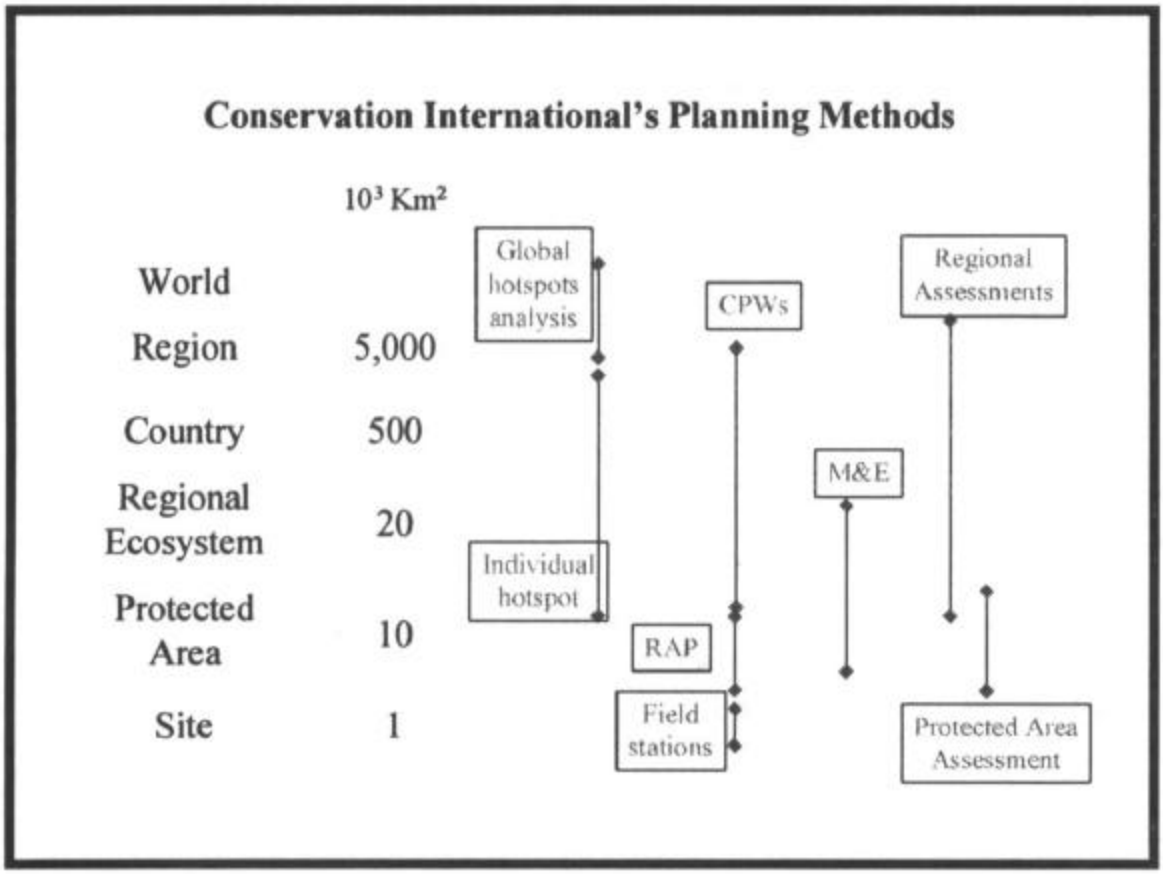
3.1 Approach and Methodology

The evaluation process took place from October to November 2001, comprised the review of pertinent project documents, interviews with executing NGOs and relevant stakeholders, field visits and questionnaire application and analysis. Interviews at CI in Brasilia were held on November 8. Project visits were held from November 11 to November 15, starting at IESB office in Ilhéus and proceeding to field visits in the Itacaré, Serra Grande and Una region.

3.2 Introduction to CI/BiRD Program

The Biodiversity in Regional Development program is an initiative of Conservation International seeking the conservation and sustainable use of biodiversity mainly in regions of critical biodiversity loss (biodiversity hotspots) in tropical areas. Its activities are developed in partnership with local NGOs and take into account local communities needs. In the context of southern Bahia it focus on the integration of several activities in different subjects carried out by different stakeholders (government, NGOs, communities, etc.) in a multidisciplinary framework process of regional planning and development. Its efforts are directed to influence resource use, biodiversity conservation and improvement of local empowerment and capacity building.

The following graph shows some of CI's methods useful in understanding biodiversity and its importance in regional planning. Activities are depicted by appropriate geographic scope (Km^2). All of the proposed activities in the BiRD program will occur in areas identified as global *hotspots* – areas with high endemism and biodiversity under threat of destruction, and , *wilderness areas* – ecosystems that maintain at least 75% natural vegetation, with a human population density of no more than five persons per square kilometer. So for CI, the designation of *hot spot* or *wilderness* area is the first step in priority setting for conservation investments.



3.3 Introduction to CI/IESB BiRD program in Southern Bahia

In areas where land is under great pressure, such as the Atlantic forest in Southern Bahia, CI in partnership with IESB has used economic and policy analysis to frame and make conservation investment choices and encourage policy reform. Land use patterns can be changed by working with the government to adopt sound policies that steer economic activity away from unsustainable natural resource use. Other options include changing policies that subsidize the uneconomic development of natural resources and eliminating incentives that harm the environment.

Some strategies that can have large positive impacts for conservation are:

- The use of conservation easements;
- The development of tradable development rights; or
- The outright purchase of land.

3.4 Project Evolution and main results

To guarantee the protection of the Itacaré-Serra Grande, Ilhéus and Una regions, CI and IESB originally adopted three main objectives in the BiRD program, as follows:

Objective 1: *Reduce deforestation, soil degradation, and landscape degradation in forest fragments critical to biodiversity conservation.*

Objective 2: *Public policy alternatives reversing existing incentives favoring forest degradation implemented, with subsequent adoption of environmentally and socio-economically sustainable land-use practices beyond demonstration sites.*

Objective 3: *Increase knowledge about the significance of region's biodiversity while assisting in the design and implementation of management plans for biodiversity conservation units, zones, and corridors.*

Many activities have been designed to meet more than one objective of the BiRD. The following sections describe and comment the current status and achievements of each BiRD objective.

Objective 1:

Reduce deforestation, soil degradation, and landscape degradation in forest fragments critical to biodiversity conservation.

3.4.1.1 Creation of COOPERUNA

In December 1998, the Banco do Nordeste opened a credit line of R$ 3 million for 5 small producer communities that make up the "Una Jobs and Income" Council. IESB have assisted the communities to meet their forest reserve and permanent reserve requirements, and help them cultivate black pepper, coconut palms, pineapple, guaraná, piaçava palms, and açaí. In April 1999, it was held in Una the first Seminar on the creation of a commercialization Cooperative for small producers, and in November 1999, the communities associations held at the final meeting decided on the statutes of the Cooperative of Una Rural Producers. The "Commercialization Union" was baptized as COOPERUNA. Since then, meeting with each producer communities are being held to talk about how environmental conservation of forests can avoid higher production costs.

Today the COOPERUNA has 127 associates from 9 communities located in the Una Reserve buffer zone. About 5 tons of bananas, 3 tons of açaí palm heart and 14.5 tons of guaraná produced in the communities were sold with the help of IESB, through CAPINA, for a seller's price higher than the regional average. The commercialization of 6 tons of black pepper has been organized for the next months.

3.4.1. 2 CABRUCA and the Organic Certified Cocoa

Environmentally, cocoa in natural shade is one of the most important "corridors" maintaining the ability of species to migrate across the landscape. In 1999, IESB and the Organic Commodity Project of Cambridge Massachusetts signed a memorandum in which OCP paid a local organic producer and IESB facilitator to train small producers with commitments to forest conservation in techniques of cultivation and drying of cocoa to maintain quality standards demanded by the organic market. Until November 1999, four communities of small cacao producers were visited to talk about organic certification and sales. In the same year, IESB extensionists participated in courses on organic production and certification at the Instituto Biodinâmico in São Paulo.

After a six month planning effort, in March 1999, IESB, in cooperation with OCP and CI's environmental enterprise department, shipped its first container of organically certified cacao at a price premium of 20% for farmers cooperating in forest conservation. IESB extensionists were trained in organic certification and learned to use an imported "cocoon" storage device for cacao that permits fumigation with carbon dioxide gas. The cocoa will be used in products such as "Newman's Own" chocolate.

In December 1999, an inspector from the Instituto Biodinâmico was hired to visit four community associations and three individual producers in Una, resulting in the immediate certification of one producer. In 2000, inspections for organic certifications were conducted on 34 proprieties and the creation of a new cooperative, now including only the organic producers, was discussed. As a result in December 2000, the Cooperative of Organic Producers of Southern Bahia was created, the CABRUCA. IESB assisted the farmers in elaborating statutes, writing-up meeting minutes, bureaucratic procedures and logo creation. IESB, in partnership with UESC (Stadual University of Santa Cruz), also helped the creation of the State of Bahia Organic Agriculture Certification College.

Today 75 proprieties have been inspected and included in the process of converting conventional into certified organic cocoa production. As of October 2001, 40 tons of organically certified cocoa was sold.

3.4.1. 3 Agroforestry Systems

In three years of the program, 220,000 açaí seedling have been distributed by IESB for farmers to plant between the rows of rubber and cocoa, as a shade tolerant tree crop that can enhance their income and permit forest conservation. More than three thousand native tree seedling, grown in IESB's greenhouse, were planted along riversides in agroforestry systems to enrich secondary forests, or donated to be planted in other areas.

Initially IESB planned to germinate and distribute *piaçava* palm seedling. The piaçava needs "thermal shock" for seed germination and IESB used the "sprouter" owned by CEPLAC. The sprouter, however, needed periodic maintenance for which the program did not have sufficient funds and the program had to be suspended. IESB then changed its focus and started a program on management of the native *piaçava.* Therefore, IESB organized the course "Forestry legislation

and Piaçava management", training 27 framers to collect the *piaçava* fibers without killing the piaçava tree. IESB has also supported the edition of a film about piaçava harvesting, processing, and management. The film also presents ecological aspects of this southern Bahia endemic palm tree.

Another important initiative related to the reduction of deforestation process was the research conducted by matching funds from PROBIO (Heloisa Orlando and Anita Akella). The results of this research were presented to the World Bank, technicians from the Ministry of the Environment, and State Environmental agencies responsible for logging inspection and control. In September, IESB together with the Biosphere Reserve Committee of Bahia State, held two meetings with Federal and State environmental agencies responsible for law enforcement and logging inspection in Bahia (IBAMA, DDF – Department for Forestry Development, CRA – Center of Environmental Resources, SRH – Water Resources Superintendency of Bahia State), and NGOs working in the region (Gambá, CEPEDES, CI-Brasil). The recommendations drawn from these meetings were used to design an inspection and patrolling plan to be implemented in the Central Corridor region. These actions will be included as priorities in the PPG7 Ecological Corridors Project.

Also in 1999, IESB participated in a series of meetings in a regional commission to set administrative rules for CONAMA resolution 240, suspending logging activities in Mata Atlantica. IESB studies have demonstrated that logging activities in Southern Bahia are uneconomic and stimulate illegal activities. On April 1999, the Brazilian Government decreed two new protected areas in Southern Bahia, the "Discovery" and "Pau Brasil" National Parks. A number of Brazilian NGOs have urged the protection of these forested areas for many years, but CI and IESB were particularly influential by providing studies that led to the suspension of logging licenses in Bahia.

Because of logging prohibition, government compensation for conservation became the highest economic option for landowners. The logging activities, however, were suspended around conservation units and rules became more stringent. In 2001, IESB, together with other NGOs from the Atlantic Forest NGO's Network, elaborated a report about "logging activity in the South and Extreme South Bahia regions". The report included the results of visits in 10 logging areas and 12 sawmills and was done concurrently to a technical report from IBAMA. As a result, a document analyzing and questioning IBAMA about irregularities in the logging licenses and monitoring procedures in sawmills was concluded.

3.4.1.4 Recent Activities

Recently, IESB has helped to create the Una Municipal Council on Development and the Environment (CONDEMA). In this case, IESB has participated in the monthly meetings to discuss issues such as negotiations between IBAMA and farmers with proprieties inside the Una Reserve demarcated area and farmer performance on the loans to small producer communities arranged in cooperation with Banco do Nordeste. The initiative to work with this council intends to show the communities, how compliance of environmental legislation can open up new sources

of financing and assistance for their communities and their farms. The project to legalize CONDEMA is now being appreciated by Una's municipal executive administration.

A municipal "income and jobs" council for Una is being created. IESB will do the paperwork for agricultural loan applications in communities with projects approved by the councils, guide them in sustainable agricultural practices, show how to diminish hunting, control burning and implement nurseries of economic value and natural trees for regeneration of river margins and buffers around fragments of forests.

Also at the Una municipal level, IESB has collaborated with the Secretariat of Education in the development of teacher education workshops and renovation of rural schools. IESB is working on curricula improvement, teacher training and proposals to obtain government funding to improve education services.

IESB plans to continue supporting the Una farmers cooperative in order to orient for agroforestry product commercialization.

Continuing the partnerships developed with landowners of key forest fragments committed to conservation, IESB extension officers have helped to plant açaí seedlings to multi-crop rubber and cocoa plantations, establish greenhouses of commercial and natural tree species for reforestation, and learn organic mulching techniques to increase production at low cost. The dissemination of these initiatives increasingly involves partnerships with IBAMA and CEPLAC. All agroforestry extension activities will continue under the cooperative agreement.

Last but not least, in partnership with M&M Mars's local research farm, IESB extensionists will cooperate in the field testing and distribution of a biocontrol agent for the witches broom disease of cocoa on the farms of cooperative members implementing forest-conserving management in the buffer zones of protected areas.

Box 3.1 summarizes the main impacts related to Objective 1:

Agricultural alternatives development

- 8,000 piaçava seedlings planted
- 100,000 açaí seedlings planted
- 5 hectares replanted
- 6 demonstration areas planted with witch broom natural resistant cocoa trees (clonal gardens)
- 5 demonstration areas with green fertilizer implanted.

Product sold through improved marketing

- 40 tons of organic cocoa sold
- 20 tons of guaraná sold
- 25 tons of piaçava sold (partially)
- 2 tons of rubber sold

Forest effectively protected as a result of raised incomes

- Farmers commitment to conserve area on farm plan registered with CONDEMA
- 20 legal reserves demarcated

Rural producer's associations consolidated

- 80 rural producers trained in environmental legislation

Organic production disseminated

- 150 producers trained
- 50 tons of organic cocoa sold
- The Organic Producer's Cooperative created
- 40 producers converting conventional cocoa production system into organic certified production

Objective 2:

Public policy alternatives reversing existing incentives favoring forest degradation implemented, with subsequent adoption of environmentally and socio-economically sustainable land-use practices beyond demonstration sites.

3.4.2.1 Agreement with INCRA

To forestall the invasion of the last forested lands by the landless movement, information about the economic unsustainability of small-scale agriculture in these areas, with the poorest soils of the region, was collected. Since the land reform movement targets only areas where the federal government (INCRA) will buy the land, IESB has convinced INCRA to indicate forested areas as ineligible for agrarian reform and settler's occupation, thereby eliminating a key incentive to the invasion of these lands. IESB produced maps showing land reform sites in relation to forest

fragments in Bahia, demonstrating the risk of badly planned land reform, and organized several meetings with INCRA on the current forest fragment distribution in Southern Bahia as a way of avoiding agrarian reform settlements close to forested lands.

The partnership between IESB and INCRA has been successful and nowadays INCRA has avoided agrarian reform settlements in forested areas in the southern Bahia. In 2000, IESB began a project with the objective of generating income for three rural agrarian settlements around Serra do Conduru State Park. Together with IESB, INCRA intends to transform five agrarian reform settlements (two in the Una Reserve buffer zone and three in the EPA Itacaré-Serra Grande) in "settlement models". Also IESB will assist the producers in organic production and will support environmental conservation activities with matching funds from FUNBIO.

3.4.2.2 Environmental Education

IESB developed a project on environmental education around the Una Reserve, supported by the Durrell Wildlife Preservation Trust. This work has been coordinated to reinforce work supported by USAID. The extension and environmental teams together held monthly meetings to train members of four rural producer associations in the Una Reserve buffer zone about the risk and safety measures in the use of fire in agriculture, organized participatory ("mutirão") renovation of schools and installed water wheels and pipes to supply schools and other rural households. More than 100 teachers from 56 schools have been trained reaching more than 3,000 students. IESB has also given support to other environmental projects. IESB expanded its environmental education program and supported the implementation of a program in the Teimoso RPPN, and participated in seminars for teachers and students from Juçari municipality during the second semester of 2000.

3.4.2.3 Ecological Taxes

Since 1999, IESB has met NGOs and GOs representatives to define the best strategies to promote "ecological valued-added tax - "ICMS ecológico" in Bahia. To disseminate the idea and to seek support for the implementation of the "ecological ICMS", IESB, in partnership with the Cocoa Region Municipalities' Association (AMURC) and the Biosphere Reserve State Committee, organized a seminar on Atlantic Forest on the 28th of September in Itacaré. GO technicians from Parana, Minas Gerais and Mato Grosso States made presentations about their experience on "ecological ICMS" and held discussions about a Bahia government proposal for a ICMS distribution based on environmental and social criteria. All participants were very supportive to the implementation of an ecological ICMS in Bahia and the AMURC president committed to take the seminar results to the state governor.

3.4.2.4 Una Ecopark and Ecotourism Policy

As an evolution from a strictly ecotourism-focused concept, CI and IESB have been evolving toward sustainable tourism development support as a tool for conservation. CI-IESB's flagship

demonstration project for ecotourism, the Una Ecopark, has been used to persuade landowners against degrading their forests.

In 2000, CI and IESB purchased from a logger a 300 hectare forest adjacent to both the Una's Biological Reserve and the IESB's owned Una Ecopark. The area will became a Private Protected Area (RPPN) owned by IESB accessible to researchers and tourists and will increase the size of the Una Ecopark protected area from 83 hectares to approximately 383 hectares. Besides being well preserved, this area is a key corridor connecting habitats on the Una reserve neighboring forest. Funding for the purchase came from the Beneficia Foundation and the Margot Marsh Foundation.

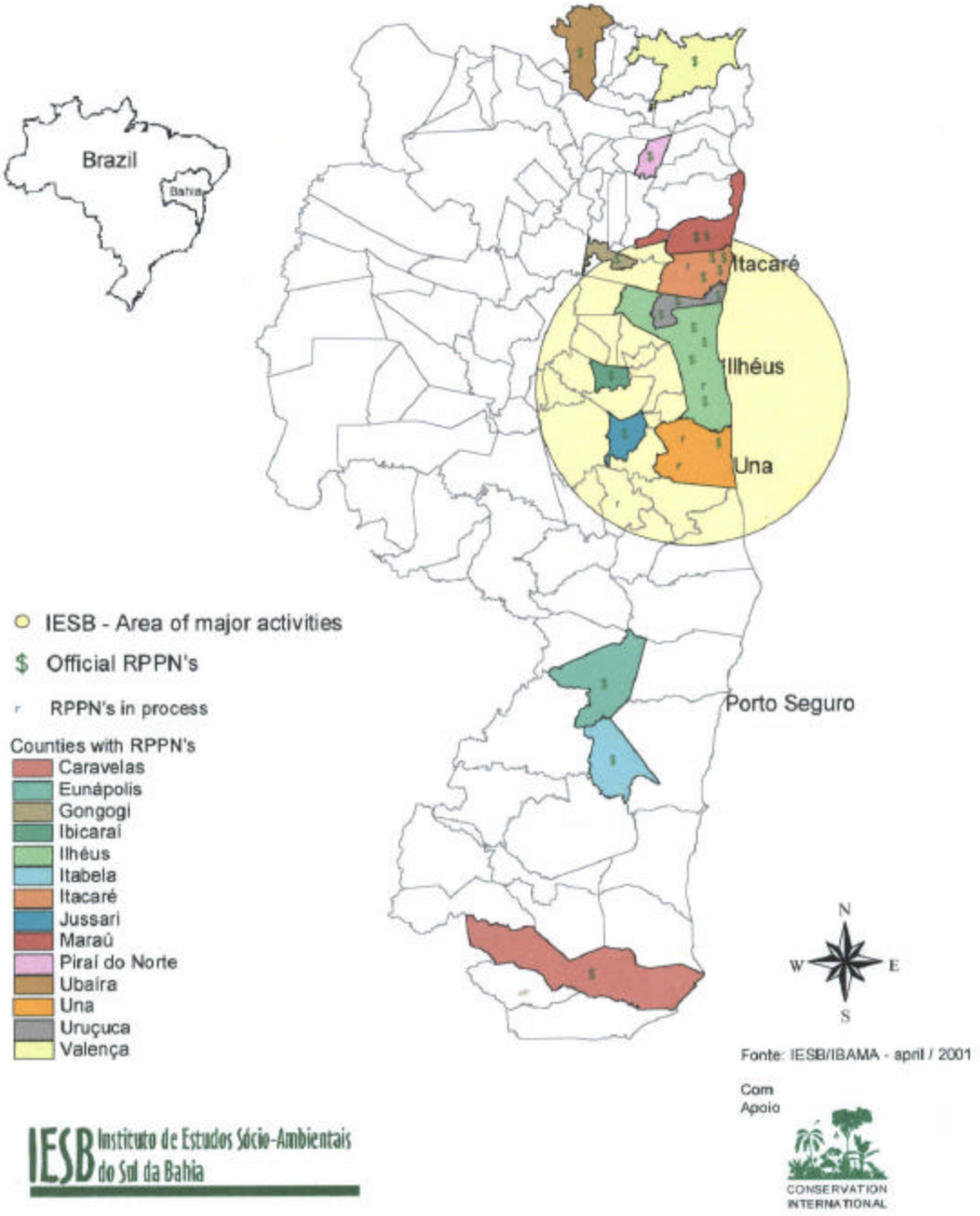
To improve the quality of the entertaining facilities in the Ecopark, a floating wood deck was built, entryway signs were installed, a telephone line and operator was put in operation, a wireless telephone switchboard connected to a cell phone receiver and antenna was installed, a storage room was built and the road maintained. Five local people were trained and hired to guide the tourists. Promotional advertising products including folders and posters, have been produced and distributed in tourist attractions, events, hotels, tourist agencies and other commercial enterprises. In 2001, a new enterprise "Copayba Ecoturismo & Educação Ambiental" was created by the IESB's Ecopark manager Roberto Mesquita to manage the Una Ecopark. A contract signed between IESB and Copayba will allow better operational procedures and control of visitors and facilitate commercial transactions, such as selling of souvenirs. The Una Ecopark has now been national and internationally recognized as an ecotourism attraction in many specialized publications.

3.4.2.5 Increase of Conservation Unit

In addition to the Ecopark initiative, IESB has given technical support to the implementation of regional ecotourism products in the Itacaré-Serra Grande EPA and environmental educational trails in the Serra do Conduru State Park. IESB has also supported ecotourism initiatives in Private Reserves (RPPNs) and has helped RPPN owners to seek funds to implement ecotourism attractions in their proprieties.

Protected Areas in Southern Bahia - Brazil

RPPN's do Sul da Bahia



Since 1996 IESB has supported the creation of nine RPPNs and seven more have already been sent to IBAMA for approval. It means all necessary documents and maps organized and prepared with IESB's support. Currently, IESB is preparing the documentation and assisting ten more areas whose farmers are interested to create RPPNs. Several workshops on tourism participatory planning have taken place and produced different zoning maps disseminated in the region. To facilitate this work, in March 2001, was created the PRESERVA (Private Protected Areas Owners Association), with the support of IESB.

RPPN's oficiais no Sul da Bahia

Imóvel	Reserva	Município	Proprietário	Área (ha)	Nº
Faz. São Paulo	Salto Apepique	Ilhéus	Gustavo Nora e outros	118,00	1
Faz. São João	Faz. São João	Ilhéus	Amilcar Benette	25,00	2
Faz. Arte Verde	Arte Verde	Ilhéus	Sérgio Ramos dos Santos	10,00	3
				153,00	
Faz. Prainhas	Araçari	Itacaré	Alfio Lagnado	110,00	4
Faz. Pedra do Sabiá	Pedra do Sabiá	Itacaré	Isa Maria Rincquensen	22,00	5
				132,00	
Faz. Bom Sossego	Jindiba	Uruçuca	Eckart Robert Dross	4,70	6
Faz. Paraíso	Paraíso	Uruçuca	Afrânio S. Almeida	26,00	7
				30,70	
Estância Manacá	Estância Manacá	Ibicaraí	Enoc dos Reis Barbosa	95,00	9
Ecoparque de Una	Ecoparque de Una	Una	IESB	83,00	10
			Total	**493,70**	

RPPN´s em Processo junto ao IBAMA

Imóvel	Reserva	Município	Proprietário	Área (ha)	
Faz. N. Sra. das Graças	N. Sra. das Graças	Una	Agropastoril N. Sra. Graças	500,00	1
Faz. Ararauna	Ararauna	Una	Julia e Nora Nuscheler	39,00	2
Ecoparque de Una II	Ecoparque de Una II	Una	IESB	290,00	3
				829,00	
Condm. Villas de São José	Villas de São José	Itacaré	CLK Emp. Imobiliários Ltda	150,00	4
Faz. Camboinha/Jeribucassu	Jeribucassu	Itacaré	Funchal Ltda.	173,00	5
				323,00	
Faz. Água Boa do Norte	Água Boa	Maraú	Harmut Hess	18,50	6
Faz. Água Boa do Sul	Água Boa	Maraú	Harmut Hess	27,00	7
Faz. São José II	São José II	Maraú	Almira Mucugê	145,00	8
				190,50	
			Total	**1342,50**	

EPAs created and EPAs waiting for IBAMA's approval. Source: IESB

An important initiative on dissemination of tourism policy has been the IESB-edited monthly newsletter of the Itacaré-Serra Grande EPA. This newsletter introduced the population living around Serra do Conduru State Park concepts such as biodiversity, ecological corridors, ecotourism, and environmental management in protected areas. The number of print out issues has increased from 3,000 to 10,000, reaching more than 15,000 people. Even after the Bahia government decided to terminate its funding, the newsletter continued to be published with funds from local businesses. The newsletter is on its 24th edition, by the second year.

RPPN´s em processo junto ao IESB

Imóvel	Reserva	Município	Proprietário	Área (ha)	
Faz. Serra Bonita	Serra Bonita	Camacã	Instituto Uiraçu	770,00	1
Faz. São Rafael	São Rafael	Una	Raízes Agropecuária Ltda.	310,00	2
Faz. Brasileira	Brasileira	Una	Paulo Pinto	22,00	3
				332,00	
Faz. Caititu	Caititu	Uruçuca	Michael Eckes	300,00	4
Faz. Planalto	Planalto	Uruçuca	Eduardo Benevides	100,00	5
Caranhas	Caranhas	Uruçuca	Nelson Moraes	150,00	6
				550,00	
Faz. Miramar	Coco Bambu	Itacaré	Durval Lelis	250,00	7
Faz. rio Capitão	Rio Capitão	Itacaré	Jean Lafouje	300,00	8
Cachoeira Bonita	Cachoeira Bonita	Itacaré	Suíco	20,00	9
				570,00	
Faz. São José	São José	Ilhéus	Mario Bunchaft	30,00	10
Faz. Cachoeira Lisa	Cachoeira Lisa	Ilhéus	Juarez Rebouças	110,00	11
		Ilhéus	Herman	60,00	12
		Ilhéus	Claudia	25,00	13
				225,00	
			Total	**2247,00**	

	Nº de hectares	Nº de reservas
Oficialmente reconhecidos	493,70	10
Encaminhados ao IBAMA	1342,50	8
Processos junto ao IESB	2247,00	13
	4083,20	31

Municípios	Perspectivas reais
Una	6
Ilhéus	7
Uruçuca	5
Itacaré	7
Camacã	1
Ibicaraí	1
Maraú	3

Proposed RPPNs being analysed by IESB and RPPNs distribuition among municipalities

Also IESB and CRA, organized the creation of a management council for the Itacaré-Serra Grande EPA with IESB now being its executive secretariat. IESB has participated in the discussions of the impacts of paving the road connecting Itacaré and Camamu; has supported the ecotourism development in the Itacaré-Serra Grande EPA; has assisted researches on tourism in the "Costa do Cacau" region including fund raising to organize the Ecotourism Incubator Program in the "Costa do Cacau".

In March 2001, IESB signed a contract with the State Committee of the Biosphere Reserve and was elected as the Executive Secretary of the Committee, untill 2002. The PPG7 Ecological Corridors Project has recognized the Committee and IESB also represents the Committee in the Pilot Program coordination meetings.

During the second half of 1999, CI-IESB and the World Bank Development Research Group conducted focus groups of government officials, small landholders, large cocoa farmers, landless groups and agricultural technicians to learn various opinions on the policy mechanisms for

corridor implementation. The discussions showed that large, indebted landowners tended to prefer some kind of debt-relief in return for conservation commitments, and small and medium farmers not in debt did not favor a debt-relief mechanism, as this would steer financial assistance towards the largest landowners.

All stakeholders were dubious of the state's ability to enforce any new environmental commitments assumed by the landowners. Largely based on this belief, landowners prefered a buyout of their land for conservation, rather than a stream of government payments for on-farm conservation. The government was optimistic, despite this popular skepticism, they could devise and implement mechanisms to enforce "beyond minimum" conservation commitments. In their view, success depends on a reasonable expectation for compensation for commitments assumed.

Therefore, IESB and CI have produced model legislation for a Bahia Ecological ICMS, and additionally will work to provide legislators with background on how this suits local interests. There is already a consensus on the need of implementation of the proposed ecological ICMS. IESB will continue to support sustainable tourism development initiatives as the Una Ecopark to consolidate communications and seek funding for a bona fide visitor center and a second truck adapted for visitors transportation. Last year, the Una Ecopark had around 3,700 tourists. In 2001, 4,100 visitors are expected and the idea is to improve infrastructure enabling up to 10,000/tourists/year with two new micro-enterprises of handcraft and food services.

3.4.2.6 Incentives to the Cabruca System

A project component to define strategies to eliminate incentives promoting monocrop plantations was designed to anticipate and modify agricultural policies undermining biodiversity conservation. The main recommendation is to replace monocrop for cocoa, now grown in natural shade (cabruca). Economic alternatives to generate returns to landowners maintaining the forest, and changing public policies to increase these returns are essential to protect the remaining forests in the region. IESB, in partnership with USDA and M&M Mars developed experiments on the use of anti-fungal agents (tricoderma) and implemented 35 clonal gardens (genetically resistant cocoa trees) in 20 farms to combat the "witch broom" [18]. Experience has shown that best results using clonal gardens are produced when the farmers graft the genetically resistant cocoa trees into adult sick trees, thus producing a resistant crop.

3.4.2.7 The Click Tree and Forest Alive Campaingns

In 2001, IESB, in partnership with SOS Mata Atlantica Foundation, (Funded by Ford Foundation), launched the "Click Tree" campaign in the Serra Grande community. Sixty thousand Atlantic forest tree seedlings will be planted in the next 6 months in the Rio Itijuípe margins. The seedlings will be acquired from three local rural producer's associations: Camboinha, Marambaia and Serra Grande. In partnership with Itacaré Ecoresort and Village

[18] in Portuguese, "vassoura de bruxa"

IESB also launched in 2000 in Salvador, the Forest Alive program. The program will reward small rural producers preserving their forests with financial resources donated by individuals and private enterprises. In one year the Program has reached 70 small rural producers, expected to reach 100 families, protected 1,000 hectares of forest at an approximate cost of R$ 120,000.00.

Box 3.2 summarizes the main impacts related to Objective 2

- Inspection of 5 areas to create new RPPNs
- 5,000 folders about RPPNs, distributed
- 8 seminars on RPPNs to landowners, held
- An inter-institutional group to monitor the BA 001 road (Itacaré-Camamú), created
- A proposal to transform the Serra das Lontras and Javi area into a conservation unit of indirect use, prepared and presented to the State government of Bahia
- The administrative Committee for the Corridor Program, created
- The book "The Conservation of Atlantic Forest in Southern Bahia", reporting the IESB's work since 1994, published
- 10 ecotourism enterprises in southern Bahia trained and monitored in the Ecotourism Incubator Program
- Growth in public awareness of economic risks from monoculture conversion, currently promoted by the government agriculture extension agencies and support to the Cabruca natural shade for cocoa production system
- Organic production, disseminated
- Book on sustainable agricultural production, published
- The State Committee for Organic Certification, created

Objective 3:

Increase knowledge about the significance of region's biodiversity while assisting in the design and implementation of management plans for biodiversity conservation units, zones, and corridors

3.4.3.1 Recent Activities

A baseline database of air photos for the main conservation units was creeated in 1997. IESB produced a catalog of maps covering the Una and Conduru conservation units and buffer zones, including the Itacaré-Serra Grande EPA. The maps have been used by park managers, Bahia government, municipal government, other NGOs working in the region and several master and doctoral dissertations. IESB has also produced maps of the new private reserves and Ilhéus municipality land use. IESB is now producing maps for the Organic Cocoa Producers

Cooperative, helping landowners with legal reserve demarcation, identification of areas for recovery and requirements for certification.

A survey on mammals, amphibious and birds has been conducted in the entire Bahian part of the Central Corridor. More than 420 bird species and 28 medium and large mammal species were identified and 16 small mammals captured. 87 species of amphibious have been identified and from these, at least 5 were new species. The field research for the PROBIO/CI/IESB Corridor Project is in the final stage. The inventory was conducted in 19 forests within the Bahian part of Central Corridor and the preliminary results have identified at least three different biodiversity zones within the region sampled. IESB and CI collaborated with some Ph.D thesis on vegetation analysis of the Bahian Central Corridor. Soil and Geomorphology maps at 1:250,000 scale were obtained form the IBGE in Salvador for digitalization. Topography maps at 1:100,000 scale were obtained and digitalization of hydrology at this scale was contracted.

In March 2000, IESB organized, in partnership with World Bank/CI/PROBIO, a workshop to discuss economic tools to build the Atlantic Forest corridor. Ken Chomitz and David Stoms presented a preliminary version of a computer program that simulates different economic scenarios to preserve biodiversity. The model encourages stakeholders and policy makers to articulate their economic, ecological and social objectives and constraints, and to specify the mechanism they will use to achieve these objectives. The results of the fauna and economic surveys were presented and priority actions discussed.

A CD-rom including a database of the entire South Bahia region was produced in partnership with Unicamp and financial support from CRA. The preliminary results of the research in the Corridor region and the information compiled from a literature survey – 1,427 occurrences of mammals in 400 sites were included in the CD. Initially 1,000 CDs were distributed to the State and Federal Environmental agencies and to NGOs working in the Central Corridor region.

Another important initiative of IESB was the technical support to guarantee the creation of the Serra do Conduru State Park. Since the beginning of the discussions with the State government and local communities, IESB has made a significant difference helping to identify and establish the polygon of the boundaries of the park, as well as the analysis of the licensing process for the paving of the Ilhéus - Itacaré road. In fact, this state park is an environmental compensation derived from negociations among civil society representatives, including regional NGOs, in particular IESB, and the State government of Bahia to pave the road.

Today IESB is concentrating its efforts to guarantee the effective demarcation of the park's area, which involves moving and resettling existing landowners and small producers inside the park, discussions about economic alternatives for the local communities in the buffer zone and the preparation of several thematic studies to support the elaboration of the Park's Management Plan.

Box 3.3 below summarizes the main impacts related to Objective 3:

- Catalogs completed and available for use
- A detailed map of remaining forest fragments in the Una Reserve and Conduru Park buffer zone, produced and published
- A map of remaining mangrove distribution in the Southeast of Bahia, published
- A map of remaining forest fragments in Southern Bahia, published
- Database available for use on the internet (in construction)
- Policies and procedures implemented on pasture, fire, hunting threats in parks and buffer zone
- Three scientific publications on mammals, produced
- One scientific and one popular publication on birds, produced
- A CD-Rom including a database of remote sensing coverage (maps), fauna and flora information, produced and distributed
- Creation of specific committee to elaborate the management plan for the 9,900 ha Serra do Conduru State Park.

3.9 Conclusions

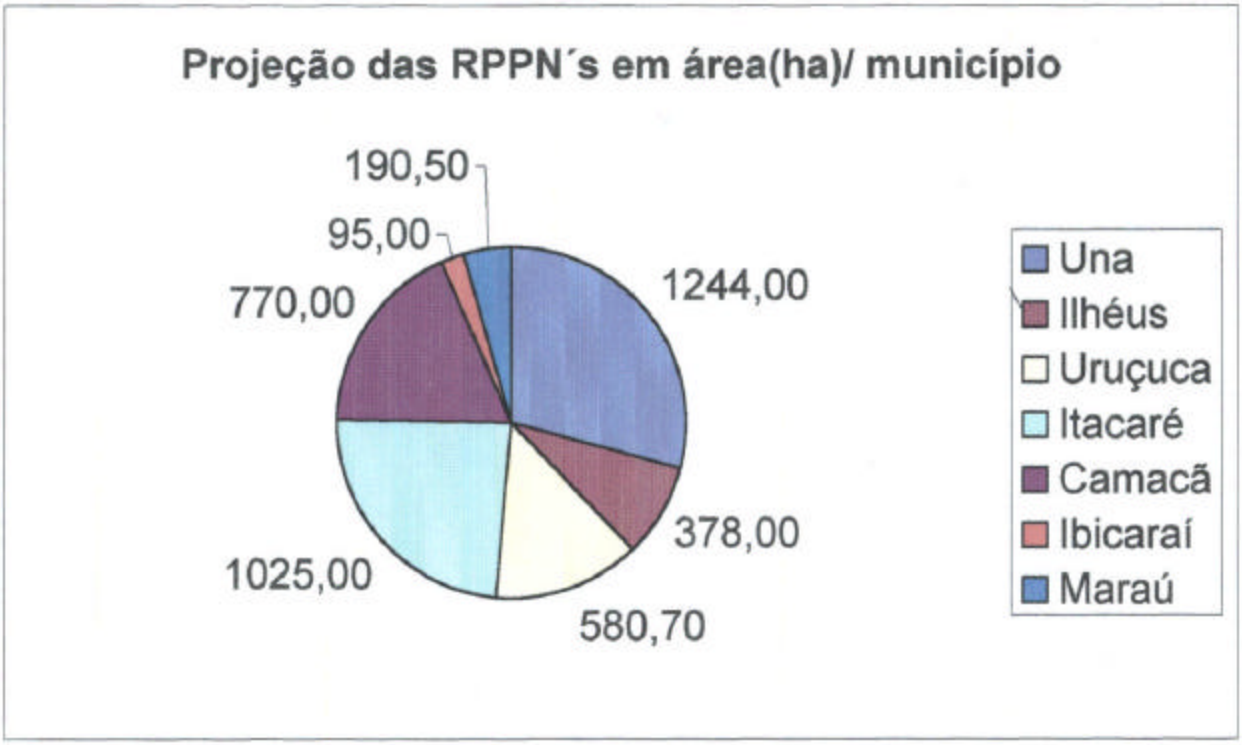
The whole southern Bahia has over the last 20 years faced a sharp decrease in the value of the cocoa, main pillar of the regional economy. As a consequence, this has caused a major shift in overall land-use patterns. The changes in the economics of land use, have accordingly, led to changes in agricultural practices causing new threats to Bahia's biodiversity, such as logging and cattle ranching activities. Large to medium-sized producers have turned their cocoa plantations into pasture and agricultural crops. Many indebted small producers have lost their main source of income and sold the land for rural investors with available capital, and migrated to urban areas.

Because cocoa requires shade for growth, the loss of cocoa plantations has meant the loss of the essential corridors between the islands of remaining primary forest. This problem demands the use of strategies that promote sustainable agricultural and economic development and biodiversity conservation through participatory reform of public policies to alleviate rural poverty and generate environmental improvements.

In order to implement the BiRD program in Southern Bahia, CI established in 1998 a strong partnership with IESB - Institute for Social and Environmental Studies of Southern Bahia. The success of present activities funded under USAID/CI – BiRD cooperative agreement can be largely attributed to IESB. All activities cited in this evaluation have been developed by IESB in partnership with CI. At the beginning, the work focused around the Una Biological Reserve, but it gradually expanded into other sites, establishing additional protected areas, reforming policies, creating and consolidating local institutions, forming multi-sector support networks, training conservation professionals and demonstrating new experiences of sustainable land use.

While the Brazil component of the BiRD program focuses on working with communities on the front line of forest fragments, CI/IESB have developed a new regional conservation paradigm

that is orienting the Program for Protection of the Brazilian Rainforests (PPG7). This paradigm places efforts according to the concept of conservation corridors. Rather than divide assistance among about 500 Brazilian conservation units, the concept focuses on the 7 corridors in the Atlantic forest[19] and the Amazon found to represent ecosystems with high species endemism and richness. The strategy among these NGOs for the "Corridor of Biodiversity" or "Ecological Corridor" include a network of different categories of Conservation Units and other areas for intensive use, that will be managed through an integrated bases, in order to garanttee the survival of several species and the natural landscape in the region.



Área of RPPN's by municipality

Through collaboration with the World Bank's Economic Research Department, CI and IESB are investigating economic zoning policies, which could integrate conservation units, private reserves and "biodiversity friendly" agricultural practices. Important policy research and advocacy for a new regional conservation paradigm are also included to anticipate upcoming threats, help designing policies for the future and react to immediate policy crises.

But clearly, business as usual is not going to accomplish this transformation. A "forest friendly" cacao would relate to the landscape in a way that is very different from the current standard. To begin with, it would have to embrace the three principles that appear to be coalescing into a new paradigm for tropical agroforestry. In other terms, more and more cacao would have to be:

[19] The Atlantic Forest corridor is a mosaic of scattered conservation units and privately owned land along the Southern coast of Bahia and northern of Minas Gerais of which the most important part for CI/IESB work is the "descobrimento" corridor.

Organic – that is, grown without artificial fertilizer or pesticides, avoiding the damage done to soils, waterways, and forest by these pesticides;

Fair-traded – that is, sold into an audited system that guarantee growers a decent price and farm workers a decent wage. This is obviously of great social and ecological importance, because it can help build broad economic support for the other elements of this paradigm; and

Shade-grown under native, regenerating forest – Only forest that have already been substantially altered should be used for shade cultivation; cacao should no longer be planted into undisturbed forest. The Cabruca system already partly meets this need, but unlike standard cabruca, a really ecological cacao would have to allow for canopy regeneration, that is, instead of managing the understorey purely for cacao, forest saplings would have to be allowed to emerge, to replace the canopy trees when they eventually die.

Many farmers seem to have a hard time believing that large-scale organic production is possible, and it is true that the transition to organic can be tough. So, organic certification, through an independent organization or sometimes through a governmental program, is the key to receiving the higher price that organic products generally command, but that takes time too. It´s usually about three years before farm soils can be certified as clear of pesticides residues.

Once the transition is complete, however, organic can make as much sense financially as it does ecologically. As much as it is possible to see, the BiRD program as of September 2001 had enrolled 75 farms, out of which 20 had completed the three-year transition to certified organic. Those 75 farms cover about 5,800 ha. mostly in cabruca; the certified farms account for 834 ha. of the total.

The international picture is a scaled-up version of the Bahian one. Small, “boutique chocolate” companies are selling various forms of shaded-grown, organic cacao. But the amount of cacao produced for this niche market is a tiny percentage of the global harvest. For example, only about 6,000 tons of organic cacao are produced annually; that’s less than two-tenths of 1 percent of total cacao production. And yet, even this small-scale production is proof that organic cacao works.

This new paradigm is fundamental, but it’s just the beginning, and it may turn out to be the easy part. The hard part certainly will be: a truly ecological cocoa will have to be a force for forest continuity. In their present state, the cabruca stands and the other forest fragments in Southern Bahia are generally too small to support genetically viable populations of many plants and animals over the long term. Even where the stands are regenerating, they will still tend to be lose species eventually.

To prevent this, cabruca management will have to be integrated into a broader strategy that aims to connect the fragments to each other by planting forest corridors between them. If the corridors are to preserve both the species diversity of the forest and the genetic diversity of individual tree species, they will have to be planted with seedling from local fragments. The current fragments, are the gene banks from which the future forests must grow.

Also the contribution of protected areas to tourism revenues can sometimes be clearly established, for example, CI and IESB successfully demonstrated that annual tourism expenditures in Southern Bahia, would likely increase by US$ 15 million should forest-based tourism attractions be available to visitors. This means that the value of the ecosystem services offered by protected areas (i. e. watershed protection, soil conservation, and carbon sequestration) can also be valued using a number of methods.

The overarching goal for conservation and sustainable development in Southern Bahia under CI – IESB partnership work, would be to expand this strategy to integrate biodiversity conservation into both income-generating activities and community-based development, so that land use practices are compatible with natural resource carrying capacity and help to alleviate poverty and social inequality. Although the current program has been highly successful, the scale of threats posed to biodiversity conservation by existing social and economic pressures is simply too large to be reversed with funding available from USAID/Brazil. Ongoing and proposed activities are aimed at building community awareness and appreciation for the economic advantages of forest conservation. They are showing how it can leverage government and multilateral assistance and private sector commitment to bring much needed improvements to employment, education, health and income generation.

4. Discussions related to PiP and BiRD Programs

This chapter discusses a series of questions related to the evaluation process of both the PiP program in the EPA of Guaraqueçaba and the BiRD in the southern Bahia. The basic opening questions are:

a) After four years (50 months) of implementation of the PiP program and a 10 year experience in the Guaraqueçaba region, have TNC and SPVS achieved the major objective of protecting the conservation of biodiversity in the EPA?.

b) After three years of implementation of the BiRD program and 7-year experience in the southern Bahia region, have CI and IESB achieved the major objective of protecting the biodiversity while developing sustainable agroforestry projects?

Following this rationale, it is relevant to ask whether within this time frame could both programs achieve the objectives and targets originally set up. The answers must take into consideration that both programs focuses on protection of biodiversity and social economic demands, working at the same time with different types of conservation units of direct and indirect uses, which allows the development of economic activities according to regulations still to be approved. In other words, the fact that both programs works with large areas of multiplicity functions generate all sort of dificulties that can not be solved in only three years.

4.1 The Role and Management Aspects of Environmental Protection Areas (EPAs)

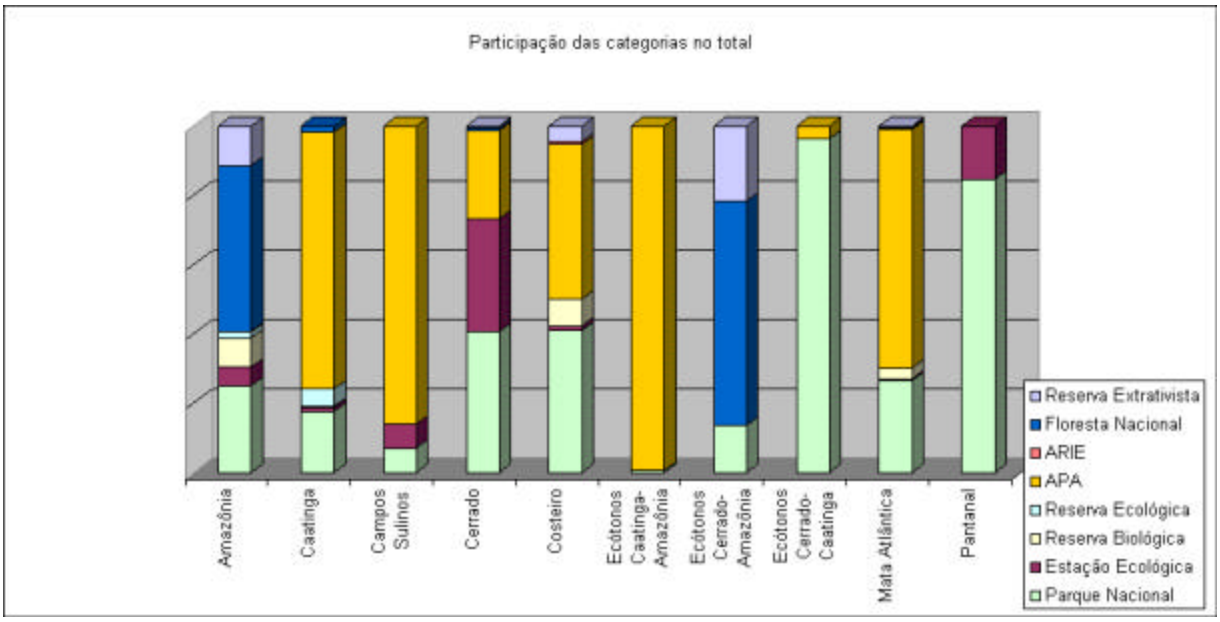
According to IBAMA, Brazil has 25 federal conservation units defined as Environmental Protection Areas – EPAs totaling 6.680.620 hectares. Some have more than 1 million hectares. These almost 7 million hectares are managed by 55 employees, which means one employee for each 127,000 hectares. Only eight have concluded a management plan and five are under preparation and only seven have zoning plans.

At state level, there are around 200 conservation units, the majority are EPAs of direct use totaling more than 24 million hectares, and 267 of indirect use (total protection) totaling approximately 6 million hectares.

As defined by law, EPAs differentiate from non-legally protected areas by not having spatial organization and defined regulation of economic uses regarding the compatibility of conservation of natural resources and economic activities. However, it presents a strategic importance by contributing to the formation of ecological corridors, as is the case with the EPA of Itacaré -Serra Grande in the southern coast of the state of bahia of pivotal importance to consolidate the corridor of "descobrimento". This shows the possibility of connectivity among conservation units of indirect and direct use owned by the government, which increasingly become isolated in islands with reduced possibility to preserve the biodiversity in the long term.

Nevertheless, the effectiveness depends of the willingness and awareness of the legal owners to accept some use restrictions beyond those in the federal and state level environmental legislation.

The EPAs located around and outside buffer zones) the conservation units of integral protection (indirect use) have not only the best condition for the use of management plans but land use management and inspection practices as in the EPAs of Itacaré-Serra Grande, islands and Várzeas of the Paraná river and Fernão Dias. In addition, other EPAs host conservation units of indirect use within their area as in Guaraqueçaba/PR, Ibiapaba/CE, Mantiqueira/RJ.



Participation of EPAs within the Amazon and Atlantic Forest bi omes. Source: IBAMA/DIREC

However, interviews and *in situ* visits to project sites in the Guaraqueçaba and Itacaré-Serra Grande EPAs indicate that in several federal EPAs the objectives defined in their creation are unfeasible. A preliminary set of data demonstrate a hard reality in such conservation units as it follows:

Box 4.1 summarizes a comparison between Guaraqueçaba and Itacaré-Serra Grande EPAs

a. The Guaraqueçaba EPA still does not have zoning and use regulation whereas the Itacaré-Serra Grande has a management plan;

b. In the two EPAs there is a regular probability of implementing the zoning and management plan;

c. There is a partial indication regarding differences in neighboring areas with regards to criteria for sustainable management;

d. A percentage between 60% to 35% of the area is already inhabited or altered;

e. The Guaraqueçaba EPA still does not have a management council, different from the Itacaré-Serra Grande whose council possess representatives from the local community and business;

f. In both cases the legislation is either not applied or is applied partially;

g. In both cases the evaluation has found that both EPAs general environmental aspects have either become stable or improved in some cases, for instance by the large use of monitoring systems using GIS tools;

4.1.1 Advantages and Disadvantages

EPAs are suited for the creation of ecological corridors vital to guarantee connectivity of other categories of conservation units, thus avoiding isolation of various species. This is why the regulation of the SNUC law considers that buffer zones can be EPAs. This stimulates the creation of several EPAs around units of integral protection. In addition, EPAs are the best category to allow the development of park roads and scenic rivers.

EPAs do not require compensation for land acquisition and this is both advantage and disadvantage. Advantage in the sense that it does not spend public money and disadvantage because the areas remain with private owners which may obey only to general legislation not exclusively applicable to EPAs. For instance, over the last 10 years the state of Bahia experienced the creation of 23 EPAs. Conversely, the number of units of indirect use (integral protection), which have a better potential to rapidly develop initiatives to protect the biodiversity, does not increase.

EPAS are legally considered properties of both public and private ownership. This poses a serious limitation in effectively responding to biodiversity conservation challenges in a timely fashion.

From this context, perspectives of real implementation of the EPAs can only take place if coupled with active commitment and participation of all stakeholders.

4.2 The PiP program

This evaluation takes into account that this is the first experience of TNC with a PiP program in Brazil. In this regard, the necessary adaptation to the country's reality and the involvement of SPVS required a great deal of flexibility to negotiate the partnership. Not before some

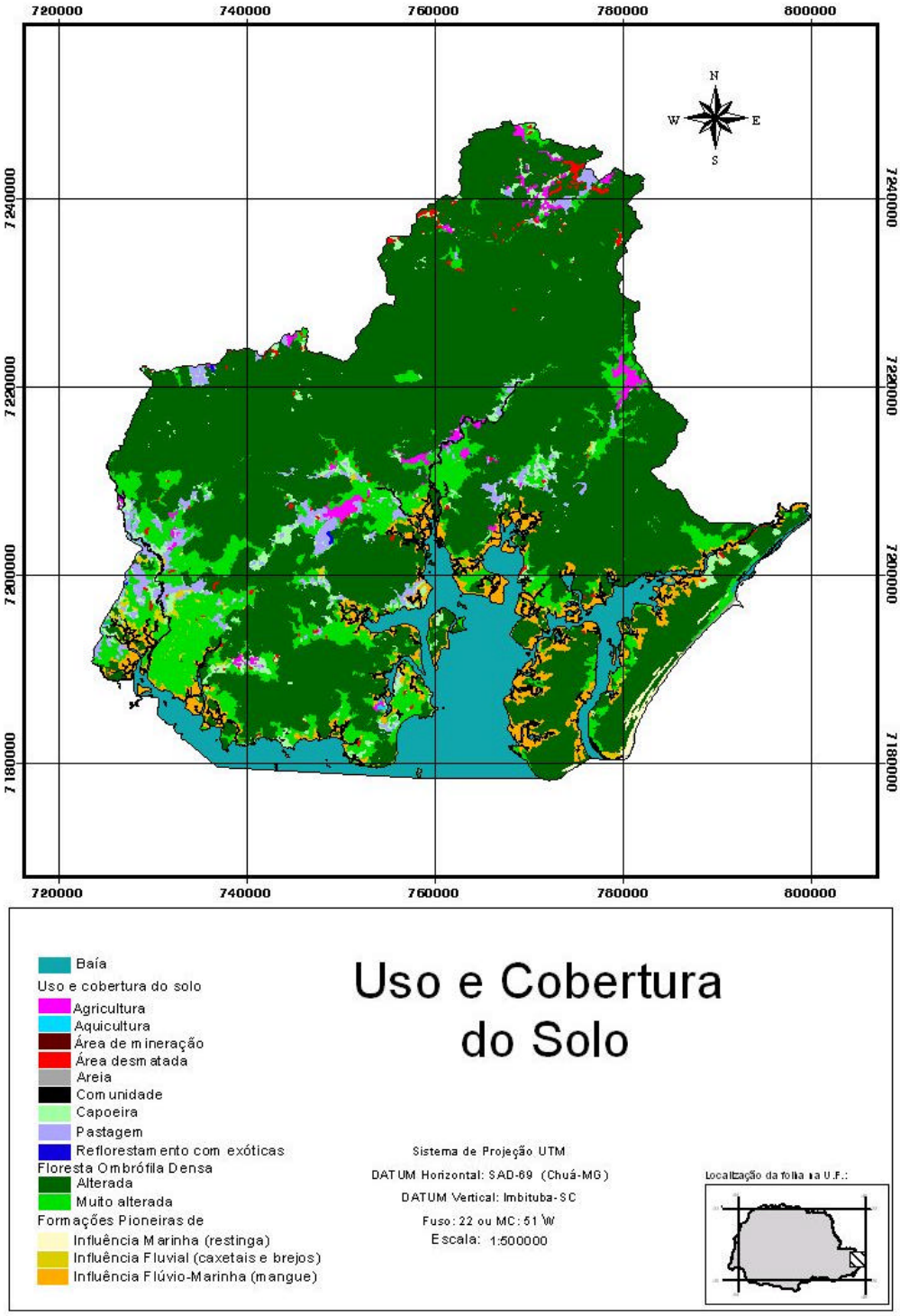
adjustments of concepts, working methodology approaches and setting of responsibilities took place, could the project be approved and its implementation started by TNC and SPVS.

This singular context becomes more important when one bears in mind that this is the first experience of TNC, within the PiP program, to work on biodiversity conservation in a conservation unit of direct use, still lacking approval of the legal framework to regulate socio economic activities.

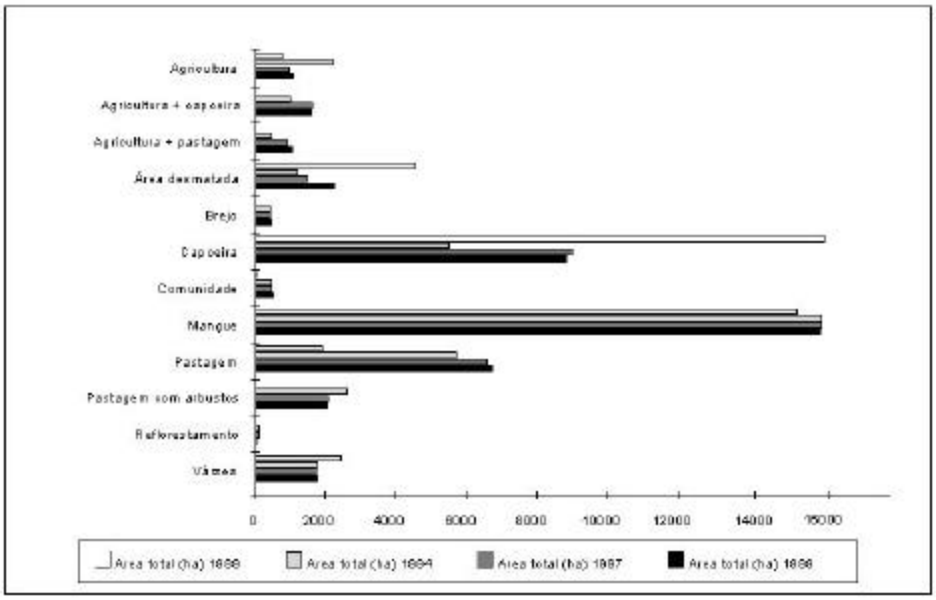
TNC previous experience in Latin American and the Caribbean is based on conservation units of integral protection such as biological reserves, national or state parks, ecological stations etc., where production-based economic activities are not allowed, but eventual ecotourism services in national parks. In this regard, the work in the PiP project focused on biodiversity conservation within the EPA of Guaraqueçaba has an innovative character not only for the executing NGOs but also for other organizations developing similar experiences of environmental management in other protection areas of the country. The following paragraphs discuss the main elements, results and hindrances affecting the Pip program.

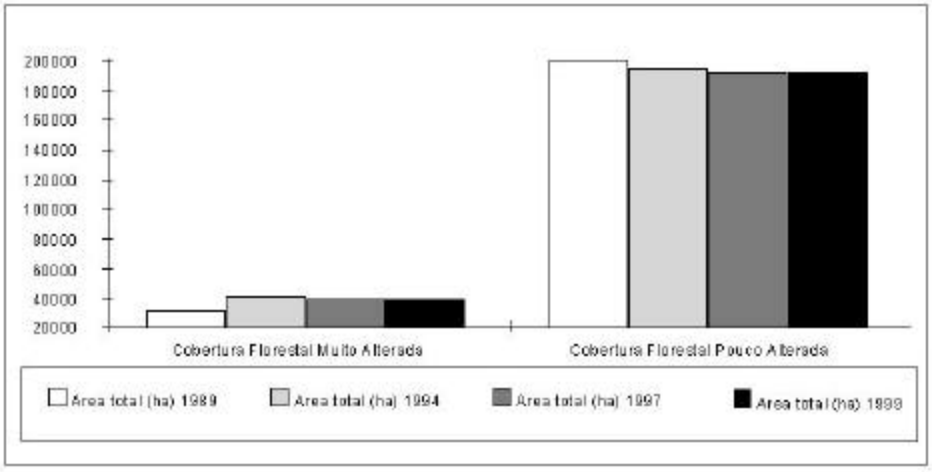
Regarding the opening question the answer can be both yes and no, depending on the approach. It is yes, if one takes into account that in the ten year period of 1989 - 1999 deforestation rates decreased in the Guaraqueçaba EPA and reached stability levels within its limits. The answer is no, if one takes into account that forest conversion into other economic uses did not stop, but only reduced its speed.

One hypothesis to explain the decrease of deforested areas between 1989 and 1994 relates to modifications in the agriculture and cattle ranching profiles within the EPA. According to UFPR and SEAB, there was a clear reduction of cattle ranching activity specially related to buffalo herds, reduced about 50%. over the last decade. Similarly, a reduction in the number of properties planting manioc and other small-scale agricultural crops must also have influenced the figures.



Map of soil use and cover in the Guaraqueçaba EPA





Deforestation of Atlantic Forest and land use in Guaraqueçaba

With regards to the reduction of herds, the figures show that stability of grazing pasture indicates reduction of productivity. This situation leads to a pattern of land rental of several areas for rice crop representing a serious threat to soil conservation and watershed protection similar to the south of Santa Catarina state and the Lagoa dos Patos region in Rio Grande do Sul. Nevertheless, joint efforts with IBAMA, responsible for the environmental licensing of rice plantations, have allowed a partial control of the situation. Activities include visits to organic rice crops in Rio

Grande do Sul and orientation from Ibama Paranaguá/PR to use restriction of pesticides within the EPA together with norms for organic fertilizers.

Problems of illegal and predatory extraction of palmito (*Euterpe edulis*) still prevail in the region for this heart of palm is among the three largest income generating activity for Antonina and Guaraqueçabsa municipalities. The hunting of crabs from mangroves, within the ecological station of Guaraqueçaba, still continues despite being an environmental offense according to the law of environmental crimes.

What instruments should be used to assess and monitor to what extent the conservation of biodiversity was implemented and is being maintained?. Would it be the number of pristine areas still preserved?. It seems that the system of 16 indicators to assess work progress can be improved.

Dissemination of project results into other conservation areas is a recent question not still fully explored, mainly due to regional socio economic differences among the EPAs spread over Brazil and the short period of time since the inception of the project.

Considering the context of the EPA of Guaraqueçaba what would be the best working strategy capable to guarantee the conservation of biodiversity while simultaneously providing means to satisfy the basic needs of local and regional populations?. This question arises from the reality that communities of residents of the EPA such as fishermen association, residents' association, women association, rural producers association - association of buffalo ranchers of the Paraná state - still do not actively participate in the program.

According to land tenure pattern, around 5% of rural producers possess almost 90% of the properties inside the EPA, whereas the remaining 95% hold only 10% of the land mostly under the status of users ("posseiros") not as legal owners. Therefore, theoretically, if the activities of the Pip program aim at medium and large landowners it is probable that conservation will reach better results. On the other hand, it should be considered the pressure on the natural resources coming from the majority of the population from small properties to satisfy economic needs.

For instance, the program has not as yet, addressed the palmito extraction for both subsistence and commercialization. Similarly, there are no initiatives to develop economically sustainable forest management practices of timber and non-timber species, since a viable number of individuals from the species Guapuruvu (*Schizolobium parahiba*), Guaricica (*Vochysia magnifica*) and Figueira Branca (*Ficus guaranitica*), continue to be extracted in predatory and sometimes illegal ways. There would be necessary a study on economic and environmental viability of logging activities as an alternative sustainable productive system within the EPA. There is also a great number of species of *Bromeliae* and *Orchids*, besides other non-timber species of economic value for the cosmetics industry used by Boticário from its RPPN within the EPA limits.

From a demographic and social standpoint one must realize that the great majority of the population living in the EPA occupies the coastal region of the bay because it was forced to move with the arrival of the land barons in the 70s. This brough many impacts to the coast, estuarine

and mangrove areas. To face this reality, SPVS made a great social work by providing potable water facilities from the state company and alternative sewage treatment systems in the ilha rasa island. This work will have great impact in the coming years to improve and maintain the quality of the water in the Guaraqueçaba bay and in the mangroves.

The creation of RPPNs by SPVS has not solved the conservation problems of the EPA. A risk would be to concentrate the conservation efforts within the RPPN and its restricted surroundings, not considering that these private reserves are inside the much larger and complex EPA domain. Conservation strategies must be systemic and integrated into the whole EPA rather than on a pinpointed reserve by reserve fashion, otherwise, we may make the mistake to create only good samples of fragmented imperiled ecosystems rather than representative examples of biodiversity integrity.

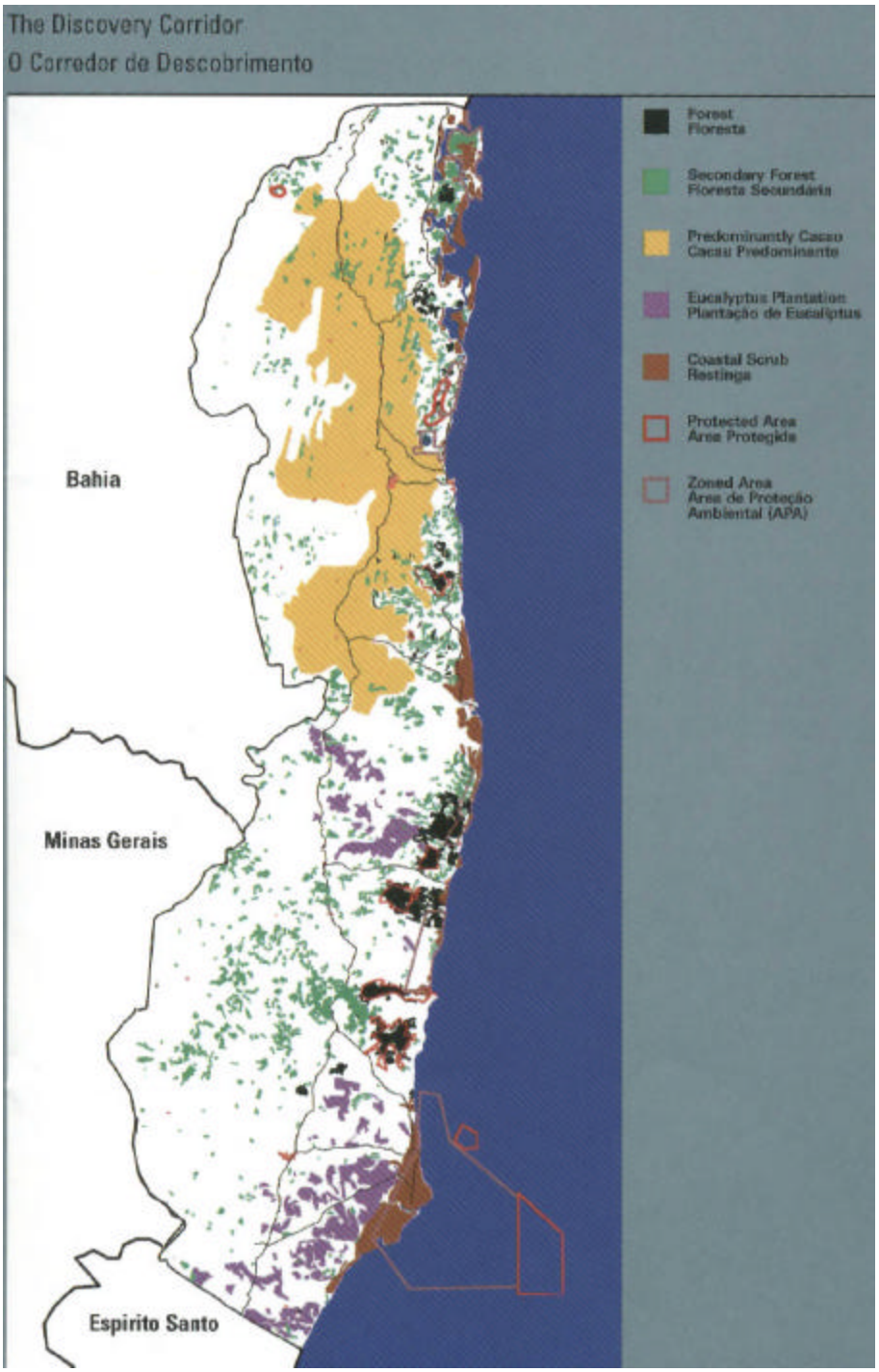
Despite many important results achieved so far, the time frame established for the PiP (4 years in average) is not adequate for the Brazilian context. Difficulties related to communications and better liaisons with local and regional communities in active and participatory processes have to be improved.

4.3 The BiRD Program

As mentioned before, while the PiP program works within a compact area of dense forest in a conservation unit of indirect use, the BiRD program faces the challenge of working in an archipelago of fragmented forest with different types of conservation units. In general, the region's parks are poorly managed or sometimes not managed at all. There are unresolved land claims, incursions of timber barons, developers, subsistence farmers and hunters. Also, we could say that they are not fully representative of the biome.

On the other hand, conservation units in the Southern region of Bahia are very small, most under 500 ha, except the Serra do Conduru State Park (. 7,000 ha and the EPA of Itacaré-Serra Grande 11,000 ha). Even if all park boundaries were enforced, and the destruction of forests halted, it is still likely that up to half the ecosystems' species would eventually disappear, because their surviving populations are probably no longer large enough to be genetically viable over the long term. In other words, this problem of scale is the real killer of existing biodiversity.

Therefore, fragmentation is one of the biggest problems in forest conservation in the Southern Bahia. Recent research demonstrates that in tropical forests, artificial borders have a long reach. A fairly distinctive border environment generally extends some 100 to 300 meters into the forest. In these zones, the border effect is pervasive and is likely to mold the entire community. But more subtle effects can be detected much farther – often as far as 1 kilometer from the border itself – so even a block of forest 2 kilometers wide could show some degree of border effect throughout.



Fragmentation of primary and secondary forests in the Discovery Corridor / Source: CI/IESB – Center for Applied Biodiversity Science

In the Atlantic forest, where conditions permit, strong pioneer growth on cut-over ground occurs in 15 or 20 years. But, many cutover areas are too hot or dry to permit natural regeneration. In Southern Bahia, the border vegetation is not likely to "seal" the interior under natural conditions, where the transition is not so abrupt. The deep forest community dies back and the edge

broadens. Also, herbicide pollution from eucalyptus or monoagriculture may poison adjoining forest.

Also the nature of deforestation in Southern Bahia is changing. Although loggers still sometimes level large tracts of forest, most of the damage is now inflicted on an individual scale. For example, in 1999, a public authority of the region, illegally logged 50 ha. of lion tamarin habitat. In a sense, deforestation is becoming less "corporate" and more "individual" – more and more the cumulative effect of thousands of actions taken by individual people. Among the middle class, forest and coastal ecosystems loss might take the form of a resort home in a new vacation development. Among the poor, its means finding fresh soil for subsistence agriculture. This is the new pattern of destruction, low-level and chronic.

In this case, if we consider the demand for creating macro connectivity among the fragmented forest of the Southern region of Bahia it is necessary to support the idea of ecological corridors, such as the Discovery Corridor. Conservation, in a narrow, traditional sense, is not likely to prevail against extensive fragmentation. Not in the Atlantic forest and not anywhere else. In a variety of landscapes all over the world, conservationists are finding that the key to long-term preservation involves not just protecting natural areas but enlarging them.

At its best, restoration addresses the landscape as a whole. It's geophysical, as it relates to soil and water; it's biological in its concern for flora and fauna; it's political in its recognition of the need to recruit local support for the restoration process. And it is opening up possibilities for conservation that go far beyond the old dichotomy of parks versus development. This is the principle that underlies the large-scale forest corridor project launched by the Brazilian government and supported by the BiRD program.

The term "corridor" may be slightly misleading, since its goal is not to create narrow bands of forest. Instead, the corridors are regions where the planting will aim to create as many links between the fragments as possible, and to insulate them with buffer zones of restored vegetation. Some area must be restored to natural forest, others to agroforestry. Where large areas of undisturbed but as yet unprotected forest exist, new reserves may be created. The result should be a landscape matrix still containing plenty of human activity, but in which most of the native plant and animal populations have adequate living space. On a limited but continuous basis, both serra do conduru state park and Itacaré-Serra Grande EPA are providing basic forest recovery and connectivity with support from the BiRD program.

In Southern region of Bahia, most of the largest surviving undisturbed forest fragments lie along the coast; most cocoa is grown farther inland. But the cabruca and other fragments in the cocoa region are well worth preserving in their own right. Even though it is hardly pristine, cabruca accounts for a good deal of the remaining forest, and in this region roughly half the surviving canopy is in cabruca. And at least in some contexts, cabruca may hold a lot more biodiversity than is commonly assumed.

A research project near the Una Reserve, along the coast of southern Bahia, is turning up surprisingly high level of diversity in landscapes that include cabruca, undisturbed forest, and

pasture. Many forest animals are apparently using nearby cabruca as kind of supplement to their main habitat. In one night, for example, the Una researchers found 23 bat species foraging in one cabruca stand. The golden-headed lion tamarin (*Leontopithecus chrysomelas*), an endangered primate, also uses cabruca in this way. In 1994, a new member of the ovenbird family was discovered in cabruca: the pink-legged "graveteiro" spends most of its time in the canopy, upside-down, foraging for insects.

Apart from their intrinsic value, the cocoa farms have probably also helped preserve the less disturbed forests elsewhere by employing people who might otherwise have invaded those forests in search of arable land. Bahia has an opportunity to undertake a form of large-scale cocoa production that favors ecological stability at relatively high levels of diversity, that favors reasonably high employment, and that creates products that link consumers in distant societies with these objectives.

Therefore, it is necessary to find a way for CEPLAC to buy into the new agricultural paradigm. CEPLAC's concern for the local economy would acquire an effective ecological complement if it were to lauch a major organic cocoa initiative. Without at least an implicit endorsement from the region's most important agricultural agency, progress towards an alternative paradigm is going to be difficult. CEPLAC was built from a 10 percent levy on cocoa exports, and the collapse of cocoa has crippled the agency. An organic initiative could be used to attract new funding, from national and international sources.

Also it is necessary to build a stronger consumer constituency for "forests friendly" farm products. Evidently, more and more consumers are willing to pay a somewhat higher price in order to prevent damage traditionally viewed as an "external cost" of production. Such willingness is a marketing opportunity that should be aggressively pursued. When consumers buy such products, they are not simply purchasing the commodity itself; they are purchasing a connection to a way of life, to an ideal, to a region or issue that they care about. In the case of Bahia, cocoa could be certified as coming not just from organic cabruca, but from regenerating organic cabruca as well. It could be certified as "bird friendly", since Bahia has a very rich bird fauna. And the certification should extend beyond chocolate, to pharmaceuticals and cosmetics that include cocoa butter, and to other organic crops planted in or around the cabruca.

At the same time, it will be necessary to build an "agroforestry linking capacity". If the cabruca and other small forest fragments in the Bahia countryside are to survive, they must be linked: corridors of forest must be planted between them, or the patches must at least be extended towards each other, where complete continuity is not feasible. Finally, there is a possibility that could jump this type of certification from niche-market status to mainstream public consciousness: cocoa could contribute not just to forest conservation, but to forest restoration. After decades of publicity on tropical deforestation, the idea of coaxing the forests back out onto degraded ground could have a very powerful "good news" appeal.

The corridors would presumably be a varying mixture of restored natural forest and crop-producing agro forest. There is no single law, policy, or economic opportunity that can be

invoked to link the fragments, but there are many economic and legal situations that could be turned into opportunities for this kind of effort.

The program should look for ways to employ as many people as possible in forest restoration and agroforestry. It should regard job development, as a funding opportunity, as well as it should look abroad, at other environmental public works programs, in order to establish good synergy.

The effort of bringing a corridor into existence is enormously complex, but this complexity creates opportunities not available solely through broad regulatory approaches. This is the case of the Discovery Corridor as a innovative mapping effort conducted by CI and IESB within the BiRD program.

Therefore, the BiRD program should look for ways to employ as many people as possible in forest restoration and agroforestry. It should regard job development as a funding opportunity, as well as should look abroad at other environmental public work programs, in order to establish good synergy.

With regards to funding, in 1996, USAID was responsible for 96% of the funding available to IESB. In 2000, USAID funded projects were responsible for 55% of IESB turnover. In 2001 it represented 50%. This continuous decrease means that IESB is becoming mature and qualified for receiving direct funding from other donor (public and private, national and international).

With regards to the Una Ecopark, the positive results may be easily seen in the region for it is being replicated into other ecoparks in the region. When someone is invited to visit the ecopark, the most common question is: which one? Itacaré Ecopark, Canavieira Ecopark and Lagoa Encantada Ecopark. This demonstrates that the idea to develop ecotourism products is increasingly being accepted. However, it may be negative if the ecoparks are used to attract tourists from other regions not able to differentiate nature tourism developed on sustainable socio-environmental basis from other initiatives of commercial scope without commitment to sustainability.

Up to present the Una Ecopark is not economically viable due to implementation and operation costs. Visitors face operational limitations regarding transportation and other infrastructure aspects which do not allow a balance between income and costs. Currently, 50% of maintenance costs come from IESB, and the other half from entrance tickets and selling of souvenirs and food. From 2000 to 2001 there was an increase of 27% in the income and reduction of 5% in the operation and maintenance costs.

5. Final Conclusions and Recommendations

The importance and relevance of Protected Areas for the sustainable protection of biodiversity and ecosystem conservation is well recognized in Brazil. In relation to conservation, existing CUs in the Mata Atlantica currently provide some protection to the remaining highly fragmented ombrophilous forest ecosystems of the Atlantic region.

The protection of conservation units of any category in the Atlantic region must receive first priority in any proposed initiative for conservation of the Mata Atlantica. This has to work together with efforts to expand the current CU system with emphasis on EPAs and RPPNs. Of equal priority should be the need to strengthen environmental law enforcement agencies and promote more inter-institutional cooperation.

The often-repeated principle that protected areas cannot be planned in isolation from their surroundings leads to the question of what constitutes a "region". Discussions center on the impact a protected area has on its surroundings and on the impact that economic activity often has on the integrity of a protected area. There are two relevant conclusions:

a) Integrated regional development planning provides an effective framework for addressing social and economic concerns for biodiversity conservation regardless of scale or complexity of the region; and

b) While the interactions between a protected area and its region are unique, the principles offered by integrated regional development planning can help to ensure that the benefits and costs of decisions concerning biodiversity conservation are fully evaluated in the planning process.

The question usually voiced whether it would be preferable to establish a protected area first and influence the development process in its surrounding region, or to formulate a regional plan that includes projects to establish protected areas along with other development activities. In one sense, given the concern for biodiversity, the "protected area first" choice is logical. On the other hand, since people are to be the ultimate beneficiaries of development planning they are the prime concern of the decision-making process, and therefore protected areas should not receive preferential treatment.

Likewise, given the infant state of our knowledge on biodiversity, planners may indeed have the opportunity to plan conservation areas more frequently if development planning places a priority on financing mechanisms to support basic field research as part of the planning process and if long-term public involvement in biodiversity conservation is based on an understanding of its benefits.

Therefore, community development activities identified in long-range plans should reflect an understanding of the direct relationship between a region's economic viability and maintenance of its biodiversity, whether included in a conservation unit or not.

The long-term viability of local economies can depend on the benefits and costs of having a conservation unit nearby. In this case, local resource users living near CUs often require support to establish effective mechanisms capable of influencing and participating in political, economic and conservation decisions that affect the viability of both the CU and the local communities. For this reason, governments at all levels should consider institutional arrangements and policies to ensure information exchange, participation, and equal distribution of economic costs and benefits to communities that depend directly on the resources available, and particularly on decisions that can negatively affect a local community for the benefit of a larger population. Such arrangements should include the creation of management structures having legal standing and authority that will allow full participation by populations that have historically used the CU.

Among the major difficulties for the effective management of environmentally sustainable land use and development practices in the EPAs and its support zones is the great variety of social actors with different conservation and economic interests and priorities. This study has found that the majority of people living in the EPAs do not know they live in a protected area. At the same time, institutional authority has a diffuse meaning. There is not a clear understanding of the division of roles, responsibilities and hierarchy among different institutions. Many interviewees mentioned the overlaying and sometimes conflicting actions of the city hall, state inspectors and Ibama officers as one reason for not abiding by the legal norms and procedures in the EPAs.

The following conclusions can be drawn from this study:

- Political, as well as environmental decisions, are complex and potentially conflictive with a number of stakeholders, their interests and capacity to influence policy makers and key economic forces. The decision must be taken according to what decision-makers believe to be generating minimal conflict;
- Feedback mechanism from local communities should be developed and nurtured. These provide valuable information to both the planning team and the decision-makers;
- Building a degree of flexibility into a strategy or plan can also help to ensure the support of the decision-makers. A "perfect plan or project" may simply be unattainable in a political sense. Therefore, both the planning team and decision-makers must have alternatives of action to circumvent any issue threatening the viability of the project;
- All involved and affected parties, including government and the private sector, have a responsibility to make relevant information available to the planning team as a means of ensuring the broadest possible debate on the decision as to how a given site should be managed;

It is apparent why protected areas and their respective buffer zones should be the focus of the ongoing projects supported by USAID/Brasil Environmental Program for the Mata Atlantica. As a matter of fact, all programs for the Mata Atlantica should favor work that brings direct benefits to CUs and their buffer zones, specially their inhabitants.

Recently, the Paraná State Constitution made provisions for those municipalities with conservation units to receive a compensation of 2.5% of the total value added tax collected in the state. This is a clear indication of government's recognition of the importance of environmental issues, and highlights the fact that an effective conservation program for the area is needed. The State government of Bahia is analysing the proposal prepared by IESB/CI and other institutions and will establish the same kind of fiscal mechanism to compensate those municipalities with conservation units and there is a great possibility to be also approved.

Sustainable, conservation-oriented buffer zone development to communities neighboring CUs in return for their conservation efforts is vital for long-term conservation goals. The same strategy should be applied to private landowners willing to create RPPNs and protect the ecosystems. This may only be achieved through increasing commitment among stakeholders, profit sharing and tourism development focused on benefits to support local communities.

The design and implementation of comprehensive monitoring activities, despite recent progress have not been priorities to both programs. Environmental monitoring will improve both planning and the decision-making process.

In brief, to become effective, long-term management, effective protection of biodiversity, involvement of qualified and trained staff to undertake monitoring and inspection activities in the EPAs, implementation of productive sustainable systems in commercial scale benefiting local populations and consolidation of management councils, all demand a level of time and resources larger than available in both programs.

The evaluation has found that the USAID initiatives to protect the Mata Atlântica are:

- Adequate regarding the choice of the focal themes
- Demonstrate effective potential for protection and replication at local and regional levels
- Lessons learned need to be organized in a systematic way to influence the management of Environmental protection areas in the Mata Atlantica
- Long-term financial sustainability being achieved through income generation and carbon sequestration
- Need to increase the change of experience among executing organizations (TNC, SPVS, CI and IESB)
- The Brazilian NGOs (SPVS and IESB) have become eligible for receiving international funds by achieving a senior level of technical expertise

General Recommendations:

- All conservation units, that are being implemented, should have demarcated boundaries and designated support zones in order to facilitate protection, support zone planning, and elaboration of action programs, specially those how present more threats.
- Updating and elaboration of management plans for conservation units should be spearheaded by professional protected area planners and involve key stakeholders from the buffer zones.
- Conservation units should not become isolated tourist destinations but rather be integrated into regional tourism development plans.
- Urgent training needs for CU staff are recognized. A centralized capacity-building program under USAID Environmental Program auspices, to be based on a comprehensive needs assessment, would benefit both programs.
- The existing administrative and technical infrastructure of the Atlantic Forest Biosphere Reserve is strengthened.
- The Biosphere Reserve to become the ultimate reference regarding biodiversity conservation in the Atlantic Forest.
- The protection and rehabilitation of micro-watersheds and fire control should, especially in southern Bahia, become thematic areas.
- Guidelines for standardized databanks and monitoring should be prepared.
- A well-designed environmental monitoring program would be useful in gauging the effectiveness of projects and its components with regards to conservation efforts. A suitable monitoring package with standardized methodology should be designed.
- Proper use of synergies, especially for activities taking place in the Discovery Corridor, with future programs synchronized with current and proposed projects in the Mata Atlantica.

The main recommendations for the continuation of the PiP Program are:

- Reinforce the institutional relationship of all stakeholders and turn the GIGA into an effective and decision-making management group for the Guaraqueçaba EPA according to the SNUC law 9985/2000
- Complete the regulation process for the zoning of the EPA defining its potential, criteria and standards for the sustainable use of its natural resources integrated to Superagui National Park management plan
- Develop with the involvement of local communities, fully-fledged commercial models of sustainable development according to the zoning of the EPA
- Integrate the management of different production activities with carbon sequestration
- Continue to train teachers within the EPA and surrounding municipalities
- Improve communication and dissemination aspects with local communities
- Update and increase the GIS system and use it as an effective instrument of public information (including the internet) and management of the EPA and its surroundings
- Stimulate the creation of new RPPNs among the existing private properties inside the EPA
- Develop sustainable fishing, prawns and oysters projects
- Stimulate the creation and organization of fishermen cooperatives and support their effective participation in the GIGA and forthcoming EPA management council
- Establish continuous exchange of experience with the BiRD project in southern Bahia
- Increase the work within the GIGA and other organizations to finish regulations and zoning for the EPA and translate them into legal language for legal enforcement
- Facilitate both IBAMA and the Federal Police to promote compliance with environmental legislation, taking into account the social local reality;
- Establish a environmental education campaign among local communities, tourism agencies, tourist groups and citizens of Curitiba, in order to clarify the legal liabilities which impede the existence of week-end resort houses beside and inside the SNP;
- Upgrade the current database of illegal week-end home owners and follow the prosecution processes, intervening and helping IBAMA with judicial analyses when needed
- Verifiable indicators should be developed to allow for quality assessment of project activities and project evaluations in general.
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The main recommendations for the continuation of the BiRD Program are:

- Improve the biodiversity knowledge on key endemic and endangered species, distribution, status, and current threats available for planning purposes and development of scientific and economis-based strategies
- Support initiatives to work inside the Ecological Corridor or the "Discovery Corridor"
- Continue to support the completion of the demarcation of the limits of the Serra do Conduru state park
- Continue to provide technical and organizational support to the communities to be removed from the serra do conduru state park, to create sustainable economic alternatives
- Increase support to creation and implementation of RPPNs
- Development an integrated regional tourism development plan for all Southern Bahia
- Increase support to consolidate the "descobrimento" corridor
- The BiRD should have preference to projects that provide quantifiable and qualified contributions to forest protection, expansion of forest land, and ecological connectivity.
- Improve the commercialization of the organic and sustainable produce
- Consolidate alliances with institutions of education, research and extension to disseminate the principles and results of the sustainable agriculture
- Consolidate the financial sustainability of Cooperuna
- Improve the management and infrastructure of the Una Ecopark to replicate the model
- Develop a management plan and consolidate the demarcation of the state park of Conduru
- Verifiable indicators should be developed to allow for quality assessment of project activities and project evaluations in general.
- Establish continuous exchange of experience with the PiP project in Paraná

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APPENDIX A (TERM OF REFERENCE)

TERM OF REFERENCE FOR THE EVALUATION OF USAID/BRAZIL'S PROJECTS IN PARTNERSHIP WITH THE NATURE CONSERVANCY (TNC) AND CONSERVATION INTERNATIONAL (CI)

BRIEF HISTORY AND BACKGROUND

TNC – Parks in Peril (PiP)

During its implementation, TNC's PiP program has become well known for its success in transforming what had formerly been "paper parks" into functional protected areas. We call this "Site Consolidation" - consolidating the infrastructure, staff, tools, institutional and technical capacity, and financing necessary to protect and manage protected areas of globally important biological diversity. In 37 protected areas in 15 countries, the program has built or renovated over 100 headquarters, visitor centers, and other protection facilities; trained over 1,000 rangers, protected area managers, and extensionists; and provided continuous institutional development guidance, financial support, and technical assistance to local conservation organizations.

At each PiP site, the program has engaged local communities in management decisions and conservation activities, fostering support for the protection of these areas. The PiP Program has also catalyzed innovative methods for improving the long-term financial stability of these sites. In a number of countries, the Program has successfully engaged local partners in promoting important changes in the policy and regulatory contexts that make successful long-term conservation possible. TNC's focus on building strong conservation partnerships has given the PiP program its most important tool and its most enduring legacy. Working closely with counterpart NGOs, government agencies and local communities, TNC has made the development of lasting institutional capacity an explicit objective in all that it does. The strategic emphasis of the PiP program has been:

- Build an on-site logistic capacity to manage parks in the hemisphere's most imperiled ecosystems. This is the fundamental component of the Program and includes basic protection, infrastructure construction, training, resolution of land tenure issues, analysis of priority threats, and legal declaration of protected areas and their boundaries.

- Build the analytic and strategic capacity necessary for long-term management of these areas. This component includes organizing and collecting scientific and socio-economic information to support work on zoning plans, management plans, science needs assessments, and site monitoring.

- Create long-term, sustainable capacity and financial support for the local management of these areas. This component promotes the development of long-term financial mechanisms

for protected areas and provides technical assistance in the development of NGO self-sufficiency strategies.

- Integrate PiP protected areas into the economic lives of local society. Community outreach activities such as environmental education, creation of local advisory committees that represent the interests of nearby communities, assisting conservation organizations in the promotion of local, national, and international conservation policies, and sustainable resource-use projects are included in this component.

- Use PiP site-based activities to influence conservation in other sites in the region's most imperiled ecosystems. This component, added to the program in 1996, has built on the program's experiences in conservation science, community conservation, conservation finance and policy, and institutional strengthening, and extends these experiences to other sites, partners, and government agencies.

In December 1989, TNC submitted an unsolicited proposal for US$ 2.0 million to USAID/LAC for the PiP program. The purpose was to ensure adequate on-site protection for critically threatened national parks and reserves in Latin America and the Caribbean that have global biological significance. USAID approved a Cooperative Agreement with TNC in September 1990. At that time, TNC and its partner NGOs developed individual PiP work plans and budgets in collaboration with the natural resources agencies of the respective countries. These plans were submitted on an individual basis to USAID/LAC and AID country missions for review and approval. Upon AID approval, on-site activities were initiated in each area. Amendments to the original Agreement have been made since then.

In 1996, USAID/Brazil and LAC/RSD/E decided to co-finance the inclusion of a Brazilian protected area in the PiP program. Thus, US$ 100,000 of USAID/Brazil's FY'96 environment funds were transferred into PiP program. The site chosen to initiate the program in Brazil was the Guaraqueçaba EPA, a 775,000-acre multiple use area on the coast of Parana State in South Brazil. After a year of preparation, USAID and TNC began conservation activities in Guaraqueçaba in May 1998. TNC had been involved at Guaraqueçaba since 1991, working with partner organizations, such as SPVS (Society of Wildlife Research and Environmental Education) and Fundação O Boticario, on a series of conservation activities. TNC and USAID chose SPVS to administer the PiP project.

TNC and SPVS pre-investment analysis showed that the Guaraqueçaba EPA would be an important addition to PiP because of its remarkable biological diversity, the imminent threats facing the ecosystem, and the potential to achieve tangible, long-term conservation in the region. TNC and SPVS already had achieved important conservation results throughout their prior five-year partnership in the Guaraqueçaba region. The inclusion of Guaraqueçaba in PiP would provide the organizations with the necessary funding to even further advance the conservation agenda for the region.

In 1999, another agreement was signed and USAID committed itself to transfer additional US$ 600,000 to Guaraqueçaba EPA over the course of three years.

CI – Biodiversity in Regional Development (BiRD)

Since 1987, when it was created, CI has been devoted to the conservation and sustainable use of biodiversity. CI implements conservation projects in many countries in four continents, especially in regions of critical situation (*biodiversity hotspots*); in major tropical wilderness areas; and in counties with megadiversity. Since 1988, CI works in Brazil implementing and supporting projects in major Brazilian biomes. Local reality and communities needs are always considered in the initiatives, and a great number of CI's activities have been developed in partnership with local NGOs. CI's partnership with research institutions, governmental institutions, and private sector has been effective as well.

Through the four year period (1994-1998) cooperative agreement between USAID and the Rapid Assessment Program (RAP) of CI (PCE-5554-A-00-4028-00/PCE-A-00-94-00028-00), the Agency supported CI's activities in Southern Bahia, which were been developed in partnership with the Institute of Social-Environmental Studies of Southern Bahia (IESB). Following are some highlights of USAID activities in this region:

- On February 21, -1997, the Governor of Bahia signed a decree creating the Serra do Conduru State Park, on land to be purchased in the forested region between Ilhéus and Itacaré. The Park of 7,000 hectares doubled the area of protected land in the region. The declaration was the culmination of a year and a half of CI and IESB work with the government on the concept and design of the Park. Financial resources have already been released for implementation of the Park and land survey work has begun. The Park has been implemented.

- With funding obtained from Anheuser-Busch, CI purchased 83 hectares of land adjoining the Una Biological Reserve, as a pilot project to demonstrate that ecotourism is an economic alternative for the region. With support from USAID, CI and IESB completed construction of a canopy walkway in the Una EcoPark in 1997, and began a "soft-opening" of the Park in February of 1998. The walkway is the central attraction of the privately owned nature park whose purposes are to educate visitors about forest conservation and provide a model for forest-based tourist attractions.

- On December 1997, Brazil's national commission on the environment (CONAMA) approved a total suspension on commercial logging in Bahia, based on studies presented to this commission by CI/IESB and confirmed by Bahia's Council for Environmental Resources (CRA) and by IBAMA.

- On May 1997, a low-cost 35 mm air photo survey of the Una and Conduru buffer zones was conducted, covering 1,100 square kilometers. The photography was digitized to CDs and mosaiked to maps by GIS specialists and student interns at IESB. The maps are used to plan management of protected areas, inform biogeographic research, monitor the rate and causes of deforestation and influence coastal zone management.

- With assistance from CI and IESB, IBAMA prepared the first ever management plan for the Una Biological Reserve in July 1997.

- In two articles ("The Little Rain Forest that Could," July 28, 1998; "The Time of theTurtles" August 15, 1998), *New York Times* Foreign Affairs Columnist Thomas Friedman described the innovative work of CI and IESB in Southern Bahia.

In 1998, a new Cooperative Agreement between USAID and CI (LAC-A-00-98-00059-00) allowed the work in Southern Bahia to be carried on. The BiRD program proposed under this cooperative agreement is focused on completing the framework that will allow conservation investments to be as effective and cost-efficient as possible. Most of the activities reflect an integration of a number of different disciplines. CI seeks to fill in the gaps in the multidisciplinary process of regional planning and build upon the work that has already been done in the region by CI, government, communities, and other NGOs.

CI's BiRD is a program to understand and influence resource use and biodiversity conservation at a regional level. It seeks to influence regional planning and development efforts through CI's hierarchical approach to conservation investments:

- Refining conservation priorities using available information and the knowledge of local, national, and international experts;

- Filling in gaps in understanding through biological assessments; and

- Using economics and policy analysis to define a broader range of choices for decision-makers.

In tropical wilderness areas, CI works with stakeholders to understand the value and impact of natural resource extraction and use including the potential of setting aside protected areas. In highly fragmented "*hotspots*" areas, such as Brazilian Atlantic Forest, rapid biological assessment, land use analysis, and protected area design help to conserve remnants of ecosystems. Defining development choices that benefit conservation and building local capacity are also relevant components of CI's strategy.

CI's BiRD proposal is based on this premise: conservation can only be viable in the long-term when biodiversity is included as a value in the regional development planning process. Therefore, all of proposed activities in the BiRD cooperative agreement occurs in areas identified as global *hotspots* – areas with high endemism and biodiversity under threat of destruction, and, *wilderness area*s – ecosystems that maintain at least 70 percent natural vegetation, with a human population density of no more than five per square kilometer. The designation of *hot spot* or *wilderness area* is the first step in priority setting for CI's conservation investments.

PURPOSE OF EVALUATION

The evaluation of the activities carried out by the projects described above is intended to be an independent external process conducted by selected expert consultants. The review will involve

consultation with TNC and CI staff and field personnel responsible for project implementation, USAID/Brazil project officer(s), USAID/Washington specialist(s), and partner institutions' key personnel responsible for project implementation.

The evaluation will be conducted as a component part of the on-going overall USAID/Brazil Program performance evaluation. The actions should be evaluated in the context of their contribution to the USAID/Brazil Strategic Objective of "Environmentally and socio-economic sustainable alternatives for sound land use adopted beyond target areas (SO1)." It is also envisaged that the evaluation will provide a forward-looking assessment, which generates recommendations on a revised set of project objectives, expected results and requirements to achieve those results for the successful development of future activities.

OBJECTIVES OF EVALUATION

1. General

This evaluation aims to strengthen the relationship between USAID-TNC and USAID-CI, as well as TNC and CI relationship with their partners, through the analysis of current project implementation. In addition, it intends to substantiate, with concrete data, the debate between USAID, TNC and CI with regard to partnership in order to establish their impact and future directions.

2. Specific

i) Examine project progress from last appraisal: results review focusing on project implementation, project impact and effectiveness and dissemination of results. Assess the effects of external and/or unanticipated actions and/or events on project effort. Evaluate whether performance to date is consistent with expectations as specified in grant documents and if changes are needed to sustain the positive effects of these efforts;

ii) Determine institutional self-sustainability capacity and the outputs needed to ensure self-reliance, including consideration of modes of engagement with sub-grantees beyond USAID grant support;

iii) Assess the continuing validity and relevance of current project components and any modifications made since the grants' inception; with particular emphasis on the analysis of existing institutional mechanisms for strategic coordination and priority setting. Estimate the level of effective interaction between all institutions involved and local implementers in delivering project objectives and fulfilling the institutional mission;

iv) Review institutional roles, management responsibilities, integration of policy considerations and coordination assumptions with a view to strengthening institutional development;

v) Verify the existence of potential overlaps and duplication of efforts with other organizations working on the same substantive or geographic areas, with a view to strengthening both the grantee and sub-grantees comparative advantage and predominant capability in these areas.

vi) Provide a forward-looking assessment which generates recommendation on a revised set of project objectives, expected results and requirements to achieve those results needed to ensure the successful development of future activities.

FOCUS OF EVALUATION

The evaluation shall focus on three thematic areas: biodiversity conservation, social and institutional development, and public policies. The consultant shall evaluate main implementation strategy for each one of them, identifying partners, results generated (positive and negative), lessons learned, and recommendations for the future – in order to improve implementation actions and project.

METHODS AND PROCEDURES

The evaluation will be conducted through field visits, interviews and review of project documentation. The interview process should attempt to include a majority of project stakeholders and beneficiaries, sub-grantee counterparts, members of staff, and representatives from the grantee. The evaluation will have preparatory meetings in Brasilia to review the project background documentation supplied by the grantee and sub-grantees and discuss procedure and organization. After any necessary field visits have taken place, the contractor will hold meetings in order to draft an Evaluation Report.

CONTRACTOR REQUIREMENTS

A contractor will carry on the evaluation whose expertise should include the subject areas of natural resource/forestry/biodiversity management and policy development as well as social and community development science and experience.

The contractor will be responsible for compiling and synthesizing individual sections of the final Evaluation Report. The contractor will also participate in interviewing, debriefing, review of drafts, and final discussion of the findings, conclusions and recommendations.

ACTIVITIES TO BE EVALUATED

The evaluation will focus on the activities of the following project under the USAID/Brazil Integrated Environmental Management Program (IEMP), in cooperation with USAID/Washington PiP Program, in Guaraqueçaba, Parana, Brazil, and BiRD Program in Southern Bahia, Brazil.

a. Current Cooperative Agreement

Parks in Peril

Cooperative Agreement: LAC-A-00-95-00026-00
Initial Obligation: September 30, 1996
Final Obligation: September 30, 2000
Project Assistance Completion Date (PACD): September 30, 2002
End of funding period: September 30, 2001
Funds obligated to date: US$ 400,000.00
Total estimated grant value (Life of Project - LOP): US$ 500,000.00
Grantee: The Nature Conservancy (TNC)
Brazilian NGO Partner: Society for Wildlife Research and Environmental Protection Area (SPVS)
Brazilian Government Agency: Brazilian Institute for the Environment (IBAMA)
Project title: Guaraqueçaba Environment Protection Area

Biodiversity in Regional Development

Cooperative Agreement: LAC-A-00-98-00059-00
Initial Obligation: September 30, 1996
Final Obligation: July 31, 2001
Project Assistance Completion Date (PACD): September 30, 2002
End of funding period: September 30, 2001
Funds obligated to date: US$ 2,800,073.00
Total estimated grant value (Life of Project - LOP): US $ 3,356,732.00
Grantee: Conservation International (CI)
Brazilian NGO Partner: Institute of Social-Environmental Studies of Southern Bahia (IESB)
Project title: Biodiversity in Regional Development

b. Description of evaluation process activities

The review process should begin on mid September[20]. The evaluation shall be ready by the end of mid November.

i) Meeting for a basic introduction to the evaluation: this meeting will be held in the USAID's office in Brasilia, with consultant, USAID, and TNC and CI staff. The objective of this meeting will be to discuss the evaluation procedure, logistics of interview process, data collection and formulation of preliminary and final papers.

[20] It is anticipated that the duration of the whole review process shall not exceed 60 days. The contractor shall submit the draft report for comment by USAID/Brazil and grantees/sub-grantees by October 31, 2001. The final report, incorporating relevant comments and suggestions shall be submitted to USAID/Brazil by November 15, 2001. The contractor shall also submit completed "USAID Evaluation Summary" Form Nº 1330-50.

ii) Reading of documents: during this phase, the consultant will be reading documents and formulating a review paper to be presented to USAID, TNC, and CI. This review paper shall be sent to USAID, TNC, and CI until September 28, 2001 in order to be read before the review meeting.

iii) Meeting to present the review paper: the consultant, USAID, TNC, and CI will be in this meeting. The objective of the meeting will be to revise the review paper, which will guide the process and present the evaluation instruments. The consultant will briefly demonstrate how the themes – biodiversity conservation, social and institutional development, and public policy - will be analyzed. The participants will be able to express their opinion about the evaluation content, the process, and the instruments to be used. The overall evaluation design shall be concluded in this meeting (components, focus, method, process, and logistic).

iv) Interviews with USAID, TNC, and CI staff: the individual interviews with USAID, TNC, and CI staff will be scheduled for the first week of October.

v) Visit and evaluation: consultant will visit NGO and Government partners in Parana, and the project in Guaraqueçaba. He/she will also visit NGO and Government partners in Southern Bahia, and the project activities in this region. The consultant can visit the project twice maximum.

vi) Meeting to appreciate and revise the evaluation: this meeting will also be held at USAID's office in Brasilia with the participation of all interviewed people in USAID, TNC, and CI staff. The consultant shall send the final document for the meeting's participants, at least, until October 31, 2001. The meeting will focus on result appreciation and evaluation content revision.

vii) Delivery of final version of evaluation report: after the meeting to appreciate and revise the evaluation document, the consultant shall correct the final report and send it to USAID, TNC, and CI for analysis and approval.

viii) Participation in TNC/O Boticario APA Workshop: the workshop will be held on November 1, 2001. The consultant will present evaluation results in the workshop.

ix) Participation in USAID's Environment Annual Meeting: this meeting will be held in Belem, during the first week of December. The consultant will be presenting the evaluation results in a particular panel during the meeting.

REPORT REQUIREMENTS

The contractor will be responsible for the preparation and submission of the draft and final reports – of approximately 35 pages – in the following format:

a. Table of contents
b. Executive summary

c. Body of report, including:

i) Purpose of evaluation, methodology and scope of work
ii) Purpose of activities evaluated (definition of problem, logframe purpose and goal, results indicators, constraints/opportunities)
iii) Activities findings and conclusion (major findings and interpretations as related t questions posed in the scope of work, progress since last evaluation)
iv) Principal recommendations
v) Lessons learned (such as project design implications and/or broad action implications)
vi) Appendixes

APPENDIX

The consultant shall send the USAID 1330-50 form (USAID Evaluation Summary) filled.

SCHEDULE FOR PRODUCTS DELIVERY

Beginning: September 15, 2001
Ending: November 15, 2001

First document version: September 28, 2001
Final version draft: October 31, 2001
Final document version: November 15, 2001

BUDGET AND DISBURSEMENT SCHEDULE

The contractor shall earn US$ 20,000.00 according to the following disbursement schedule:

- 30% = US$ 6,000.00. This amount will be deposited after review paper delivery.
  Payment anticipated for
- 30% = US$ 6,000.00. This amount will be deposited after evaluation report delivery
  Payment anticipated for
- 40% = US$ 8,000.00. This amount will be deposited after final report revision and approval.
  Payment anticipated for

All travel expenses are included.

APPENDIX B (Work Plan)

1. BACKGROUND

As part of the ongoing Environmental Program Performance Evaluation and under the Integrated Environmental Management Program (IEMP), USAID/Brazil called for an independent external evaluation of two main projects: (i) Parks in Peril (PiP) – Cooperative Agreement LAC-A00-95-00026-00 with The Nature Conservancy (TNC) for the protection and sustainable use of the Environmental Protection Area of Guaraqueçaba, in Parana, Brazil and – Biodiversity in Regional Development (BiRD) – Cooperative Agreement LAC-A-00-98-00059-00, with the Conservation Unternational (CI) in southern Bahia, in particulary in the municipalities of Ilheús, Una and Itacaré-Serra Grande, Brazil, to be carried out.

2. OBJECTIVES OF THE EVALUATION

The ***principal purpose*** of the proposed evaluation is:

(i) To assess the outcomes of indicated projects in comparison with stated objectives and result indicators.

The ***general objective*** of the evaluation is to strengthen the relationship between USAID-TNC and USAID-CI, and TNC and CI with their partners, through the analysis of current project implementation. In addition, it intends to substantiate, with concrete data, the debate between USAID, TNC and CI with regards to partnership in order to establish their impact and future directions.

Building up from, and in addition to SoW, the specific objectives of the process are:

(i) To assess the progress of each project in achieving its objectives, regarding intended and unintended impacts, effectiveness and dissemination of results; and

(ii) To guide the evolution and establish future directions (forward-looking assessment) regarding improvements in partnership and project implementation, through consultation and feed back of lessons learned.

These include meetings, interviewing, reporting, discussion of findings and presentation of conclusions and recommendations.

The evaluation will cover the following main subject areas:

(i) Natural resources;
(ii) Biodiversity conservation management;
(iii) Forestry;
(iv) Public policy development
(v) Social and institutional development; and dissemination of lessons learned

The linkages between these various elements will be recognized in the evaluation effort. The first three subject areas relate to interventions to promote sustainable development, environmental protection and resource conservation, whereas the others deal with capacity building and dissemination of positive and feasible results for possible replication in development and conservation initiatives.

3. APPROACH AND METHODOLOGY

The evaluation process is divided into:

(1) Evaluation; and
(2) Guidance for the successful development of future activities.

The evaluation consists of:

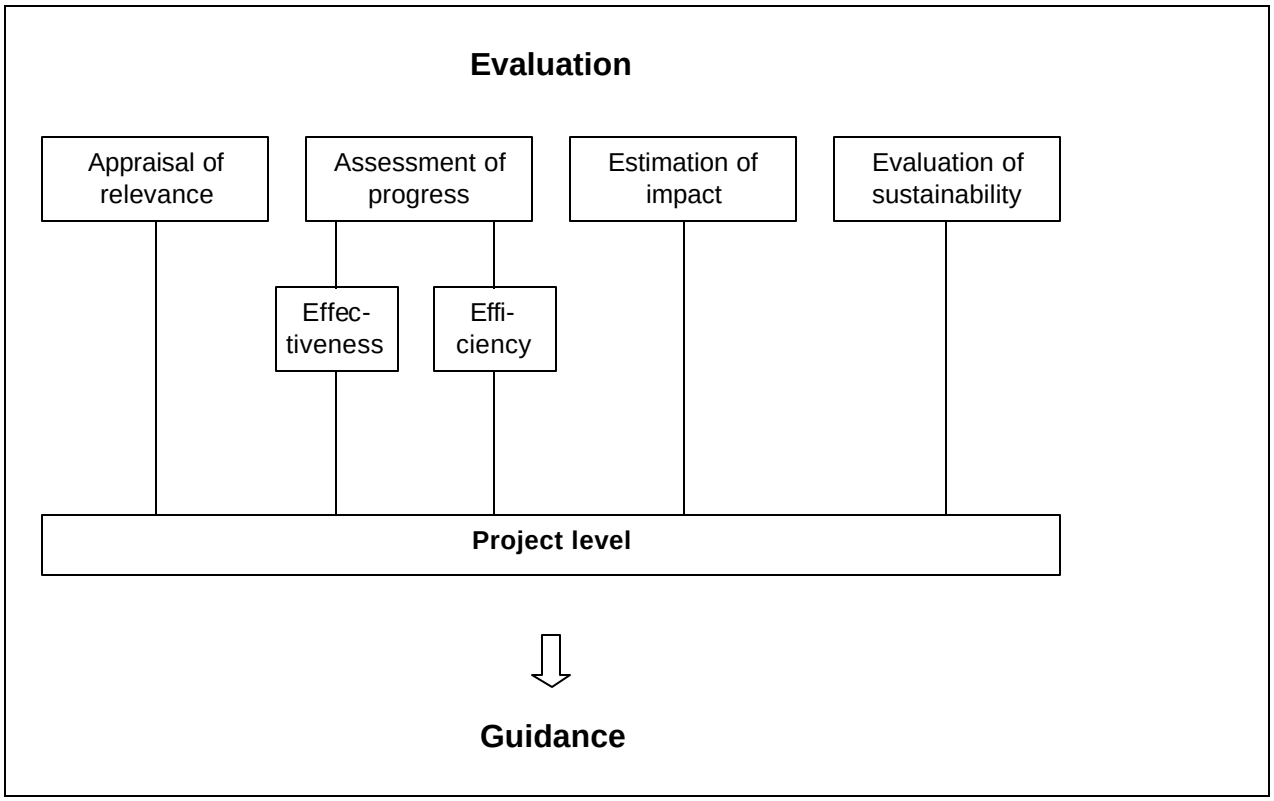
(i) Assessment of the continuing validity and relevance of each project's objectives and components, in the context of their contribution to the USAID/Brazil Strategic Objective of "environmentally and socio-economic sustainable alternatives for sound land use adopted beyond target areas (SO1)";

(ii) Assessment of progress achieved so far, and

(iii) Analysis of the extent to which individual projects are achieving their stated objectives, overcoming challenges, accounting for differences, and learning lessons, including the sampling of local and regional impacts.

The guidance component involves synthesizing recommendations from the evaluation for the improvement of projects' future activities.

Work Approach



The main elements of the approach of the evaluation are:

- Development and application of locally relevant evaluation criteria and instruments
- Consultation with actors and interested parties in interviews, meetings, field visits and workshop
- Data collection through observation and interviews at project level
- Identification and analysis of linkages with national and international policy processes to promote conservation, development and sustainable management of natural resources
- Preparation of proposals for future activities considering its strategic interventions and integration with institutional development and federal and state-level policies

As the evaluation methodology follows the guidelines introduced by USAID/Brazil, as stated under the "specific objectives of evaluation" of the SoW, the following criteria will be used to assess the projects.

(i) Relevance
(ii) Impact
(iii) Effectiveness
(iv) Efficiency

(v) Sustainability.

Each criterion will use appropriate instruments as the evaluation process develops.

APPENDIX C (Interviews about the GIGA with local communities of the Guaraqueçaba EPA)

Pontos analisados:

a. Motivo pelo qual as pessoas tem participado das reuniões do GIGA.
   100% dos entrevistados acham que as reuniões podem contribuir com a integração interinstitucional;

b. Quanto à freqüência às reuniões e ao cumprimento das tarefas.
   60% participou da maioria e cumpriu tarefas.
   20% participou de todas as reuniões e cumpriu as tarefas.
   10% participou de duas reuniões após Ter assumido a sua função, e cumpriu as tarefas.
   10% participou de 1 reunião e não assumiu tarefas.

c. Motivo pelo qual não participou de todas ou da maioria das reuniões.
   10% participou de todas.
   10% não participou por falta de tempo.
   80% não participou por outros motivos, tais como: falta de representatividade, desmotivação com a iniciativa.

d. Motivo pelo qual não assumiu ou não pode cumprir tarefas ou responsabilidades no grupo.
   40% assumiu e cumpriu as tarefas.
   20% por falta de tempo; excesso de atribuições.
   10% realizou tarefas em conjunto.
   10% ainda não pertencia ao grupo.
   10% considerou que não dizia respeito à sua instituição.

d. Sugestões para contornar o problema da falta de tempo (se este é um dos motivos para as pessoas não participarem ou não assumirem responsabilidades no GIGA).
   70% não responderam a esta questão.
   20% não consideram a falta de tempo como um motivo.
   10% sugere a identificação de outra pessoa com representatividade da instituição.

e. Como melhorar as reuniões do GIGA.
   30% sugere abordar temática por problemas comuns.
   30% sugere abordar temas técnicos e específicos por reunião (ex. palmito, pesca, etc)
   20% sugere abordar temática por instituição participante (ex. ação do IBAMA, ou do BPFlo, etc).
   20% não respondeu.

f. Avaliação do papel da SPVS como mediadora no processo de criação e manutenção do GIGA (organização da agenda, pauta, condução das reuniões).
90% considera como eficiente.
10% considera bom, mas deve melhorar na definição dos propósitos e metas; falta de objetividade.

g. Avaliação do processo de organização das reuniões do GIGA.
100% dos participantes consideram como ótimo.

h. Avaliação dos resultados práticos do GIGA.
90% considera como positivo em relação a:

- está avançando no processo de definição sobre a participação de cada instituição e dos objetivos do GIGA.
- está conseguindo congregar as instituições.
- Iniciou o trabalho conjunto relativo à questão da pesca.
- Está permitindo maior integração entre as instituições que atuam no litoral do Estado.
- Está contribuindo para o aprimoramento das atividades de monitoramento, controle e fiscalização.

APPENDIX D (Pictures)

River mouth and mangrove ecosystem in Superagui National Park

Guaraqueçaba Bay

Ibama's building at Pinheiro Island, home of the Red Tailed Parrot

Electrical fence for Rotative Buffalo Ranching System

Rotative Buffalo Ranching System private property in Guaraqueçaba EPA/PR

Cooperative of Una office

The cabruca native forest beside a new clear-cuted area for pasture. Una municipality

Riparian forest at the Una river

Organic Cacao produced in the native shade-grown cabruca system

The witch broom disease (*Crinipellus perniciosa*)

Small landowner Cacao producer in a native shade-grown cabruca system

Coastal view of Itacaré-Serra Grande EPA

Gindiba window private property and it's tree nursery

Gindiba Window at a private property, EPA of Itacaré-Serra Grande

Atlantic forest native species nursery at an INCRA settlement

Canopy way at Una Ecological Park