

IMPLEMENTATION COMPLETION MEMORANDUM

A. BASIC TRUST FUND INFORMATION

TF Name: **Biodiversity Conservation and Sustainable Use in Mbaracayú (Paraguay)**

TF Number: **TF 051577**

Task Team Leader Name/TF Managing Unit: **Michael Carroll/LCSAR**

TF Amount (*as committed by donors*): **US\$ 973,512.52**

Recipient of TF funds (*Bank/Recipient, if Recipient state name of recipient government and implementing agency*): **World Bank/ Moises Bertoni Foundation**

Type of TF (*Free-standing/ programmatic/ new TF for an ongoing program*): **Free-standing**
Single/Multi Donor: **Single**

Donor(s) Name(s): **Global Environment Facility (GEF)**

TF Program Source Code: **GEFIA**

Purpose of TF (*Co-financing/Investment financing/ Debt Service/ Advisory Activities-Bank/Advisory Activities-Recipient, etc*): **Co-Financing**

TF Approval/IBTF Clearance Date: **22 August 2002**

TF Activation Date: **10 March 2003**

TF Closing Date(s): **30 May 2007**

Date of ICM Submission to TFO: **30 November 2007**

Cost and Financing Table: (in US\$ Dollars)

Co-Financier	Original	Actual
GEF	973,512	973,448
IBRD/IDA		
Recipient and others	2,184,223	1,678,871 (recipient)
Other		722,391 (others)

Rating Summary

Category	Rating
Overall TF Outcome	S
Overall Risk to Development Outcome	L
Bank Performance	S
Recipient Performance	S

B. TRUST FUND DEVELOPMENT OBJECTIVES AND DESIGN

1. Original (and Revised) Trust Fund Development Objectives

Overall Objective

To conserve globally significant biodiversity in the highly threatened Interior Atlantic Forest of Paraguay by supporting the effective protection and consolidation of the Mbaracayú Natural Reserve and promoting conservation, sustainable use, and land-use planning in the Upper Jejuí River Watershed.

Specific Objectives

- a. Consolidate the management of Mbaracayú Reserve, particularly in terms of its ability to deal with external threats. Increase institutional capacity to manage project area in a coordinated and participatory manner
- b. Increase capability of local authorities and the local residents to enforce environmental legislation
- c. Develop replicable production models for sustainable resource use adapted to the needs of producers within the Jejuí River Watershed
- d. Adoption and implementation of integrated land use planning and development practices in most of the Mbaracayú region with special consideration given by development actors to protection and restoration of the remaining forest patches
- e. Acquisition by FMB of the capacity to implement and monitor the proposed activities

2. Original (and Revised) Trust Fund Activities/Components

There were 6 Components and 21 activities or sub-components originally defined:

COMPONENT 1: Reserve Management Consolidation

1. Park boundaries
2. Control infrastructure
3. Management Plan

COMPONENT 2: External Threat Control

1. Law enforcement
2. Legal Education
3. Environmental awareness
4. Communications

COMPONENT 3: Sustainability Criteria Adopted by Private Sector

1. Improved Production Systems
2. Alternative livelihood
3. Marketing
4. Tourism in Reserve

COMPONENT 4: Integrated Land Use Planning and Development

1. Land-use planning
2. Local empowerment
3. Reforestation / private conservancies
4. Environmental services
5. Baseline assessment

COMPONENT 5: Strengthening the Capacity of Moises Bertoni Foundation

1. Staff training
2. Equipment
3. Outreach
4. Long term strategy
5. Biosphere Reserve Committee

COMPONENT 6 Administration and Contingencies

Note: There were some sub-components that were substituted and others that were incorporated throughout the implementation of the Project. These include:

- *In Component 1, a new sub-component was introduced after the mid-term review with the purpose of improving the monitoring of the Reserve by means of regular flights over its surface. These regular flights proved to be very efficient in identifying illegal crops within the Reserve boundaries and will be able to be continued through FMB's trust fund resources (managed by The Nature Conservancy).*
- *In Component 2, the communication component was changed after the mid-term review. The reason for this decision was that during the first two years of the Project there were plenty of possibilities to rent air time from local AM and FM radio stations already familiar and widely heard by communities in the region. The project did not find it cost effective to establish and develop a new radio station in the region as this would have been very expensive and a less effective means of communication.*
- *In Component 3, activities related to supporting Government's Rural Communities Investment Program were also changed as a consequence of the low performance of this Program at the time the project implementation started. It was considered better to increase activities related to improved production systems and alternative livelihood.*
- *In Component 4, where activities in reforestation and private conservancy were included, it was decided to give priority to reforestation in large farms surrounding the Reserve and to delay activities related to private conservancy due to some legal drawbacks.*

All of these modifications were evaluated and discussed during and after the mid-term review and were duly approved by the Bank.

3. Outcome Indicators

Impact Indicators

- Effective protection and management of the 64,400 hectare Reserve
- Long-term planning for sustainable development in the Jejuí Watershed with reduction of the threat to the Reserve's biodiversity
- Increased productivity and commitment of the watershed's population for conservation of native natural resources

Specific Indicators

I. The 64,400 hectare reserve is effectively protected, the Park boundaries are securely established, and the infrastructure for control is improved and expanded through an active and skilled team of Rangers.

Total budget \$ 647,202, including GEF budget of \$ 170,250

Component	Indicator	Status
1.1 Park boundaries Total \$ 108,465.00 GEF \$ 20,900.00	<ul style="list-style-type: none"> • The legal surveying of the 140 km reserve limits has been completed, and adequate sign system is in place with signs every km • The Reserve's boundaries are well maintained and demarcated 	<ul style="list-style-type: none"> • Completed (140 signs) • Demarcated (88 Kms)
1.2 Control infrastructure Total \$ 115,480.00 GEF \$ 54,700.00	<ul style="list-style-type: none"> • A single existing control infrastructure is expanded and improved in the four control posts, including the administrative headquarters at Jejuí mi • A new control post built • Three motorcycles bought • A Police Post built in Tendal • A Residence built for researchers 	<ul style="list-style-type: none"> • Completed • 2 Posts built • Completed • Eliminated and substituted by an extra control post • Completed
1.3 MBRN Management Plan Total \$ 423,257.29 GEF \$ 94,650.00	<ul style="list-style-type: none"> • The current Management Plan reformulated in a participatory way with more than 100 stakeholders, giving special emphasis to externally-generated threats and issues • A Rapid Ecological Assessment updated • Baseline information inside the reserve for sound management decision • Database on biodiversity inventory, as well as information for the reserve and the watershed • Selection and monitoring of indicator and key species inside and outside the reserve's boundaries • An Active Committee for scientific affairs to make decisions and guide research at the reserve • A strategy and implementation plan for fire management 	<ul style="list-style-type: none"> • Completed (80 stakeholders) • Completed • Completed • Completed • Completed • Completed • Completed

II. Environmental law enforcement is substantially improved by better-trained justice officials, trained paralegal volunteers, and the local community.

Total budget \$ 362,318, including GEF budget of \$ 157,303

Component	Indicator	Status
2.1 Law enforcement Total \$ 113,140,42 GEF \$ 29,800.00	<ul style="list-style-type: none"> • Local authorities receive training in environmental legislation • Four workshop for 30 representatives of municipalities in the watershed • Two workshops for 40 local and regional authorities • Three workshops for training and informing 20 judges and 40 fiscal agents 	<ul style="list-style-type: none"> • Completed • Completed 8 workshops (157 representatives) • Completed 4 workshops and 33 participants • Completed
2.2 Education on the legal framework Total \$ 92,840.97 GEF \$ 29,433.00	<ul style="list-style-type: none"> • Paralegal volunteers trained in environmental legislation practices to assist communities on legal matters • Four training events for 30 volunteer paralegals from 15 communities in the watershed • Three Seminars for training 20 community leaders 	<ul style="list-style-type: none"> • Completed • Completed • Completed
2.3 Environmental awareness Total \$ 119,537.13 GEF \$ 82,270.96	<ul style="list-style-type: none"> • A public awareness campaign implemented, with the existing Local Environmental Information Centre expanded and improved • Design and elaboration of a campaign in the watershed, based upon a six-month duration and broadcast by four radio stations and 30 educational centres • 100 school teachers from 25 educational centres of the watershed trained and updated in environmental issues and the significance of the reserve • Launching of an Environmental Information Centre 	<ul style="list-style-type: none"> • Completed • Completed • Completed (105 teachers, 20 educational centres, and 1382 students) • Completed with new books, equipment, and improved infrastructure

	<ul style="list-style-type: none"> • Production and dissemination of graphic materials and the “Reserve Video” • Production of two educational messages per semester and an informative bulletin to be broadcast by the local media 	<ul style="list-style-type: none"> • Completed • Completed
2.4 New FM radio for Mbaracayú region Total \$ 36,800.00 GEF \$ 15,800.00	<ul style="list-style-type: none"> • A FM radio station for the Mbaracayú area created and operated by the FMB <ul style="list-style-type: none"> ○ Its profile will be focused on providing educational and cultural services to the region, with a great emphasis on conservation and the RNBM ○ This radio is expected to reach at least 20 communities in the watershed and is expected to be passed on to a local cooperatives in year 3 of the project 	<ul style="list-style-type: none"> • Substituted (See Note in Section B.2)

III. Alternative sustainable production systems developed and 10 demonstration plots available for extension and education. Fifteen community-oriented development projects promoted by the FMB designed, managed, and evaluated using a participatory approach.

Total budget \$ 682,150, including GEF budget of \$ 352,140

Component	Indicator	Status
3.1 Improvement of the existing production systems Total \$ 125,414.55 GEF \$ 97,050.00	<ul style="list-style-type: none"> • Extension services provided to help 600 farmers manage their properties in a sustainable way by promoting agro-forestry practices 	<ul style="list-style-type: none"> • Completed (630 families supported)
3.2 Develop alternative livelihood options Total \$ 484,895.82 GEF \$ 207,750.00	<ul style="list-style-type: none"> • Alternatives for the existing production systems developed and demonstration plots implemented: A pilot of productive community subprojects established in critical areas of the Jejuí Watershed with the purpose of validating and disseminating alternatives to the existing production systems as a mechanism to facilitate access to other sources of subproject financing. These include the Pilot Community Rural Investments (based on <i>Programa de Inversiones Rurales Comunitarias</i>—PIRC), implemented by MAG with World Bank financing • Exploration of alternative non- 	<ul style="list-style-type: none"> • Substituted (Due to lack of activities in the region by project completion. Activities were initiated in 2006 with Fundacion Paraguay) • Microcredit

	conventional ways of sustainable uses of native resources by the local people	activities were implemented with group of farms and women
3.3 Marketing of local products Total \$ 11,000.00 GEF \$ 7,500.00	<ul style="list-style-type: none"> Assistance provided for the design and implementation of five pilot programs for cooperative marketing of local products 	<ul style="list-style-type: none"> Completed 3 (with containers bought)
3.4 Opening of the Mbaracayú reserve for tourism. Total \$ 60,840.00 / GEF \$ 39,840.00	<ul style="list-style-type: none"> Existing accommodation infrastructure enhanced, prepared, and maintained for tourism The installation of a new landing strip in an external zone of the reserve to allow for the arrival of VIP tourists with a specific management plan prepared A field guide for orchids published 	<ul style="list-style-type: none"> Completed (tourist trails improved) Landing strip in Aguara Nu Completed

IV. A land-use master plan for the Mbaracayú region is completed and in process of being implemented. A large-scale reforestation program is in place, based on demonstration plots.

Total budget \$ 572,599 including GEF budget of \$ 178,314

Component	Indicator	Status
4.1. Development of land-use planning activities in the region Total \$ 266,545.82 GEF \$ 35,000.00	<ul style="list-style-type: none"> FMB, the Paraguayan government agencies, and local residents design and jointly implement a land-use master plan for the CARJ Five meetings carried out about land-planning with participation of representatives from 20 communities of the watershed 	<ul style="list-style-type: none"> Completed 1 publication and 1 electronic version of the Plan Completed 4 seminars
4.2. Local empowerment Total \$ 84,140.00 GEF \$ 21,500.00	<ul style="list-style-type: none"> Community-oriented development projects designed, managed, and evaluated using a participatory approach Workshops and public meetings organized for the discussion of planning, productivity, policy, and legal issues Socioeconomic and environmental participatory diagnosis in 20 communities of the watershed Six training workshops to watershed communities on legal aspects, community organization, and 	<ul style="list-style-type: none"> Completed (15 meetings held) Completed (21 meetings organized) Completed (20 communities participated) Completed (15 seminars held)

	<p>productivity</p> <ul style="list-style-type: none"> • Participatory workshops in 10 communities of the watershed (8 farming, 2 indigenous) for designing community projects • Recruitment of 30 local residents for data collection and analysis of information • Training of 20 local leaders 	<ul style="list-style-type: none"> • Completed • Completed (30 residents recruited and some trained as local leaders) • Completed (46 local leaders trained on environmental issues)
<p>4.3. Reforestation of the CARJ Total \$ 150,114.08 GEF \$ 86,514.08</p>	<ul style="list-style-type: none"> • Restoration and protection of the remaining forest patches outside the Mbaracayú Reserve • Demonstration plots implemented and landowners encouraged to implement private conservation initiatives 	<ul style="list-style-type: none"> • Completed (3 large farms and 230 hectares reforested) • 2 university students' theses supporting native plants nursery
<p>4.4. Environmental services Total \$ 41,500.00 GEF \$ 26,800.00</p>	<ul style="list-style-type: none"> • Five signed agreements with private landowners for implementing conservation actions in their properties, including evaluation and promotion of ecosystem services provided by private forests. • A regional Forest Sustainability Certification System created and accepted by all partners 	<ul style="list-style-type: none"> • 2 signed agreements with large land owners
<p>4.5 Assessment of the CARJ baseline environmental situation Total \$ 30,300.00 GEF \$ 8,500.00</p>	<ul style="list-style-type: none"> • Baseline inventory of the current CARJ environmental situation completed • Comprehensive database is available 	<ul style="list-style-type: none"> • Completed

V. Moises Bertoni Foundation (FMB) has a well-trained and well-equipped staff. A quarter of FMB's staff has been trained and there is an updated Management Plan in operation.

Total budget \$ 787,145 and GEF budget \$ 60,400

<p>5.1. FMB Staff training Total \$ 38,200.00 GEF \$ 7,900.00</p>	<ul style="list-style-type: none"> • Training of five senior staff, eight project operational team, and Park Rangers completed in national and international centers • At least two courses on socioenvironmental topics at the national level and one at the international level 	<ul style="list-style-type: none"> • Completed (17 senior staff and 14 operational staff trained) • Completed (14 national courses and 17 international courses)
<p>5.2. Equipment acquisition and maintenance Total \$ 115,700.00 GEF \$ 16,300.00</p>	<ul style="list-style-type: none"> • Equipment required for project operation is purchased and operative 	<ul style="list-style-type: none"> • Completed
<p>5.3. Outreach Total \$ 157,645.39 GEF \$ 8,200.00</p>	<ul style="list-style-type: none"> • A Web site is created with research activities and information availability promoted 	<ul style="list-style-type: none"> • Completed
<p>5.4. Long-term Strategy Total \$ 387,820.00 GEF \$ 22,000.00</p>	<ul style="list-style-type: none"> • A long-term Strategy is developed through a process of wide consultation • A watershed Management Committee is created with the necessary means for effectively promoting sustainable development in the CARJ 	<ul style="list-style-type: none"> • Completed • Completed
<p>5.5 Watershed Management Committee Total \$ 27,000,00 GEF \$ 6,000.00</p>	<ul style="list-style-type: none"> • Watershed Management Committee (also known as the Biosphere Reserve Committee or BRC) conformed, active and implementing development programs for the region with representation of stakeholders and in search of legal recognition (see Annex 1 for detailed outputs) 	<ul style="list-style-type: none"> • Completed

4. Other Significant Changes in Trust Fund Design

There were no changes in the design, scope, or scale of the trust fund. However, some changes were introduced in implementation arrangements, schedule, and funding allocation. These changes in implementation arrangements were primarily the reallocation of GEF funds in the relative structure of both components and categories, and the extension of the closing date as was recommended by the Mid-Term Review (MTR)

The MTR included recommendations to extend the Project closing date for two additional cropping periods (until May 2007), taking into consideration the consistent management

improvement in the second and third year of Project implementation compared to lack of progress during the first year of project implementation.

C. OUTCOME

1. Relevance of TF Objectives, Design, and Implementation

Long-term sustainability of forest conservation in the Mbaracayú Reserve and its surrounding area—based on improvement of abilities to deal with external threats, increased capabilities of local authorities and residents to deal with environmental issues, the application by small farmers and indigenous communities of sustainable resource use production models adapted to their needs, and the implementation of integrated land use planning in the Jejuí River Watershed—has proven relevant to global, regional, and country priorities, as well as the Bank’s sector strategy. First, all implemented activities have been community-based and conformed to existing governance structures, with strong coordination with the Paraguayan government at the national and local level, community leaders, and the local population in general. Second, initiatives have been directly or indirectly linked with national government programs, ensuring consistency and continuity. Third, the promotion of income-generating and improved initiatives in small farming and indigenous communities, the training of stakeholders, and a strong educational and dissemination component, have contributed to achieving the project’s long-term goals incorporating local and national stakeholders.

There are strong and clearly defined national and international interests in the protection of the Mbaracayú Reserve and its surrounding basin, taking into consideration the high priority given by international and local organizations to the preservation of this highly representative area of the Atlantic Interior Forest. Nomination of the Mbaracayú Reserve as a Biosphere site has added a significant component of sustainability to the reserve and the buffer zone.

The growing pressures on the Reserve and the remaining forest patches in the region have become a common problem throughout Latin America. This pressure is related with the economic and social situation in the area, which in turn is affected by a dramatic expansion of cropping areas, a rapid population growth, and increasing rural poverty. Project design proved to be adequate to address these issues. Pre-emptive initiatives, such as promotion of new income-generating activities oriented towards small farmers and indigenous communities, as well as land-use planning initiatives, converged on the general goal of raising the standard of living of the local population while protecting biodiversity.

Social assessments have been practiced since the initial stages of the Mbaracayú Project, as they are an essential component of all the activities developed in the region. The experience gained throughout project implementation indicates the importance of incorporating social issues, including property rights (particularly of the Ache indigenous communities), alternative production systems for small farmers and Guaraní and Ache Indigenous communities, availability of basic health and education facilities, and the development of better market alternatives for local production.

2. Achievement of TF Development Objective

Overall, the project achieved satisfactorily its development objective to conserve globally significant biodiversity in the highly threatened Interior Atlantic Forest of Paraguay by supporting the effective protection and consolidation of the Mbaracayú Natural Reserve and promoting conservation, sustainable use, and land-use planning in the Upper Jejuí River Watershed.

Biodiversity Impacts

The project has allowed Mbaracayú Forest Nature Reserve (MFNR) to reinforce its capacity to conserve biodiversity and to be a source of biodiversity in the highly degraded Atlantic Forest. This nuclear area of the biosphere reserve constitutes a sanctuary for several species of fauna and flora threatened by extinction on a national and worldwide level. Research and conservation activities allowed the reserve to continue providing habitat for 89 mammal species, of which 2 are endangered, 6 are vulnerable, and 11 are near-threatened; 409 species of birds, of which 9 are vulnerable, 5 are endangered, and 16 are near threatened; and conserving 32 reptiles, 47 fish, and 22 amphibians. With regards to birdlife, the Mbaracayú Reserve holds 60% of the total bird population in Paraguay. The invertebrates that find shelter in Mbaracayú are above 1,000 species. The flora biodiversity in the reserve comprises 2,500 species of vascular plants, as well as 100 species of ferns (a very important indicator of biodiversity conservation). More than 20 species of plants occurring in Mbaracayú are threatened with extinction; more than 100 plant species have economic importance for their nutritional, ornamental and/or medicinal use. Taking all of these facts into account, the Mbaracayú Reserve contains the most important forest remnants of the Atlantic Forest in Paraguay and serves as a crucial refuge of biodiversity. While deforestation has been reduced during the last years after the implementation of the Zero Deforestation Law, Mbaracayú maintains intact the forest structure and provides a shelter for globally threatened species. The final Management Effectiveness Tracking Tool (METT) report submitted for this project resulted in a score of 90/90 – reflecting the successful implementation of the project activities in the reserve area, as well as its replicability for biodiversity conservation practices.

During project implementation, scientific research has been focused on this protected area as it is the best managed and operated reserve in the country and possibly in the Alto Parana Atlantic Forest. This has been done through a coalition with renowned international institutions, including many museums and universities, which have found in Mbaracayú a resourceful and well-managed area to conduct biodiversity research. Mbaracayú has provided opportunities for graduate and postgraduates studies and also increased its potential as a tourism destination. Major Ecotourism companies are proposing the area for bird-watching and nature recreation. At the same time, the area has continued providing the Ache indigenous people a place to hunt and gather following traditional methods.

Mbaracayú has been the center for designing and implementation the biodiversity vision for the Alto Paraná Atlantic Forest, which has allowed conservation of other corridors with less representative areas of biodiversity in the remaining forest patches of Paraguay. Overall, the Mbaracayú project has had an important impact on the conservation of biodiversity, with a focus on technical and agricultural training, as well as environmental education.

Indicators

In terms of improvement of production systems in the River Jejuí watershed, and specifically in the surroundings of the Mbaracayú Reserve, extension services were provided to more than 630 small family farms and throughout the indigenous population aimed at helping to manage rural properties in a sustainable manner. In Britez Cue, 1,500 families farming 25,000 hectares were provided technical assistance. In particular, 252 families received technical assistance on the development of new products, such as sesame and cassava, which assisted them on farming and marketing techniques. In Villa Ygatimi, technical assistance was provided to 290 families—135 of which were indigenous families. Various alternative production activities were developed in these communities through the support of the technical staff of Villa Ygatimi and Britez Cue. Alternative ways of sustainable use of native resources were developed and pilot programs, such as planting “*Ilex Paraguayensis*” and other medical species, were set in motion with groups of women with very good results. A total of 3 post-harvest containers were bought for Villa Ygatimi and Britez Cue to help farmers with the handling of their agricultural products.

Existing installations in the Reserve were improved for tourism purposes, a field guide for orchids was prepared and a landing strip for small aircraft was improved in Aguara Nu control post.

A master plan for integrated land use planning and development for the Rio Jejuí basin was also prepared with the participation of various stakeholders in 4 workshops—2 in Curuguaty and 2 in Villa Ygatimi. Printed material and electronic files of the master plan were prepared and distributed in the River Jejuí watershed. Participatory approaches were implemented through the organization of 21 meetings on socioeconomic and environmental aspects and 15 workshops on legal aspects, community organization, and productivity. There were 46 local leaders trained by the Project on these items.

Three large landowners surrounding the Reserve, “Nueva Esperanza,” “Don Marcelo,” and “La Felicidad,” were encouraged to develop conservation initiatives and implemented reforestation plans in environmentally fragile areas occupying 230 hectares of their properties. Reforestation has been correctly implemented in two of these farms, while the third farm experienced some complications initially due to inadequate livestock management which affected, in part, the development of recently planted native varieties. There were 2 university student theses and 2 part-time students who supported the development of reforestation techniques specifically involved with native plants nurseries. In relation with private conservation schemes, two agreements were signed with Estancia “La Felicidad” and Estancia “Rama III.”

In terms of accomplishing physical target indicators, performance has been very good. The legal surveying of the 140 km Reserve limits was completed; 88 km of boundaries were cleaned up, part of it with help from the Ache community; and a Management Plan for 2005-2010 was formulated with the participation of 80 representative stakeholders and 2 good quality editions (500 publications reach) were distributed to the general public, one containing 231 pages and the

other a lighter version containing 84 pages. Furthermore, 140 signs were adequately put in ideal locations for visibility; 3 new control posts were built and furnished; all control posts were provided with water, electricity, and communication devices; 3 motorcycles were purchased to improve technical staff mobilization and to facilitate their extension activities; a residence for researchers was built; and a fire control plan was formulated.

Improvement of the GIS system under the project has allowed FMB to better monitor land use changes in the area of the biosphere reserve, while planning at the farm and microcatchment area together with landholders is done using a participatory GIS (this tool has greatly assisted especially large landowners with their land use planning). Under the improved GIS system, any changes in the forest mass or cover within the 64,400 hectares of strict preservation can be detected. FMB has also signed an agreement with CONAE (Comisión Nacional de Asuntos Espaciales) of Argentina which provides them with additional sensor satellite images for near real-time monitoring of the land and water cover areas of the reserve. Among the benefits of this technology, FMB has been able to map at the reserve levels the areas of likely encounters of flagship biodiversity species (e.g. jaguars).

Local authorities were trained on environmental legislation in various workshops. A total of 157 local and regional authorities/stakeholders in 8 workshops and 33 judges and fiscal agents were also trained in 4 workshops. Paralegal volunteers and community leaders were trained on these matters in various training events and 3 seminars. A public environmental awareness campaign was implemented and the Environmental Information Centre in Villa Ygatimi was improved and provided with better educational materials. Supporting equipment was also provided including computers, printers, and recording consoles for radio programs. High quality graphic and video materials were produced and disseminated throughout the communities, one of which (called “Papaguayo in Mbaracayú”) was very well received by community children. Weekly broadcasting activities were held in 4 radio stations of Villa Ygatimi and Curuguaty reaching a wide range of communities in the region. A total of 105 school teachers and 1,382 students from 20 educational centres were trained and updated in environmental issues and the significance of the Mbaracayú Reserve.

Organizational capacity of the Moises Bertoni Foundation was strengthened by means of providing equipment and training. There were 17 senior staff and 20 staff members trained in 14 national and 17 international courses. The Foundation website was improved, redesigned, and continuously updated throughout the Project. Also, 5,000 new leaflets were printed and 1,000 publications of a book on biodiversity were printed.

3. Efficiency

Throughout the implementation period, Moises Bertoni Foundation applied a very strict management quality improvement strategy under the supervision of a certifying firm. This effort resulted in a better organization with improved efficiency.

The sustainability of the project activities has been ensured through a generous trust fund which was entrusted to Moises Bertoni Foundation in 1991 and is managed by The Nature Conservancy. The project was able to assist the Foundation in generating creative activities (i.e.

regular monitoring fly-overs by airplane) in which the trust fund resources are effectively used to continue activities of conserving globally significant biodiversity in the highly threatened Interior Atlantic Forest of Paraguay and promoting conservation, sustainable use, and land-use planning in the Upper Jejuí River Watershed.

Most activities were efficiently implemented according to their associated costs, implementation timing, and economic and financial returns.

Use of Funds

As shown in the following two charts, there was full utilization of available funds by project closing. Financial performance of the project is shown by category and component, and the changes in the relative distribution of funds are reflected. Reassignment of funds in the various categories and component items were the result of the recommendations of the MTR and the fact that some activities were funded by means of other financial sources—as was the case in the “Training” and “Consultants” categories. Under “Training” as well, many of the costs ended up being lower than initially anticipated and the additional funding received from external sources helped to offset costs. Overall, all physical targets were completed through the following financial performance by component of the project:

CATEGORIES							% EXECUTED		% EXECUTED	
FINANCIAL PERFORMANCE		TARGET	TARGET	TARGET	TARGET	EXECUTED	EXECUTED	EXECUTED	EXECUTED	
		INITIAL 1	INITIAL 2	POST MTR	FINAL	FINAL	FINAL TARGET	INITIAL TARGET	INITIAL TARGET 1	
Works		206,452.90	217,958.63	236,024.27	259,334.82	261,239.47	100.73%		126.54%	
Operational costs		110,033.50	100,861.24	145,613.42	153,356.37	153,243.05	99.93%		139.27%	
Consultants		162,115.10	163,405.50	169,697.52	115,997.33	116,573.34	100.50%		71.91%	
Equipment		124,998.00	161,316.15	172,011.67	163,176.09	161,988.21	99.27%		129.59%	
Personnel		99,814.54	158,412.55	127,113.20	156,594.71	156,337.24	99.84%		156.63%	
Training		214,994.00	135,190.67	67,947.96	84,560.06	85,212.36	100.77%		39.63%	
Administrative Costs		27,552.24	18,183.89	27,941.67	20,246.57	19,427.34	95.95%		70.51%	
Contingencies		27,552.24	18,183.89	27,162.81	20,246.57	19,427.33	95.95%		70.51%	
Total		973,512.52	973,512.52	973,512.52	973,512.52	973,448.34	99.99%		99.99%	

COMPONENTS

FINANCIAL PERFORMANCE		TARGET	TARGET	TARGET	EXECUTED	%	%
		INITIAL	POST MTR	FINAL	FINAL	EXECUTED	EXECUTED
1 Management Consolidation		170250	186050	305655	306868.06	100.40%	180.25%
Act. 1	Park boundaries	20900	18500	64000	64481.75	100.75%	308.53%
Act. 2	Control infrastructure	54700	84969.21	148500	149046.84	100.37%	272.48%
Act. 3	Management plan	94650	82580.79	77000	77180.72	100.23%	81.54%
Act. 4	Other activities	0	0	1255	1254.41	99.95%	
Act. 5	Monitoring	0	0	14900	14904.34	100.03%	
2 External Threat Control		157303	130757.36	100850	100924.45	100.07%	64.16%
Act. 1	Law enforcement	29800	32718.61	20450	20448.66	99.99%	68.62%
Act. 2	Legal education	29433	15767.79	17500	17539.83	100.23%	59.59%
Act. 3	Environmental awareness	82270	82270.96	62900	62935.96	100.06%	76.50%
Act. 4	FM Radio	15800	0	0	0		
3 Sustainable Criteria Adopted by Private Sector		352140	386321.53	349245	349425.87	100.05%	99.23%
Act. 1	Improvement of production systems	97050	44033.04	50500	50576.66	100.15%	52.11%
Act. 2	Alternative likelihood	207750	289201.89	231800	231890.69	100.04%	111.62%
Act. 3	Marketing	7500	23246.6	36555	36565.27	100.03%	487.54%
Act. 4	Tourism in reserve	39840	29840	30390	30393.25	100.01%	76.29%
Act. 5	P.I.R.C.	0	0	0	0		
4 Integrated Land Use Planning and Development		178314	164879.15	124580	124654.67	100.06%	69.91%
Act. 1	Land-use planning	35000	35000	17250	17260	100.06%	49.31%
Act. 2	Local empowerment	21500	21500	14730	14733.31	100.02%	68.53%
Act. 3	Reforestation	86514	86514.08	73550	73558.65	100.01%	85.03%
Act. 4	Private conservation	0	0	0	0		
Act. 5	Ecosystem services	26800	13365.07	13450	13462.84	100.10%	50.23%
Act. 6	CARJ baseline evaluation	8500	8500	5600	5639.87	100.71%	66.35%
5 Strengthening of the Foundation Moises Bertoni		60400	50400	52689.39	52720.63	100.06%	87.29%
Act. 1	Staff training	7900	7900	10800	10859.7	100.55%	137.46%
Act. 2	Equipment	16300	16300	22239.39	22235.55	99.98%	136.41%
Act. 3	Outreach	8200	8200	15250	15286.28	100.24%	186.42%
Act. 4	Long term strategy	22000	12000	3600	3612.39	100.34%	16.42%
Act. 5	Watershed committee	6000	6000	800	726.71	90.84%	12.11%
6 Administration & Contingencies		55105	55104.48	40493.13	38854.67	95.95%	70.51%
TOTAL		973512	973512.52	973512.52	973448.35	99.99%	99.99%

Funds have been very efficiently used by the small, highly qualified technical and administrative staff of Moises Bertoni Foundation. They were very thorough with regards to acquisitions, equipment maintenance, and the organization of training, technical assistance, planning, and discussion events with stakeholders.

It is worth noting that there were significant delays during the first year and a half in implementation of Component 3, due to problems with the former technical assistance staff, which had to be reorganized. Once the new technical assistance team started to work, all activities involved in Component 3 were adequately implemented. A similar situation occurred with the reforestation sub-component. It started very slowly, but in the last year and a half major drawbacks were overcome and activities were implemented as planned.

Both senior staff members and the Moises Bertoni institution as a whole acquired a modern and clear vision of their role in the development of sound natural resource use and conservation in Paraguay, providing the foundation for institutional sustainability.

4. Development Impacts, including those that are Unintended/Unrelated to TF Objectives

Sustainable development of the River Jejuí basin was improved as a result of Project activities. A deforestation monitoring study of the basin applied by the GIS of the Foundation from 2003 onwards, showed the annual rate of deforestation in the basin decreasing consistently over the last three years. In 2003/04, that rate was 2.1% (3,546 hectares) and it dropped to 2% and subsequently to 1.6% (2,641 hectares) in the two following years.

Productivity and commitment in the watershed population increased substantially. In the Britez Cue region, crop diversification highly improved since 2004/05, where cotton accounted for more than 70% of the total cropping area to the current situation where sesame accounts for 48%, cassava for 21%, and cotton for only 14%. In Villa Ygatimi, there has also been an important improvement regarding diversification that was accompanied by a substantial improvement of farm net incomes from US\$ 720.00 per year in 2004/05 to US\$ 790.00 per year in 2005/06 (as reported in a recent study carried out by FMB based on a well designed survey of the farming community).

In relation with the effective protection and management of the 64,400 hectares of the Mbaracayú Reserve, there has been an important improvement as a result of the support given by the Project. Better infrastructure for controlling external threats; a more active and skilled Ranger team; a more visible and effective monitoring program, including regular flights to detect invasions and illegal cropping with the immediate communication of invasions to local authorities, played a major role in diminishing this kind of events in the Reserve. There has been a regular geo-referential monitoring of invasion of the Reserve by trespassers and records kept which show a substantial improvement in the monitoring strategy. As a result of aerial monitoring, there is a better knowledge of the most invaded places of the Reserve and the timing of the invasions throughout the year. This improvement in information has allowed for the reorganization of control strategies leading to a reduction of fragile places and the number of land encroachments in the last three years.

5. Overall TF Outcome

The overall outcome rating is *Satisfactory* as there has been a very good level of achievements in almost all the TF development objectives. Although the commencement was slow in some activities, all major obstacles were overcome and the recommendations given in the MTR were adequately implemented.

D. RISK TO DEVELOPMENT OUTCOME

1. Follow-On Results and/or Investment Activities

Recipient/Other investment

The strategy developed in the Project to improve farming practices in small farmers and indigenous communities have proven to be very effective. As a result, many private firms involved with reforestation, development of responsible soybean production, and private

conservation enterprises have asked FMB for support. Several agreements have been signed and currently the FMB technical assistance team is providing support to private firms throughout Paraguay where the integrated strategy is being applied. These new activities contributed to strengthen FMB as a mature and solid institution with a well defined profile as a responsible promoter of sound agricultural practices, complying with adequate natural resource use and conservation, while considering the welfare of low income communities.

Bank Project

Both the strategy developed by the technical assistance staff and the methodology developed by the reforestation group may apply in the case of the PRODERS Project and the GEF Paraguay Biodiversity Project. Both projects have been in the process of being formulated during the latter years of this project and, when implemented, will have a great impact on continued natural resource use/conservation and improvement of biodiversity issues.

Activity/Investment:

_____ Recipient/Other Investment; _____ Grant Project/Program; X Bank Project; _____ IFC Financial Project/Activity, Other (explain)

2. Replicability

The Project has generated very useful lessons and an original methodology that are replicable in other sectors and regions facing similar problems to those present in the Mbaracayú region.

The technical staff, working with small farming and indigenous communities, developed a very efficient way for providing technical assistance by associating various groups of farmers with market intermediaries to provide sales and pricing security. That was the case for sesame and other non traditional products. Groups of women were also assisted in the production of medical plants with success.

Reforestation activities with large landowners were based on the utilization of native species, which were developed through a very efficient collaboration scheme between professionals of FMB and university students in forest production developed jointly native plants nurseries.

The application of GIS techniques to monitor biodiversity and illegal activities within the Mbaracayú Reserve has proved to be a very efficient way of detecting the most commonly affected places and the timing occurrences of illegal invasions. Periodic flights over the Reserve have also proven to be very effective means for biodiversity enforcement and monitoring/deterring illegal activities. As this methodology has proven to be a useful technique, it could be applied in similar projects in the future.

3. Overall Risk to Development Outcome

Project outcomes are likely to be sustained after Project completion. FMB is a well organized, technically staffed, and adequately funded organization. There are no major political and institutional pressures on FMB and governmental/departmental officials have given, and will likely continue to give, strong support for its most important activities.

FMB has a very secure way of financing its activities through a wide range of funds. They receive funding through a trust fund that was created when FMB was begun in 1991. They also receive support from private enterprises and agreements with several major international NGOs related with environmental issues.

Many private firms active in the agricultural sector of Paraguay have asked FMB for technical support, including private reforestation institutions, private forest reserves, and cropping development groups. FMB's technical staff has increased its activities outside the boundaries of River Jejuí watershed and is currently providing support in many areas of eastern and western Paraguay. This kind of institutional development has been instrumental in reforming FMB's new business approach.

FMB has also recently reached an agreement with Foundation Paraguay in order to provide micro-credit to groups of small farmers and indigenous people. In the Britez Cue region, 18 families received micro-credit loans for different purposes including small-scale pork production, sesame, and other production activities. In Villa Ygatimi, there are 4 committees that grouped 45 small farmers and indigenous groups which are now supported with micro-credit loans for small-scale poultry and pork production. There are also 14 small farming and indigenous women committees of which 8 manufacture very efficiently soaps, cakes, cookies, jams, and other kinds of artisan products. The provision of these micro-credit loans will help to reduce the expansion of illegal activities in and around the reserve area by providing sustainable, alternative sources of income for residents.

It is not very likely that the expansion of the cropping area, the strong demand of alternative sources of energy, or these new micro-credit programs will increase the current pressure on natural resources (forests, in particular).

E. PERFORMANCE

1. Bank

Bank performance has been *satisfactory* in carrying out its specific responsibilities. There have been regular supervision missions, the Mid Term Review was properly executed and its recommendations were adequately implemented.

2. Recipient (for Recipient-executed TFs only)

FMB's performance has been *satisfactory* in carrying out its expected programs and responsibilities. There were some organizational problems during the first year and a half, which were efficiently corrected. After adjusting the organization accordingly, the entire project budget was completely disbursed and financial and physical targets were attained for the most part.

F. LESSONS LEARNED / RECOMMENDATIONS

The most significant positive lessons learned from the success of the Project are those related to the way constructive relations were developed between small farmers, indigenous communities,

and commercial landowners on the one side and FMB technical staff on the other, regarding natural resource conservation, improvement of disposable farm income, and environmental issues. These relations were developed primarily through extensions service training activities, public awareness campaigns, and community-focused participatory workshops.

The development of effective links between market intermediaries, small farmers, indigenous communities, and technical staff of FMB provided an excellent framework to diversify cropping, reduce market risks, improve farm income, and apply proper resource use techniques adequate to conserve natural resources. The Project also supported an appropriate environment to develop in the communities with a sense of ownership of the environmental issues affecting the Mbaracayú Reserve and the River Jejuí basin.

FMB's organizational team responsible for project implementation was weak at the outset, due to unexpected management changes that took place during the transition between project approval and effectiveness. As a result, project activities were delayed during the first 18 months. For future projects, the overall importance of effective management leadership should be recognized as critical, even when a strong support staff is present and thorough project design/preparation has taken place.

G. ICM PROCESSING AND COMMENTS

1. Preparation

TTL at Approval: **Michael Carroll**

TTL at Closing: **Michael Carroll**

Comment of TTL at Closing:

Prepared by (if other than TTL): **Diego Paysse (Consultant) and Timothy Valentiner (JPA)**

Date Submitted to Approving Manager: **30 November 2007**

2. Approval

Manager:

Date Approved by Manager:

Manager's Comment:

3. TFO Evaluation of ICM Quality

TFO Reviewer:

TFO Rating on the Quality of ICM (*Satisfactory or Unsatisfactory*):

Comment and Justification for Rating Given by TFO

ANNEX 1: Performance Indicators related to the Biosphere Reserve Committee (BRC)

Number of meetings with local and regional authorities to discuss the progress of the Biosphere Reserve Committee (BRC) with number of participants:

- Curuguaty: 8 meetings, 6 with the mayor, 3 with the Pleno of the Municipal Council that has 12 members, and 5 with the Municipalities representative to the BRC.
- Corpus Christi: 6 meetings, 5 with the mayor, 6 with three municipal counsellors and 2 with the new Secretary of the Environment (newly created post).
- Villa Ygatimí: 6 meetings, 4 with the mayor, 3 with the Pleno of the Municipal Council of 9 members and 4 with the Municipal representative to the BRC.
- Ypejhü: 5 meetings, 4 with the mayor, 2 with the Pleno of the Municipal Council that has 9 members, and 4 with the Municipal representative to the BRC.
- Katueté: 6 meetings, 4 with the mayor, 2 with the Pleno of the Municipal Council that has 12 members and 4 meetings with the Municipal representative to the BRC.
- La Paloma del Espiritu Santo: 3 meetings, 2 with the mayor, 3 with two representatives of the Municipal council and 3 with the Municipal representative to the BRC.
- Jasy kañy: 2 meetings, 2 with the mayor, 1 with the Pleno of the Municipal Council that has 9 members and 1 with the council member of the Environmental Commission.
- Gobernación of Canindeyú: 4 meetings, 1 with the General Secretary of the Gobernación, 2 with the representatives of the SEAM. We did not manage to achieve the participation of the Gobernación (Departmental) in the BRC, nor their participation in any project activity. While accepting all of our invitations to attend, they never did attend. In our meetings they insisted that their lack of participation was due to lack of resources, lack of transportation and already heavy workloads.
- Fiscalía: 3 meetings with the investigator Fani Villamayor and with the assistant investigator Jorge Figueredo who is also representative on the BRC.
- Office of Agricultural Extension of MAG (Curuguaty): 3 meetings with Máximo Heyn, manager of the institution. Félix Colmán has been named the BRC representative of DEAg-MAG in the BRC.

Number of BRC workshops held in Asuncion and CARJ:

- In Asunción: 2 workshops in March and August of 2005.
- In the CARJ: 2 workshops “Beginnings for the Conformation of the Biosphere Reserve Committee”. Mini – workshops: 6 on the BRC in María Auxiliadora, 11 de Septiembre (2), Ko'ë Porä, Jejuimí, Jejui Guazú, La Morena. Mini-workshops to realize the Lines of Action for the BRC secretariats (5), Workshop on Environmental Legislation (1), Workshop on the Biosphere and Environmental Legislation (1), Mini-workshop “Proposals of lines of action for the strengthening of the BRC” (1), Workshops, “Land use Planning in the RNBM” (4), y “Lessons Learned” (1), Asambleas del C.G. Dos (2).
- In other cases, workshops, exchanges, meetings and presentations were undertaken

pertaining to: “Organizing the BRC” (13), “Environmental and Biosphere Legislation” (1), “Environmental Legislation” (1), “Territorial Ordering/Zoning” (1), “Environmental Services” (1), “Organic Production and Conservation” (1), “Gender and Participation” (3), “Management Committee and Organization” (12), “Action Plans for the Secretariats of the BRC” (5), “Production and Delivery of Radio Programs” (6).

- We had around 50 opportunities to meet in different ways such as: meetings workshops, work groups, presentations and talks, and assemblies. Themes were treated with more depth in some compared to others.

Formation of a nucleus Management Committee (MC) of the BRC:

- The nucleus Management Committee was formed on April 21, 2006.

Representation of stakeholders in BRC:

- The BRC Working group agreed that 25 members in the BRC would be sufficient to allow for representation yet small enough to allow for efficiency and active participation. After identify stakeholder groups, the following composition was agreed upon:
- Large land holders, Asociación Rural del Paraguay (ARP-Filial), Coordinadora Agrícola del Paraguay (CAP-filial), one representative.
- Sawmill operators, one representative.
- Indigenous communities: 2 representatives, one from the Ache group and the other from the Avá Guarani group.
- Small producers, producer committees and local associations, 3 representatives.
- Women’s Committees: one campesina representative and one indigenous representative.
- Cooperatives: one representative.
- Local Organizations (Churches, youth groups, teachers, media, etc.): three representatives.
- Local authorities:: one representative per Municipality that is within the Cuenca.
- Central Government authorities: one representative (SEAM, MAG, STP, MSP y BS)
- Public Ministry or Judicial Power: one representative
- NGO: one representative (WWF, Fundación José Cardijn, Yvy Porã, etc.)
- Fundación Moisés Bertoni, one representative.

Number of stakeholder groups participating in BRC/MC workshop:

- Representative as per the BRC structure, decided upon by the BRC working group, 12 major stakeholder groups.

Number of females in formal (BRC/MC) and informal conservation and land planning networks:

- The percentage of formal female participation in the planning and creation of the BRC is 28%.
- The percentage of informal female participation in the planning and creation of the

BRC is estimated at around 30%.

- Percentage of female participation in the land use planning workshops is 30%.

Number of agreements signed (or in works) to increase participation in BRC:

- A BRC meeting has been planned for April 27, 2007, and it has been arranged to sign Cooperation Agreements between the BRC and the municipalities of: Villa Ygatimi, Corpus Christi, Ypejhü, Katueté y Curuguay, with the SEAM, and the FMB.

Written agreement for BRC established and drafted with the cooperation of SEAM:

- A BRC meeting was held on April 27, 2007 to sign Cooperation Agreements between the BRC and the municipalities of: Villa Ygatimi, Corpus Christi, Ypejhü, Katueté y Curuguay, with the SEAM, and the FMB.

Extent to which strategic and operational management plans incorporate or reflect Biosphere Reserve Committee recommendations:

- Draft template of management plan was developed using recommendations. The purpose of this document was to stimulate further discussions on planning. Some of this draft was integrated into the final land use management plan.

Satisfaction of Community and Stakeholders with Biosphere Reserve Committee:

- Overall, there is a high degree of satisfaction, as measured and generally observed in BRC meetings, CIL workshops, stakeholder group meetings and through informal networks. It is felt that the BRC creation process has undergone significant and impressive progress, while there is also agreement that further work and efforts are required.
- Many BRC members consider participation to be a strong indicator of satisfaction. There has been a high level of commitment, as demonstrated through the consistent participation of most of the BRC.
- The following 'rates of satisfaction' were determined through a short survey of a total of 37 BRC members and other participants and stakeholders, conducted in Feb/March of 2006,:
- Between 87 and 90% are very satisfied with the process of BRC development and subsequent actions.
- Inasmuch as the process has been characterized by the participation of different sectors: 50% believe it has been very good, 20% believe it has been good, and 10% regular.
- Inasmuch as the BRC responds to needs of stakeholders: 70% yes, very much, 30% a little.
- Insofar as the BRC incorporates the vision of indigenous communities: 50% believe that it is incorporated very well, and 50% that it is incorporated well.
- Insofar as the BRC incorporates a gendered perspective: 40% very well, 60 % well.
- Satisfaction with the structure, functioning and regulation of the BRC: 70% very good, 30% good.
- Insofar as the actions of the BRC can contribute to the well-being and general improvement of environmental and social conditions in the Biosphere Reserve: 90% high likelihood, 10% small likelihood.

