



# Global Environment Facility

**MOHAMED T. EL-ASHRY**  
CHIEF EXECUTIVE OFFICER  
AND CHAIRMAN

November 7, 2000

Dear Council Member:

The World Bank, as the Implementing Agency for the project, *Global: The Critical Ecosystem Partnership Fund (CEPF)*, has submitted the attached proposed project document for CEO endorsement prior to final approval of the project document in accordance with World Bank procedures.

The Secretariat has reviewed the project document. It is consistent with the proposal approved by the Council in July 2000 and the proposed project remains consistent with the Instrument and GEF policies and procedures. The attached explanation prepared by the World Bank satisfactorily details how Council's comments and those of the STAP reviewer have been addressed. I am, therefore, endorsing the project document.

We have today posted the proposed project document on the GEF website at [www.gefweb.org](http://www.gefweb.org). If you do not have access to the Web, you may request the local field office of UNDP or the World Bank to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,

cc: Alternates, Implementing Agencies, STAP

# OFFICE MEMORANDUM

DATE: October 31, 2000

TO: Mr. Mohamed El-Ashry, CEO/Chairman, GEF

FROM: Lars Vidaeus, GEF Executive Coordinator 

EXTENSION: 3-4188

SUBJECT: **Global: The Critical Ecosystems Partnership Fund – Final CEO Endorsement**

1. Please find the electronic attachment of the Project Document for the above-mentioned project for review by Secretariat staff, prior to your final endorsement.

2. The project document is fully consistent with the objectives and scope of the proposal endorsed by Council as part of the July 2000 Intersessional work program. Because of the special nature of the project, Board approval is sought on the basis of the original proposal already reviewed by the DGF and by the GEF Council, as summarized in a MOP; therefore, there is no formal "PAD". In addition, and as agreed between CI, the GEF Secretariat, and the Bank, the CEPF Council (formerly the Advisory Committee) will be the entity responsible for approving the ecosystem profiles and annual business plans.

3. Comments were received from Council members as follows:

(i) France and Switzerland requested clarifications regarding CI contributions, rules for CI-executed projects, project management costs, implementation in areas where CI is not present, absorptive capacity, the technical capacity of the Advisory Committee, and complementarity with existing initiatives. Answer: Contributions from both the GEF and the Bank will be made only after CI has deposited its own funds in a special CEPF account, and in similar amounts to CI's contributions. CI will fully disclose to the CEPF Council all proposed activities that will be executed directly by CI, and will demonstrate its comparative advantages based on the issues and options available for each ecosystem, as part of the ecosystem profile. The project management costs are limited to a maximum of 13% for sub-grantees and for CI-executed projects. A management fee calculated under CI's audited rate of indirect costs will be applied only to direct administrative expenses and to the preparation of the ecosystem profiles. Projects where CI is not present will be implemented primarily through third-party NGOs, and on the basis of priorities identified in the ecosystem profiles. Absorptive capacity at the ecosystem level will be the subject of review through the preparation of ecosystem profiles, and in cases where it is deemed to be deficient, the funding strategy for such an ecosystem will facilitate funding for capacity building. The CEPF Council will involve high-level representatives from all participants, but all technical information will be

reviewed by both GEF and Bank staff prior to each meeting. Finally, the complementarity with other initiatives will be ensured through the incorporation of current and future funding information for each ecosystem, and in close communication with all major donors operating in each ecosystem.

(ii) Sweden. The comments highlight several lessons-learned related to stakeholder and grassroot involvement, traditional conservation practices, research needs, and ecotourism. Answer: The CEPF seeks to incorporate these lessons through the development of comprehensive ecosystem profiles, which will serve as planning tools to be developed in a participatory way, and responding to specific cultural and local needs. The initiative considers these comments important and has highlighted them as important issues to be taken into account during implementation.

4. The Board date for this project has been set for November 22nd, and prior to the proposed first meeting of the CEPF Council of November 30 (I understand that CI has discussed the date with you). Therefore, we would appreciate your prompt attention to this package.

5. Please let me know if you require any additional information to complete your review of the project document. We look forward to receiving your endorsement of the project for Bank Board approval.

Many thanks.

Distribution:

Messrs.: R. Asenjo, UNDP  
A. Djoghlaif, UNEP (Nairobi)  
K. Elliott, UNEP (Washington, DC)  
M. Gadgil, STAP  
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Y. Xiang, CBD Secretariat

Cc: Ken King, GEF Program Coordination (GEFSEC); Ian Johnson, Robert T. Watson (ESDVP); David Freestone (LEGOP); Kristalina I. Georgieva, Kerstin Canby, Gonzalo Castro (ENVDR); Rohit Khanna, Dinesh Aryal (ENVGM); Envgc Isc Files/Service

**LAUNCHING THE CRITICAL ECOSYSTEM PARTNERSHIP FUND**  
**PROGRAM DESIGN AND SAMPLE ECOSYSTEM PROFILES AND PROJECT**  
**PIPELINES**

**OCTOBER 2000**

October 30, 2000

## **Program Brief: The Critical Ecosystem Partnership Fund (CEPF)**

The World Bank<sup>1</sup> intends to support a new initiative<sup>2</sup> with the Global Environment Facility (GEF); Conservation International Foundation (CI), a leading conservationist NGO; and a consortium of NGOs specialized in biodiversity and information systems to initiate a global response program to address those critical ecosystems of the world which are the most biologically rich and currently under great threat.

The loss of species and natural habitat is proceeding at an alarming pace, with sometimes unknown but potentially disastrous future consequences. The Critical Ecosystem Partnership Fund (CEPF) will provide timely, strategic and focused assistance to those globally vital ecosystems in Bank client countries, judged to be most threatened in developing countries (listed in Annex 1).

The CEPF offers an opportunity to promote the conservation of some of the most important ecosystems in the world—places of high biodiversity and great beauty. In addition, the importance of meeting conservation goals is enhanced by the growing recognition of the multiple benefits provided by healthy, diverse ecosystems in areas such as agriculture, forestry, water supply and fisheries, issues critical to the Bank's contribution to poverty alleviation. The CEPF will deliver assistance in an agile manner; it will allow the engagement of a wide range of local community groups, civil society organizations, NGOs and private companies in addressing conservation needs.

The World Bank has long had a commitment to biodiversity conservation and sustainable management. It has done so through the GEF, where as an implementing agency, some \$450 million has been funded primarily through governments; and it has had sectoral partnerships (especially in forestry) with leading conservation NGOs. The CEPF will complement the overall approaches of the World Bank and the GEF to biodiversity by providing a streamlined funding mechanism within the context of a broad range of private sector partners and do so in a small number of critical ecosystems to maximize overall impact.

The CEPF will further the overall goals of the Bank at the country level by offering an opportunity to engage local level communities and other stakeholders in biodiversity conservation and ecosystem management. The CEPF will also provide an important learning experience through the Bank's knowledge management system, by focusing on on-the-ground results and experience.

Funding for the core fund of the CEPF is expected to be shared between the principle partners (World Bank, GEF, CI and bilateral funding organizations). Each is expected to contribute around \$5 million a year over a period of five years. Based on a minimum of four donors, the CEPF would dispose of approximately \$20 million a year. Funding to the core fund will be provided on a grant basis.

The Bank has contributed \$1.5 million from the President's Contingency Fund in May, in order to enable CI to undertake final preparatory activities prior to the CEPF's launch and has committed to

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<sup>1</sup>. World Bank refers to the IBRD and IDA, taken jointly.

<sup>2</sup>. Bilateral and other funding organizations may join the partnership at a later date.

contribute \$5 million a year during the subsequent five fiscal years from the Bank's DGF, subject to established procedures, for the operation of the fund.

Funds will be utilized to provide small scale grants to conservation projects managed by private, NGO and civil society groups working in the critical ecosystems. Funding at the project level will result in significant financial leverage both through financial and in-kind contributions.

The World Bank will play an advisory role by initially chairing a CEPF Council which include representatives from the Bank, GEF, CI, other contributors to the fund and Biodiversity Conservation Information System (BCIS). The role of the Council is to provide broad strategic guidance. The Bank will ensure that country operations staff (including country directors, where appropriate) are fully apprised of CEPF funding strategies and will be encouraged to coordinate them within regular lending activities (especially in sectors such as forestry, land management, agriculture and GEF projects). The Bank will also ensure that client countries are fully apprised of CEPF funding strategies through the GEF focal points.

CI will serve as manager of the CEPF. CI will prepare profiles of each of the critical ecosystems, identifying main threats to sustainability, key organizations working in the ecosystems and opportunities for funding. These ecosystem profiles will be reviewed by the CEPF Council. On the basis of strategic guidance by the CEPF Council, CI will manage the wholesaling of projects through local ecosystem facilities, designed for each ecosystem. CI will deliver annual financial reports and project portfolios to the CEPF Council.

CI has long been the main advocate of the hotspot approach to biodiversity conservation. The organization has earned a strong reputation with governments, other non-governmental organizations and the private sector for its creativity, effectiveness and results orientation. Furthermore, CI has a strong network of offices and partners in many of the hotspots as well as a wealth of information and operational experience in many of the areas.

BCIS is the largest consortium of biodiversity institutions that collects, integrates and maintains biodiversity data and information. BCIS comprises 12 international organizations worldwide and it has unparalleled experience in biodiversity information systems. BCIS will be contracted to assemble and link relevant information on each ecosystem and it will be linked to the Bank's knowledge management node of biodiversity and the GEF.

The CEPF represents an important effort by the World Bank and Global Environment Facility to partner with leading conservation institutions (CI, BCIS) to create a new biodiversity funding instrument that combines technical and financial strength, field knowledge, administrative agility and flexibility, and a knowledge system to facilitate information communication.



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## **I. INTRODUCTION**

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The protection of the earth's biological diversity is one of the highest priorities for long-term global well-being. The loss of species and natural habitat is proceeding at an alarming pace, with unknown but potentially disastrous future consequences. The Critical Ecosystem Partnership Fund (CEPF) takes aim at this global problem by providing timely, strategic assistance for conservation work in the planet's most biologically rich and threatened ecosystems. The CEPF represents an effort by the World Bank (the Bank) and the Global Environment Facility (GEF) to partner with Conservation International (CI) and other institutions to create a new biodiversity funding instrument that combines technical and financial strength, field knowledge, administrative agility and flexibility, and a knowledge system to facilitate information communication. The combination of these strengths will allow the CEPF to provide a significant total amount of targeted funding in small- to medium-sized field projects in a more streamlined fashion than has been possible to date.

Despite scattered successes, providing this sort of modest-scale, narrowly targeted and expeditious assistance for privately implemented biodiversity conservation has proven a significant challenge for international financial institutions, including the World Bank. This document describes a new strategy for project delivery that attempts to overcome typical obstacles and delay through a non-traditional set of working arrangements between the Bank and private non-governmental organizations (NGOs). We discuss the relationship of the CEPF to existing Bank programs, in particular its activities as an implementing agency of (GEF). We then outline the proposed structure and operating procedures of the Fund, and illustrate how it would function in several of the critical ecosystems.

## **II. THE WORLD BANK AND BIODIVERSITY CONSERVATION**

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The Bank has approximately six years of operational experience dealing directly with biological diversity. Much of its experience has come from GEF-funded biodiversity projects, as well as GEF projects in the areas of forestry, natural resource management and coastal-zone management. Though the World Bank is a leading partner of the Global Environment Facility and provides financing for international biodiversity conservation through a range of programs, the Bank has yet to enter into innovative cooperative agreements with leading conservation organizations that step outside the standard World Bank project delivery system. The CEPF presents this opportunity. The World Bank has created sectoral partnerships with leading NGOs such as, for example, IUCN for issues related to large dams and WWF for issues of sustainable forestry and protected areas. The CEPF will take the partnership model one step further by allowing the World Bank to become a major partner in a portfolio of CI's investments – an innovation intended to allow the World Bank to capitalize on CI's existing project delivery infrastructure. Through the CEPF's information system, the Bank will also be able to capitalize on projects executed by other local and international NGOs.

The importance of meeting conservation challenges is sharpened by growing recognition of the multiple values provided by healthy, diverse ecosystems in areas such as agriculture, water supply and fisheries, issues critical to the Bank's mandate of poverty alleviation. The Bank is at work to better reflect, within

country economic frameworks, the importance of biological diversity in a wide range of economic and social services. The rationale for augmenting the Bank's role in this area is further rooted in the fact that a variety of market and policy failures play a lead role in undervaluing natural resources and impeding policies that would lead to their conservation. As a global institution focused on resolving such failures, the Bank is uniquely positioned to contribute to an effort such as the CEPF.

Following this logic, the Bank is now preparing to take on a strong, long-term leadership role in the management and protection of the global environment. It will do so both within the GEF framework, and in terms of its own mainstream lending and non-lending practices. The CEPF represents an unprecedented opportunity to target environmental activities at the most important ecosystems, taking full advantage of the strengths and experience of policy- and action-oriented NGOs and other civil society groups.

The CEPF is conceived as a complement to the regular GEF activities, which has extended the Bank's ability to support strategic biodiversity initiatives, but leaves ample room, and need, for a more narrowly focussed funding mechanism. The CEPF will strive to use lessons from other programs, particularly the GEF's medium grants procedure, to ensure that funds are provided expeditiously and with appropriate, cost-effective levels of accountability. The CEPF will also utilize the GEF national focal points to ensure client country endorsement of the strategic direction of the CEPF. For several reasons it is clear that the CEPF would complement, rather than duplicate or overlap with regular GEF activities, which is why the GEF will partner with the Bank and CI in this new initiative:

- The CEPF is geographically and thematically more concentrated in its objectives. In addition to falling within a country or countries that have ratified the Convention on Biological Diversity (as required for GEF biodiversity projects), projects must be in Bank client countries and fall within an ecoregion/ecosystem identified as a global "biodiversity hotspot" (Mittermeier et. al. 1999– see Annex 1 for list). Like the GEF, the CEPF is fully consistent with the goals of the CBD and explicitly supports them.
- The CEPF's structure (see below) will enable it to deliver financing with agility. Many smaller-scale projects are extremely time-sensitive and need to take advantage of specific windows of opportunity in order to bring about positive change. Further, more agile funding instruments are needed to respond to ecological emergencies, such as the recent forest fires of East Asia, Brazil and Mexico, as well as refugee incursions in the tropical forests of Africa.
- The CEPF will allow fuller engagement of local community groups, civil society and NGOs. To date, it has proven very difficult for the Bank, under its regular lending to governments, to ensure that the capacity of civil society, especially local NGOs and community groups, is adequately utilized for the design and implementation of low-cost biodiversity interventions although invaluable experience is being gained through the GEF medium-size grants facility. There is increasing evidence that many biodiversity programs are undermined through inadequate attention to these actors. The CEPF will help ensure that the Bank's traditional assistance and public sector

partnerships are strengthened with smaller-scale, on-the-ground collaboration from biodiversity NGOs.

- Bank financed productive projects in critical ecosystems should be subject to especially careful scrutiny to ensure they are not environmentally or socially counterproductive. CEPF activities and the information management service provided by BCIS can provide the sort of highly detailed environmental and social information needed to help screen regular projects seeking Bank financing. Further, this information will assist the Bank's ongoing mainstreaming efforts in general, and will assist in formulating sector strategies in areas such as forestry, water resource management, fisheries and infrastructure development in particular.

### **III. STRUCTURE AND OPERATION OF THE CEPF**

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The structure and operational arrangements proposed here are driven by familiar goals: to achieve expeditious, efficient disbursement of funds to high-priority, technically sound projects and to establish a clear and effective chain of accountability for project results. The CEPF adds a wrinkle to this challenge, in that it strives in particular to work with private entities and increase their role in biodiversity conservation. The basic approach embedded in this proposal is to allocate authority, responsibility and accountability purposefully and strategically among three very different institutions, according to their particular strengths and capabilities. The Bank, through the Council would have a lead role in the overall strategic governance of the Fund and in the allocation of resources among various ecosystems. CI would manage operation of the Fund and relations with a diverse set of project implementers. Biodiversity Conservation Information System (BCIS) would manage information used to design, and flowing from, projects.

For each ecosystem<sup>3</sup> included in the Fund, CI begins the process by drafting a profile of the area, analyzing threats and opportunities for conservation, assessing current funding from other donors, and drawing up a proposed three-year CEPF funding strategy. BCIS will play an active role in providing information resources for the profiles. Sample profiles are included in this document for three separate ecosystems. Once completed, the profile/strategy is directed to the CEPF Council for review. The Council has the following composition:

- President of the World Bank or his designee
- Senior World Bank manager
- Senior GEF manager
- Senior CI representative
- BCIS representative
- Representatives of other donor entities

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3. The term "ecosystem" is used colloquially here. It denotes a geographic area that has been defined and identified as a meaningful unit for conservation planning purposes.

In addition to leading the review of the funding strategies at the Council level, the Bank will be responsible for providing these strategies to appropriate technical and country managers, as well as the GEF focal points. Informed by the review, the Council can suggest changes to the ecosystem profiles and funding strategies before endorsing them. The Council must also endorse specific ecosystem-level organizational arrangements for the functioning of the Fund, and endorse funding levels for the ecosystems.

The authorities of the countries in which the critical ecosystems are located – through the national focal point for GEF small and medium sized projects – will be provided with simplified ecosystem profiles for review and endorsement at the same time as the CEPF Council, thus ensuring country ownership

Funding is then approved in the form of a block ecosystem grant, which CI will manage, “wholesaling” projects through a local ecosystem facility (LEF –see below) endorsed by the Council. CI is responsible for publicizing the availability of funds and the funding strategy. Working through an LEF, CI receives, reviews and funds proposals based on their fulfillment of the strategy, ensuring consistency with the Bank’s safeguard policies, and the GEF Policy Annex. CI carries out project oversight and periodic reviews according to monitoring and evaluation protocols established by the Council. CI will assemble and deliver an annual financial account and project portfolio report to the Council and Bank node. In ecosystems where CI has established programs and maintains a competitive advantage, CI and/or its partners may implement project activities as long as such activities are subject to the same project development procedures to which others are subject and the total funding allocated to CI projects does not exceed 50% of the annual funds allocated for field implementation.

BCIS represents the largest consortium of institutions that collect, integrate and maintain biodiversity data and information. Founded in 1995, it comprises 12 international conservation organizations that collectively have the best overall expertise in biodiversity conservation worldwide. Their contributions toward understanding the importance of biodiversity, and assessing the state of conservation, institutional capacity and resource-use trends in each of the critical ecosystems will be important to the success of the CEPF. Within the CEPF, BCIS will serve as a link to this expertise, assembling and synthesizing the relevant information on each of the critical ecosystems, and contributing to decisions on the level and type of intervention the CEPF will implement in each ecosystem.

The CEPF is a complex endeavor involving a number of different institutions, from donors, to information providers, to program and project manager institutions. It is designed to provide an efficient and timely response to the threats and opportunities in each of the critical ecosystems. In order to ensure that this objective is met, the CEPF will include a knowledge information system built, shared and used by the different actors. This system will provide real time information about ongoing and potential projects and initiatives related to critical ecosystems, as well as management information related to CEPF-financed initiatives. This shared system will be the basis for CEPF management and play a key role in streamlining the decision-making and follow-up processes within the CEPF.

The CEPF will be established in a phased approach by the Bank, GEF, CI and BCIS:

**Phase 1:** September 1998 - January 2000. Design the CEPF and undertake consultations with broad range of actors (completed).

**Phase 2:** April - August 2000. Finalize ecosystem profiles and funding strategies for at least one ecosystem, prepare launch, and put in place CEPF operational arrangements.

**Phase 3:** August 2000 - June 2001. Operationalize first 5 ecosystems, subject to available funding, and begin preparatory work on additional ecosystems.

**Phase 4:** July 2001 - June 2002. Operationalize additional 5 ecosystems, and begin preparatory work on 10 additional ecosystems.

**Phase 5:** July 2002 - June 2005. Operationalize remaining ecosystems; ongoing implementation and monitoring in all active ecosystems.

The Council will finalize an exit strategy during the first year of the CEPF's operation.

## Roles of Constituent Entities of the CEPF

<b>CEPF Council</b>	<ul style="list-style-type: none"> <li>▪ Provide strategic guidance for the CEPF</li> <li>▪ Review and endorse ecosystem profiles</li> <li>▪ Advise/endorse the establishment of specific ecosystem-level funding and organizational arrangements</li> <li>▪ Advise/endorse the annual allocation of resources for each ecosystem</li> <li>▪ Review annual financial and portfolio reports</li> <li>▪ Review end-of term audit of CEPF performance</li> <li>▪ Facilitate co-financing arrangements with governments, bilateral donors, foundations and corporations</li> <li>▪ Advise/endorse any other changes in CEPF management or organization as may be needed at any time to ensure effective operation</li> </ul>
<b>World Bank</b>	<ul style="list-style-type: none"> <li>▪ Chair the CEPF advisory committee</li> <li>▪ Designate a technical counterpart team to work with CI and other partners on strategic issues</li> <li>▪ Ensure timely review of ecosystem profiles by country and technical managers</li> <li>▪ Ensure linkages between the Bank's own thematic knowledge management and training activities and BCIS</li> <li>▪ Establish and maintain a roster of qualified financial auditors and performance evaluators</li> <li>▪ Work with CI in pursuing co-financing for CEPF activities</li> <li>▪ Ensures the fulfillment of the STAP review</li> </ul>
<b>Global Environment Facility</b>	<ul style="list-style-type: none"> <li>▪ Serve on the CEPF Council</li> <li>▪ Designate a technical counterpart team to work with CI and other partners on CEPF</li> <li>▪ Ensure linkage between the GEF's knowledge management system and the CEPF system</li> <li>▪ Work with CI to pursue co-financing</li> <li>▪ Approves a protocol by which CEPF Ecosystem Profiles are presented to and endorsed by GEF Focal Points</li> </ul>

<b>Conservation International</b>	<ul style="list-style-type: none"> <li>▪ Serve as CEPF manager and “wholesaler” for CEPF projects</li> <li>▪ Play strategic quality assurance role for all field projects</li> <li>▪ Draft ecosystem profiles/funding strategies</li> <li>▪ Disburse funds in grants to NGOs, communities, other elements of organized civil society, private enterprises and certain parastatal entities for activities within the ecosystem</li> <li>▪ Supervise projects and maintain essential records on the use of CEPF resources</li> <li>▪ Collaborate with BCIS to ensure maintenance of the CEPF knowledge base and dissemination of lessons learned</li> <li>▪ Collaborate with BCIS on development of training materials and performance of targeted analyses, as directed by the Council</li> <li>▪ Ensure consistency with the Bank’s safeguard policies</li> <li>▪ Prepare an annual financial account and project portfolio report to the CEPF Council</li> <li>▪ Ensure that project implementers have the required legal standing to operate in given countries</li> <li>▪ Cooperate fully with the end-of-term financial audits and performance evaluation</li> </ul>
<b>Biodiversity Conservation Information System</b>	<ul style="list-style-type: none"> <li>▪ Collect and synthesize the available biodiversity information for each ecosystem, including background profiles and fund-supported operations. Provide linkages to knowledge and information resources on other assistance, threats and opportunities in each ecosystem.</li> <li>▪ Provide CI a profile of each ecosystem, including data on development activities, infrastructure, population, biodiversity and protected areas</li> <li>▪ Receive and process information generated from the different CEPF projects.</li> </ul>

### Local Ecosystem Facilities

The CEPF cannot succeed at its objectives without appropriate mechanisms for project selection in each country. One method will not fit all the cultural, social and economic conditions prevalent in host countries, not to mention the differing levels of maturity in civil society movements. A major opportunity and challenge for the CEPF is to devise local project delivery arrangements – called local ecosystem facilities (LEF) – that will lead to efficient, effective use of funds. Several different models which may prove suitable in one or more of the ecosystems are described here.

#### *Consortium approach*

This model is the most cooperative approach, involving planning and implementation undertaken jointly by a team composed of many of the groups working in a particular ecosystem. In this approach a local coordinator/moderator chosen by CI (from within its own ranks or from without) convenes the NGOs, associations, firms and government representatives working in an area and tasks the group with turning the ecosystem-level strategy into a detailed plan of action. This plan would be composed of a variety of

projects to be undertaken by members of the consortium, coordinated by CI or another entity designated with assent of the consortium.

This option has the advantages of tight coordination among groups and the potential for producing an integrated, rational program, rather than a dispersed set of disconnected activities reflecting the institutional proclivities of particular organizations. Achieving that outcome depends on skillful moderation, and careful avoidance of the “Christmas tree scenario,” in which inclusiveness dictates that every organization gets to place their favorite project on the tree of the larger program. This approach makes the most sense in ecoregions that are geographically concentrated (*e.g.*, not the Brazilian Atlantic forest), with a manageable number of participating entities, and potential to realize substantial efficiencies through collaborative planning and implementation.

#### *Competitive RFP approach*

This is the approach typical of many publicly funded conservation initiatives. A request for proposals (RFP) on a particular theme is circulated among potential implementers. This RFP would embody the ecosystem strategy agreed upon by CI and the CEPF Council. CI then analyzes pre-proposals or proposals received, and, if using pre-proposals, invites full proposals from successful pre-proposal submitters. Winning proposals are eventually funded. The evaluation of proposals in this model can either be done by local and central CI staff, or by consultants or a committee contracted for the task.

An advantage of this option is that it is ostensibly the most merit-based system, pitting the quality of one project against another. In contexts where concern exists about the democratic nature and transparency of funding, such a system can help allay those fears. However, smaller, grassroots organizations will normally be at a disadvantage in competing with the polished proposals prepared by large organizations or private companies. Thus the Fund could fall victim to some of the same problems that have plagued past Bank efforts to work with NGOs. Another disadvantage is that this is perhaps the most rigid and bureaucratic method. Finally, the approach raises questions about the participation of CI in implementation, since it could very well be excluded from competing for funds.

#### *Private foundation approach*

A third option is for CI to function like a private philanthropic foundation. This approach entails CI developing relationships with particular implementers, based on the match between those groups’ missions and capabilities and the ecosystem strategy in question. Like many foundations, CI would both respond to particular project ideas generated by implementers, as well as seek out organizations to fund for specific goals.

A foundation-like procedure has the advantage of minimizing bureaucracy and creating a more fluid schedule of funding to respond to opportunities presented by applicants. Further, it allows CI to more easily work with small and/or new groups with little experience in the art of proposal writing. The main disadvantage is that the legitimacy of funding decisions risks being called into question, given that CI will be distributing public funds.



### *Piggybacking on existing funds*

A fourth alternative, really just a variation that could be applied to any of the previous three, is to apply CEPF funds through an existing grant-making facility in the ecosystem in question. If there is indeed such a facility with the potential to fulfill the CEPF's strategic goals and even to match CEPF funds for particular projects, it merits consideration to be the local ecosystem facility.

## **IV. MONITORING AND EVALUATION STANDARDS AND PROCEDURES**

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The role and management of protected areas, sustainable levels of resource use, the precise role and responsibilities of communities in resource management, and the link between conservation and development are some of the issues that will emerge within the portfolio of CEPF projects, and which will determine the success of CEPF-funded activities. Without a clearly established monitoring and evaluation framework in the CEPF project design, success measurement and feedback systems will be difficult to establish. Clearly defining objectives, hypotheses and assumptions, compiling baseline information and establishing practical monitoring and evaluation systems are fundamental components of the CEPF design. CEPF-funded projects will be requested to use the LogFrame methodology to achieve this goal.

Effective monitoring and evaluation systems provide information on a timely basis for project decision-making, measuring project impact, and testing hypotheses and approaches. In the context of the CEPF, monitoring and evaluation systems are essential tools for sound project management. Thus, CEPF projects will monitor and evaluate in order to:

- improve project implementation, particularly as conservation interventions become more complex and multi-sectoral;
- identify unexpected problems before they turn into full-grown crises;
- assess a new component, such as the results of increased participation of indigenous people in project activities;
- track progress toward objectives;
- derive lessons from past experiences;
- test conservation and development hypotheses; and
- measure conservation impact, particularly in areas where there are urgent threats.

Monitoring and evaluation will only be successful if the project leadership, the project team and partners, the host organization and donors believe in its value and are open to learning and change. Evaluations are sensitive and often result in projects having negative views of and avoiding monitoring and evaluation. One of the premises in the monitoring and evaluation system that will be conceptualized for the CEPF is that broad participation in the monitoring and evaluation process will result in greater acceptance of its benefit and a commitment to it on the part of the project team and partners.

CEPF's monitoring and evaluation system will be based on the state-pressure-response model. In this model, the biophysical elements constitute the *state*, socio-economic factors exert *pressure*, and institutional efficiency determines the nature and effectiveness of the *response*. This model will provide the conceptual basis for defining a few information-rich indicators to be monitored either in specific sites or at the CEPF ecosystem level as a whole. Thus, in addition to revealing project performance, these indicators will be used to identify trends in the state of the ecosystem.

As part of its monitoring system, CEPF will establish common standards between wholesalers, retailers and other relevant entities to ensure that information can flow between the various levels. The ultimate design of a monitoring system that is capable of responding to trends at the spatial scales employed by the CEPF will address the following questions within each level:

- Who are the user groups?
- What information is required by each user group?
- How best can information be gathered and managed?
- How best can the information be linked to policy-making and planning processes?

User groups can be defined according to their operational level within the CEPF (i.e., site, national, international). At the site level, field staff, site managers and project implementers need to know whether or not their interventions are meeting management objectives, particularly with respect to biodiversity conservation. Other stakeholders include local communities within or peripheral to the project site since they are likely to be affected by management regimes.

At the national level, one principal stakeholder is the "management authority" who needs to know whether or not national policies and legislation concerning areas important for biodiversity conservation are being effectively implemented. The authority is accountable to other sectors in government and, although the CEPF is being implemented through the private sector, needs to be able to demonstrate whether or not resources are adequate to effectively manage its biodiversity estate. Governments are becoming increasingly interested in the effectiveness with which biodiversity is protected under different management regimes and tenurial arrangements (e.g., national protected areas, indigenous reserves, privately owned or managed sites, *etc.*). In addition to the partners in the CEPF, donors in the private and non-governmental sectors also have a vested interest in such information.

At the international level, foremost among the stakeholders are the various regional or global initiatives concerned with *in situ* biodiversity conservation, the international conservation agencies and aid agencies, all of whom need to know where to prioritize their investments.

Of crucial importance is the need to ensure that information derived from monitoring activities flows between the three levels. This necessitates agreement on standards, harmonization and networks via a decentralized information system. Thus, the CEPF's monitoring system is closely linked and integrated with its knowledge management framework. Moreover, information needs to flow in both directions. Data derived from monitoring at the site level need to flow to national and international levels, at progressively coarser levels. Conversely, information on the global value of biodiversity (e.g., rarity, uniqueness, endemic or threatened status) should flow from the international level to the national level.

and, coupled with information on the national value of biodiversity, thence to the site manager, projects implementers, *etc.* This provides the necessary context within which management interventions, new project ideas and additional stakeholder processes can be prioritized according to the international or national importance of the site.

CEPF criteria for selecting indicators to monitor biodiversity and provide a reading of the state of the ecosystem will be established on the basis of the following outline:

1. Indicators with the following attributes:
  - scientific and quantitative rather than descriptive and qualitative;
  - adaptable to a range of data collection methods from remote sensing to ground survey; and
  - suitable for monitoring at a variety of scales from specific sites to whole regions.
2. Indicators that allow for:
  - simple data gathering methods so that local communities, individuals and a variety of stakeholders can contribute;
  - standardized data collection so that comparable results are produced; and
  - easy incorporation into the knowledge management system.
3. Indicators that will provide:
  - relevant information that meets the needs of project managers, project implementers, stakeholders, *etc.*;
  - feedback on management activities;
  - assessment of effectiveness of existing strategies, action plans, management plans, *etc.*; and
  - an integrated picture.

Based on these principles, a sample monitoring plan for a CEPF project in a one million ha protected area for the conservation of flooded forest of any kind might include the following components:

1. Socio-Economics

**Participatory ecological economy:** The management norms designed to guarantee sustainable production and biodiversity conservation will alter existing domestic production and consumption of market goods, and may reduce direct consumption. The situation requires the monitoring of qualitative and quantitative consumption in order to assess the impact of management restrictions and new economic alternatives in family production units, and to observe evolving demands for resources and their impact on biodiversity conservation. Monitoring procedures should involve researchers from the social and biological sciences, as well as members of the local communities.

**Monitoring social indicators:** Measures envisaged by the project to improve living conditions will be monitored using reliable qualitative and quantitative indicators. These will include morbidity, mortality, reproductive and mental health (health indicators); school level attendance and infrastructure (education indicators); and age and spatial distribution of the population (demographic indicators).

**Political participation:** Implementation of the project will lead to changes in attitudes, values and political perspectives in the communities. These changes will be evaluated through academic research.

## 2. Resources Management

**Population trends for key, threatened and indicator species:** Monitoring will include the unloading of fish for consumption in communities; manatee population; mortality, dispersal and growth rates of caimans; timber production, based on minimum diameters for felling; bird and forest mammal densities in relation to the hydrological regime, status of fresh-water turtles; and long-term census of aquatic birds.

## 3. Basic Research

Studies will include comparison of the phenology and dispersal of seeds in flooded and dry areas; primary production of terrestrial environments; characterization of lakes throughout the area in terms of productivity; biomass and seasonal movements of fish communities.

## V. INFORMATION MANAGEMENT

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The CEPF is designed to provide a thorough assessment of different critical ecosystems, and ensure a quick and efficient disbursement of funds to high-priority, technically sound projects in these regions. To help meet these goals, the fund must include a clear and effective chain of accountability for project results. A key component of this approach will be an efficient information system, accessible to all parties.

This information management system should enable coordination and facilitate communication amongst the various players, including:

- The World Bank (donor);
- Global Environment Facility (donor);
- Conservation International (wholesaler) and any other wholesalers;
- Biodiversity Conservation Information System (information provider);
- Project managers (retailers); and
- Project executors, subject experts and other collaborators.

Real and effective coordination depends on efficient and effective sharing of information in ways that are unambiguous, widely accessible and common across agencies. This information includes, but is not limited to, the following:

- Strategic goals and targets with respect to the CEPF
- Issues that the individual project pipelines have been designed to address;
- Project portfolios
- Data and information resources, including information dissemination
- Information on partnerships and people, including subject experts; and

- Notices and reports of meetings and other events.

This section looks at the potential for defining a common Knowledge Management System (KMS) for describing and tracking the project portfolios of the CEPF wholesaler(s) and retailers. This System should be open-ended, flexible, widely accessible and able manage many different types of information.

A useful starting point for structuring information on development programs, such as the CEPF, is to recognize that such programs consist of a set of fundamental resources, which may be described as the common currency of large-scale, multi-agency – even multi-national – programs. These resources include issues, documents, data sets, organizations, people, events and projects.

Descriptions of the resources should be shared among agencies to facilitate coordination. These resource descriptions are best encapsulated in ‘metadata’<sup>4</sup> tags attached to the resources themselves. Thus the Knowledge Management System for CEPF becomes a strategic-scale metadata management system, where the metadata is readily accessible to all, even if access to the resource itself needs to be restricted for some reason.

Effective management of project information is vital to coordination among partner agencies, as well as for fulfilling the many reporting requirements to which these agencies will be subject within the CEPF. It is also central to the discovery and use of knowledge and experience gained at the local level from individual projects, and the resulting improvements in project implementation which can be expected.

It is unrealistic to expect that the agencies concerned can or will effectively implement a reporting framework which adds significantly to their workload or incorporates data beyond what they require for their own use. Ideally, a common framework would build on existing systems within CEPF partner agencies.

### **Uses of Project Information**

Information provided through standardized reporting is used to produce overviews at the project and ‘pipeline’ levels, and for the CEPF as a whole, on:

- The contributions of the pipelines to overall CEPF objectives;
- The contributions of project portfolios to individual pipeline objectives;
- Factors contributing to project success (or otherwise); and
- Sources of knowledge and experience in particular sectors and regions.

### **Project Information Needs**

The basic types of project information needed for standardized reporting include issues to be addressed, spatial coverage, sectoral coverage, collaboration and partnership, finance, and performance evaluation (project level monitoring and evaluation indicators).

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4. *Meta* means change and metadata describe both the origins and nature of a resource, as well as any changes to that resource. In general use, metadata means ‘data about data’. An example of metadata is a map legend.

At present, markers of external policy objectives are rarely applied by agencies, and even internal objectives are not consistently flagged. Geographic and budgetary information is managed by most agencies, but could be refined, extended and standardized in the interests of common reporting. Sectoral relevance and partnerships are not consistently reported. Outputs and evaluation results are also not managed consistently.

## **Knowledge Management System**

Knowledge management is largely a cultural activity conducted by people within organizational structures. Information technology has a comparatively minor but significant contribution to make to corporate learning and development by mobilizing the information held by organizations for the benefit of staff, clients, and collaborators.

Within the CEPF, a wide range of resources need to be managed, including:

- Data and information resources, including raw data collected in the field, organized and managed data sets, integrated information, and highly processed products for senior decision-makers;
- Environmental issues, programs and projects; and
- Organizations, people (including experts), documents and events

This range of resources would be too complex and expensive to implement in a standard database management system. Instead, the proposed approach is to manage information on these resources through metadata tags on individual resource or information “objects.” These metadata tags are the basis of the proposed knowledge management system for the CEPF. Every information object within CEPF is mapped through metadata that describe the location, purpose, age and format of information, as well as who is responsible, who is entitled to use it and how accessible it is. Information maps direct people to the information that they need, highlighting both what is available and what is needed. Furthermore, the creation of information maps implies that information is a significant resource to be used and shared, and positively impacts information behavior. Nevertheless, this approach does not preclude the use of traditional database management systems for some components within the CEPF.

The process of knowledge management within the CEPF would comprise five activities, with information flowing continuously from one activity to the next. Information is first created, for example by creating a new document in a word processor, or a new record in a database. It is then captured by describing its properties in metadata tags.

To aid storage and retrieval, the information is then organized into one or more categories. A simple example is placing a paper document into an appropriate file. This enables the information to be accessed easily in future, and thus disseminated to users. Examples of access include publishing a document in a book, or making a database available on the Internet. At this point the information is ready to be discovered and used, i.e. applied to project activities, reporting and decision-making.

For simplicity, the process can be reduced to three steps: knowledge creation, sharing and use. Provided this process is smooth, rather than disordered, knowledge is said to be managed. Clearly, having the right content is also a critical success factor. If the raw material of the process – the information – is not relevant or appropriate to users, then the system will not function.

Ensuring that the right information is created for the right people, at the right time, and in a form which is easily accessible and interpreted, is the key challenge to developing an effective knowledge management system within the CEPF.

## **Uses of Project Information**

Information on biodiversity project portfolios is needed for management and reporting purposes. The CEPF has obligations to report on its activities to the World Bank and others, and to ensure harmonization of its activities in biodiversity conservation. The many potential uses of standardized information on biodiversity projects include:

- *Managing investment* in biodiversity-related work, both at an ecosystem level and for the CEPF as a whole;
- *Monitoring and reporting* on the implementation of the CEPF to the World Bank and others; *Evaluating* the correspondence between policy priorities and objectives, and investment in project portfolios;
- *Coordinating* efforts amongst partner agencies in particular ecosystems;
- *Analyzing* factors contributing to biodiversity project effectiveness;
- *Sharing* experiences and best practices among projects and across ecosystems;
- *Identifying* agencies and individuals with experience and expertise in particular regions or subjects; and
- *Identifying partners* for new initiatives.

All of these uses require the existence of a basic minimum level of information to be managed on projects, and the effective operation of standard structures, categories, terminology and systems of access.

## **CEPF Information Needs**

The basic information needed to fulfil many of the uses anticipated for standardized reporting falls into six basic categories: policy objectives, spatial coverage, sectoral coverage, collaboration and partnership, finance, and performance evaluation (i.e. lessons learned). This section summarizes approaches to recording project information with a view to identifying best practices and key advances.

### *Policy Objectives*

Options for recording the policy objectives of projects include the use of policy-related classification schemes (e.g. listing the issues the project addresses or the targets supported), or text-based summaries for keyword searches. While the former is the more thorough and accurate approach, few agencies are

using policy classification schemes in their databases or publications. Although agencies may have clearly stated policy objectives with respect to biodiversity there is little consistency in tying projects to these objectives or to external targets and instruments.

### *Spatial Coverage*

Organizations participating in the CEPF will be accustomed to operating at widely different scales. Some groups providing context information will store data and information at national to global scales, while others will have only local-scale information.

Very few agencies currently consistently store detailed information on project locations, for example their georeferences, although this may sometimes be noted in project documentation. The World Bank currently georeferences all of its environmental projects with a view to automating mapping in future.

Detailed location data will play a key role in facilitating the exchange of knowledge and experience, both within and among organizations, as well as coordination of project activities. Project maps and related baseline data provide a valuable and time-saving resource for the early stages of decision-making on new projects and programs. Having such information consistently available would save considerable time and energy on researching activities in and around the locations of proposed CEPF projects.

### *Sectoral Coverage*

Projects may also be categorized according to the sectors where they are likely to have most impact. Sectoral designations can be used to classify CEPF projects, as well as to report on sector-based agency investment, and thus identify relevant knowledge and experience.

There is, of course, a danger that if different agencies employ different sectoral classification schemes, outwardly standard reports could contain information on fundamentally dissimilar projects. A standard scheme should therefore be employed across the CEPF program.

### *Collaboration and Partnership*

As with other factors, there is likely to be little consistency, at least initially, in the recording of institutional collaboration and project-related partnerships. The roles played by NGOs and community groups in conservation and management of biodiversity are complex and difficult to characterize, and would thus require special attention. If stored in an easily accessible manner, information on partnerships can be used to assess both progress toward the objectives of capacity building and sustainable local involvement in projects. It can also help identify partner organizations for new projects.

The involvement of academic and research organizations would also need to be recorded. Improved recording of the role of these organizations could help disseminate their research findings, and improve access to specialist expertise and knowledge. Private-sector partnerships would also need to be



documented. Knowing where to find successful collaboration and partnership could be critically useful during many stages of the project cycle.

### *Finance*

The accounting systems of most agencies track budgets and expenditures on an annual basis, and it should be fairly easy to incorporate this information into project information systems to enable variations in financial commitment to be studied over time. Ideally, project budgets are also subdivided by the activities or outputs that they support, so that financial flows – and cost-effectiveness – can be studied at various levels of resolution.

### *Performance Evaluation*

When a project is reviewed, either after its inception, mid-point or at its conclusion, the evaluation reports which ensue contain knowledge of high value to many people who may not be directly associated with the project. Capturing “lessons learned” and “best practices” deriving from existing projects, or elsewhere, is fundamentally important to the renewal and refinement of strategies, procedures and policy objectives.

In general, project performance measurements or evaluations are seldom used to benchmark best practices methodically, or to fuel knowledge management systems capable of memorizing lessons learned. This means that important knowledge about projects could be remaining with those directly involved with specific projects, rather than being disseminated widely to non-project personnel and partners. Transfer of “what worked and why” and, perhaps even more importantly, “what didn’ t work and why” could be especially important in a “pipeline-oriented” program like the CEPF.

It is recognized that the results of some project evaluations may be highly sensitive. However, these evaluations – perhaps more than others – may contain vital clues as to why some projects fail, or why certain types of objectives were not met. With moderate effort, project-specific details can be removed from sensitive reports (e.g. names of individuals, locations) without detracting from the lessons drawn.

One way forward is to include performance evaluations within project information systems, either by placing summaries (key lessons) within project records directly, or by providing links to the full documents. In this way users can search the system for information such as “all lessons learned from projects in ecosystem X, sector Y, and partner Z.”

## V. BUDGET

<b>Expense Items</b>	<b>FY01Amounts (\$U.S.)</b>
<b>Business Development and Management</b>	<b>505,000</b>
Salary/Benefits	350,000
Travel	40,000
Administrative Support/ Communications	65,000
Office/Occupancies	10,000
Consultant fees	20,000
Research and Analysis	20,000
<b>Monitoring and Evaluation Program</b>	<b>200,000</b>
Salary/Benefits	130,000
Travel	30,000
Administrative Support/ Communications	40,000
<b>Information System/Knowledge Management</b>	<b>250,000</b>
Salary/Benefits	150,000
System Development	25,000
Infrastructure	75,000
<b>Board Supervision and Coordination</b>	<b>95,000</b>
Meetings with CEPF Council	50,000
Meetings with Council	45,000
<b>Indirect Management Cost</b>	<b>252,000</b>
<b>Ecosystem Project and Grant Facility</b>	<b>18,698,000</b>
Ecosystem Investment Strategies/Project portfolio Design	1,509,900
Ecosystems Rapid Response Grants	2,009,900
Local Ecosystem Grant Facility	15,178,200
<b>Total Annual Budget</b>	<b>20,000,000*</b>

## **IV. SAMPLE ECOSYSTEM PROFILES AND FUNDING STRATEGIES**

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The following are summary profiles of three critical ecosystems, the Atlantic Forest of Brazil, the Madidi-Tambopata region of Peru and Bolivia and the Okavango Delta in Botswana. These profiles are intended to be illustrative only and will need further refinement as the CEPF becomes operational.

The CEPF Management Team will put forward a finalized Ecosystem Profile for a specific region to the CEPF Council during the first planning meeting, which is scheduled to take place in October.

### **ATLANTIC FOREST, BRAZIL**

#### **Description**

Among the four biomes profiled here, Brazil's Atlantic Forest stands out as the ecosystem most altered and fragmented by human activity. In contrast to the forest wildernesses of the Amazon Basin, nearly every hectare of Atlantic Forest has seen some form of human intervention – be it swidden farming by Tupí Indians, subsistence gathering by escaped slaves, or a variety of economic enterprises introduced by white settlers. Amazingly, the forest “islands” that speckle the coast are still nearly unsurpassed globally for their species richness. And, much of the local biodiversity is unique to the ecosystem. The conservation impact of maintaining and restoring a given tract of Atlantic forest is therefore far greater than in most places in the world. The special challenge of working in the Atlantic Forest is to succeed in a highly populated, highly developed place, which is diverse in every sense of the word: biologically, socially, economically, and culturally.

The original 1.5 million km<sup>2</sup> band of forest along Brazil's Atlantic coast ranged from humid, evergreen tropical forest, to deciduous and semi-deciduous inland forest, to araucaria-dominated ecosystems. Forest blanketed the entire states of Rio de Janeiro and Espírito Santo, most of Paraná, Santa Catarina and São Paulo, the southeastern half of Minas Gerais, the entire coast of Bahia and parts of the rest of the Atlantic states. Diversity in habitats was – and is – generated by, among other factors, differences in altitude, terrain, climate, soils and latitude, presence and absence of coastal influences, and migration barriers presented by the major rivers that drain southern and eastern Brazil. The South is marked by remnants of araucaria forest, drier semi-deciduous interior forest and wet coastal forest on the slopes of the Serra do Mar. The Northern remnants of the Atlantic forest tend to be hotter, wetter and smaller in area than the southern stands and richer in both plant and animal diversity. Where the South contains more inland and upland forest, the North retains more lowland forest.

Tree diversity per unit area in the Atlantic Forest is unsurpassed. In 1993, a site in Bahia set the world record with 456 woody species in a one-hectare plot, only to be quickly surpassed by a site in neighboring Espírito Santo, where 476 were recorded. The total plant tally for the bioregion is around 7,500 species, 3 percent of the global total. Fifty-four percent of trees, 77 percent of other plants, 50 of 131 vertebrates, and 17 of 20 primates are unique to the ecoregion. (Base de Dados Tropicais 1998; The Nature Conservancy 1998).

The historical range of the Atlantic Forest is now home to over 100 million Brazilians. Population is most dense in the industrial south, though there are major cities along the whole coastline. As a whole, the region's economy is highly diversified, with all sectors – industry, agriculture, services, etc. – well represented.

## **History of Development**

The Brazilian Atlantic Forest has undergone 500 years of European settlement and development. Successive and diverse episodes of natural resource use in the heavily populated coastal forests have resulted in the fragmented nature of the ecoregion. Making their initial landfall in 1500, the first wave of Portuguese in the region focussed on logging brazilwood near present day Rio de Janeiro, Porto Seguro, and Recife. In the middle of the 16<sup>th</sup> century, with brazilwood stocks already dwindling, colonists established sugar cane plantations and the slave system that would persist for over 300 years. The dominant indigenous group, the Tupí, largely died out, suffering from the effects of disease and hard labor. Other indigenous people, such as the Kayapó, retreated inland. Because land clearing for agriculture progressed slowly until the 18<sup>th</sup> century, there may have actually been a net increase in forest area during the interim, due to the plunge in indigenous populations (Dean 1995).

Big gold and diamond strikes in the early 1700s in Minas Gerais changed that trend, inducing deforestation in the inland Atlantic Forest and greatly increasing the African and European populations in the colony. The mining boom also ignited cattle raising as a large-scale economic activity in the Atlantic Forest and surrounding grasslands. Starting in the mid-1800s coffee planting in the Rio de Janeiro highlands, cocoa in southern Bahia and a resurgent sugar industry in São Paulo took a large toll on coastal forest in those three states. These activities continue today along with a waning timber industry. Wood is extracted today for the same purposes it was over a hundred years ago – firewood, charcoal and timber.

## **Current Threats**

**Logging** continues in many areas with little effective regulation. In Bahia, logging has been much reduced by a 1997 resolution of the National Environmental Council (CONAMA), which directed the federal government to close down all sawmills in the Atlantic forest region of the state. After the resolution was implemented in 1998, operating sawmills declined from an estimated 150 to around 20 (R. Rocha, pers. comm). Logging cannot, however, be discounted as a threat, as loggers are pressuring the government to reopen the industry. In southern Brazil, logging continues essentially unchecked. In some areas, the loggers focus on a single species, such as araucaria, while in others they have been reduced to producing fence posts and charcoal, due to the absence of larger dimension sawtimber.

Traditional **land reform** has routinely targeted large forested properties for lack of clear environmental policies within the federal land reform authority (INCRA). The best known examples of Atlantic Forest land reform conflicts have taken place in the Pontal region of São Paulo, at the confluence of the Paraná and Paranapanema rivers. The 350,000 ha Pontal was declared a forest reserve in 1940, a state of

affairs that lasted only a few years before state politicians hostile to the notion dismantled it and unleashed decades of conflict over the territory. Most of the land was eventually consolidated into large cattle ranches, with the exception of the 36,000 ha Morro do Diabo State Park, which retains most of the remaining habitat for the endangered black lion tamarin and various other endemic species. In recent years, both ranches and the park have been subject to intense and sometimes violent conflict over land reform. The situation has become more stable of late as the flow of landless people has abated and more official attention has been dedicated to the problem.

In the North, particularly in Bahia, land reform pressure has grown as a consequence of the moribund cocoa economy. Cocoa growing was once a lucrative, labor intensive activity, but has been battered by a decade of low prices, which has led to high unemployment and a large number of unproductive farms. Only recently have efforts been made to settle landless and jobless farmers on idle developed land rather than forest, and forested areas remain at risk of being settled and cleared.

In coastal areas of southern states such as Rio de Janeiro, São Paulo, Paraná and Santa Catarina, **real estate development** and urbanization are powerful drivers of habitat loss. There, subdivision of rural properties for urban expansion and vacation home developments can consume forest tracts and bring development that places pressure on other ecosystems, such as mangroves. The threat from real estate development is particularly acute in Rio de Janeiro state, where very small, but biologically significant, forest remnants are located relatively close to urban areas. Real estate development in northern coastal forest areas is driven primarily by **tourism**. Reefs, rain forest, mangroves and *restinga* (a forest type confined to coastal sand dunes) are all under pressure from increased coastal development, spurred in part by investments such as the IDB's large tourism development loans for the Northeast. It should be pointed out that tourism is at least as much a conservation opportunity as it is a threat; well-planned tourism is a development path that can bring relatively high employment generation and low environmental impact.

**Cattle ranching**, a leading cause of deforestation in certain parts of the biome since the 18<sup>th</sup> century, is now making its way into areas previously judged unsuitable for livestock. This is particularly the case in parts of Bahia which were formerly free of cows due to the higher profits available from cocoa growing and to the rugged terrain. While cocoa was a major cause of deforestation in the last century, its displacement by ranching worsens matters considerably. Cocoa is a shade-loving perennial, so planters traditionally retain native overstory trees and forested reserves for future planting. Of limited ecological value by themselves, these features can provide important connections between areas of natural habitat. Ranching is an ongoing threat in most other parts of the Atlantic forest.

## **Existing Conservation Investments**

### *Donors*

Funding for conservation comes from two distinct sets of sources in the Atlantic Forest. One can be categorized as competitive programs in which (mostly) governments distribute funds from multilateral donors. The other set of sources can be roughly characterized as private foundation or multilateral financing which is individually negotiated with private and public implementers. In this section we list the

major donors of all types and then treat in some detail the conservation funding mechanisms already distributing funds from multilateral institutions.

- World Bank (including GEF implementation)
- Inter-American Development Bank
- UNDP (including GEF implementation)
- European Union
- The Netherlands
- United States of America (USAID)
- Germany (GTZ and KfW)
- Japan (ODA and JICA)
- Canada (CIDA)
- United Kingdom (ODA)
- MacArthur Foundation
- Ford Foundation
- Boticario Foundation
- Summit Foundation

### *Multilateral funding*

**G-7 Pilot Program Demonstration Projects** – The PD/A is the component of the PPG-7 intended to fund NGOs and others to carry out “demonstration” projects that will show how conservation and sustainable rain forest development can be achieved throughout Brazil. Thematically, reforestation and agroforestry have been the program’s strong areas to date (Viana, et al 1998). The program funds activities in both the Amazon and the Atlantic Forest, with the latter receiving roughly a quarter of the \$13.5 million<sup>5</sup> approved as of June 1998. Over the course of two years, 18 Atlantic Forest projects were approved, covering eight of the 17 Atlantic states, with an average budget of \$177,778. By the year 2000, the PD/A is expected to have approved an additional 50 projects throughout Brazil’s rain forest areas.

**G-7 Pilot Program Ecological Corridors Project** – The Ecological Corridors Project is the PPG-7’s effort to create regional strategies for conservation within specific, biologically important swaths of Amazonia and the Atlantic Forest. Two separate Atlantic Forest Corridors cover most of the coastal forest in the biome. The first phase of the project, predicted to start in 1999, will include projects in the Central Atlantic Forest Corridor, including most of Espírito Santo, a tiny corner of Minas Gerais and southern Bahia. In the second phase, set to begin in 2000, projects will proceed in the Serra do Mar Corridor, covering coastal areas of Rio de Janeiro, São Paulo and Northern Paraná. The project has components for 1) management and establishment of protected areas, 2) management of private lands between protected areas, and 3) biodiversity conservation on indigenous lands. In addition, there is a planning and monitoring component, and a strategic coordination component. Funding strategies within each of these components have yet to be determined. Funding is open to all kinds of public and private

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5. All currency figures are in US dollars, unless otherwise noted.

organizations. The budget for the two Atlantic Forest corridors is \$15 million over five years (MMA/PPG-7 1997).<sup>6</sup>

**The National Environment Fund** – The Fundo Nacional do Meio Ambiente (FNMA) was officially created in 1989, and funded by Brazilian general funds and resources borrowed from the Inter-American Development Bank (IDB). Grants are made in six thematic areas: 1) Forestry extension, sustainable management, and resource conservation; 2) conservation units; 3) environmental education and communications; 4) environmental control; 5) research and technical development; 6) and institutional development. This program's strongest contributions have come in the area of environmental education (Viana, et al. 1998). Managed by the Environment Ministry, the program is open to non-profit NGOs, as well as federal, state and municipal governments. As of November, 1997, the FNMA had funded 515 projects, for a total of \$28.3 million. Of that total, 273 NGO projects received \$13.6 million, for an average of \$50,000 per project. It isn't clear from government data what proportion of the projects were executed for conservation of the Atlantic Forest, however figures do show that 63 percent of funds went to projects in the South and Southeast, with another 14 percent in the northeast. These are the geographic regions that include the Atlantic Forest.

**The National Biodiversity Fund** – FUNBIO distributes GEF funds for biodiversity conservation projects throughout Brazil. It is an attempt, similar to the CEPF, to streamline conservation funding. The fund is open to institutions of all kinds, both for-profit and non-profit private entities, as well as government agencies and academic institutions, cooperatives and associations. The first FUNBIO call for proposals focused on five priority areas: Sustainable forestry; ecosystem conservation on private property; fisheries management; agriculture & biodiversity; and protected areas management. The total available in the first round of funding was \$2.4 million. The only constraint placed on project scale was that proposals not exceed 50 percent of their proponents' annual revenues during the project and not exceed 100 percent of the historical average annual revenues.

Since its establishment in 1996, the fund has completed one round of grantmaking, funding 10 of the approximately 1000 applications submitted. Atlantic Forest projects included initiatives in the Itatiaia and Tijuca National Parks in Rio de Janeiro, financing for networks of agroforestry practitioners and for creation of private nature reserves. It is administered by the non-profit research institution, Fundação Getulio Vargas and governed by a 16-member board. FUNBIO has also formed a partnership fund with the Boticario Foundation.

**GEF Medium-sized Grants** – In 1996, the Global Environment Facility unveiled its medium-sized grants, a new window meant to provide up to \$1 million per project expeditiously to public and private environmental projects. Biodiversity funding through the program is open to all countries that have ratified the Convention on Biological Diversity, which includes Brazil. Starting in 1997, projects began to be submitted in Brazil, but due to government approval bottlenecks, none has yet been funded.

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6. The Brazilian Congress has recently made large cuts in the entire PPG-7 as part of the country's emergency financial assistance agreement with the International Monetary Fund, World Bank and several donor nations. The consequences of these cuts for the Atlantic Forest remain to be seen.

**PROBIO** – The Project for Conservation and Sustainable Use of Brazilian Biodiversity is administered by the Environment Ministry’s biodiversity branch. Funds for the program come from the GEF and are divided between two subprograms, one exclusively for government projects and one for collaborative projects implemented by partnerships of NGO, university and government institutions. The former subprogram has already been executed, while selection of projects for the latter occurred in 1998. Fifteen projects throughout Brazil were selected for three years of funding at approximately \$400,000 each. Co-financing, financial management and technical review for the program is done by the National Research Council (CNPq).

PROBIO has provided support for the Guaraqueçaba Environmental Protection Area in Paraná and for conservation priority-setting exercises throughout the biome (run by CI, Fundação Biodiversitas, and other organizations). Further PROBIO support has gone to five Atlantic Forest projects aimed at reducing ecosystem fragmentation. São Paulo has its own version of PROBIO for projects within that state.

### *Implementers*

**The Atlantic Forest NGO Network** has 130 members, indicating that there is a rich array of NGO projects and activities. The following overview of organizations is limited to those which are most prominent and/or active at the moment.

**Conservation International:** CI’s largest project in the area is its cooperative effort with IESB. CI has also led a series of conservation priority-setting exercises for the Atlantic Forest, provided input on relevant legislation, and worked with several private forest owners in the Minas Gerais Atlantic Forest.

**Instituto de Estudos Socio-Ambientais do Sul da Bahia – IESB (Institute for Social and Environmental Studies in Southern Bahia)** was founded in 1994 to undertake research and conservation activities in southern Bahia state, particularly in the vicinity of the Una Biological Reserve. The group now implements a variety of activities, including agricultural extension, assistance to landowners in creating private reserves, work on conservation policy issues, management of a demonstration eco-tourism facility, biological research and geographic information system (GIS) analysis. IESB has been a close collaborator with CI.

**Instituto de Pesquisa Ecológica:** IPÊ (the Ecological Research Institute) was created in 1992 and since then has been active primarily in the inland forests of São Paulo. IPÊ’s institutional emphases have been in the areas of conservation biology and environmental education. It has separate programs in 1) wildlife conservation and management, 2) habitat conservation and management, 3) environmental education and agroecology, and 4) training. IPE works in the Pontal region of São Paulo where it has worked to minimize conflicts between conservation and land reform.

**Instituto Socio-Ambiental:** ISA (the Socio-Environmental Institute) is a leading lobby and research group, based in São Paulo, which is active on a variety of environmental/social issues: forest legislation,



indigenous rights, urban pollution and others. The organization has an active conservation project in the Vale do Ribeira in São Paulo state as well as field activities in Amazonia.

**Sociedade de Pesquisa em Vida Selvagem – SPVS (the Wildlife Research Society)**, based in Paraná, has been the most active environmental group in the Guaraqueçaba region. SPVS conducts a variety of activities, including research, environmental education, management of private reserves, and work on sustainable economic alternatives for the area, which has relatively large areas of intact forest, estuary ecosystems and the last of the extremely rare black-faced lion tamarins. As noted above, SPVS group works closely with the Brazil office of the Nature Conservancy.

**SOS Mata Atlântica:** SOS Mata Atlântica was founded in 1986. Based in São Paulo, it is the most widely known NGO dedicated to conservation of the Atlantic Forest. That renown has translated into a large membership, a valuable brand name (e.g., SOS Mata Atlântica credit cards, apparel, etc.) and most of its financial support coming from within Brazil, which is exceptional among the country's environmental groups. The group's programs include environmental education, mapping of Atlantic Forest remnants, lobbying on environmental legislation and maintenance of databases on Atlantic Forest themes.

**Vitae Civilis:** The Institute for Development, Environment and Peace is a São Paulo-based NGO, with a diverse environmental and social agenda. The group's Atlantic Forest work focuses on coordinating the Atlantic Forest NGO Network and implementing projects in the Vale do Ribeira area of São Paulo.

**World Wildlife Fund:** WWF has generally worked through local organizations, as well as government units responsible for protected areas, particularly the Una Biological Reserve (Bahia) and Poço das Antas Reserve in Rio de Janeiro.

### **CEPF Investment Strategy**

Biodiversity conservation in the Atlantic Forest is a matter of safeguarding vestiges of the former ecosystem and commencing a long-term process of rebuilding a string of ecologically viable natural areas. Among the conservation advantages of the biome is that there are many serious NGOs, some of them with a high degree of technical capacity, and there are state governments in the region with strong environmental programs and good working relationships with NGOs. Further, there are already several sources of conservation funding that NGOs have access to. Additionally, many private forest owners, both corporate and individual, have shown themselves willing and able to collaborate with NGO efforts in the region.

Among obvious challenges is the fact that there is little time and room for error, given the limited area of remaining forest. Several funding windows, notably FNMA, PD/A and FUNBIO, have been established with the stated purpose of streamlining conservation funding and responding in a more timely way to conservation needs, which, of course, is one goal of the CEPF. Results have been mixed. Application processes have been time-consuming, draining the limited resources of NGOs and reducing

their potential for impact. Despite the best efforts and advances made by these programs, there is still no multilateral or bilateral assistance provided with sufficient administrative agility to address time-sensitive conservation needs. The existing funding sources are valuable and appropriate for longer-term initiatives whose starting dates are not of crucial importance, but an alternative is in order for more pressing needs.

There is still no significant source of funding for discrete, short-term initiatives, which can have disproportionately large positive impacts. Opportunities to collect and present information relevant to a policy issue of the moment, or to create a conservation partnership with a particular forest landowner require a funding turnaround time of weeks, or, at the most, several months. One way to satisfy the different sorts of funding opportunities is to segment support by scale and temporal urgency. The categories presented here would give the CEPF flexibility to fund pressing but modest needs quickly, while subjecting larger grants to a longer and more rigorous approval process.

1. **Less than \$15,000:** These grants would be reserved for very discrete, time-sensitive opportunities, such as opportunities to rapidly produce analyses or maps relevant to a particular policy or project with potential negative – or positive – impact. Funds could also be used for “emergency” meetings or travel. Proposals would be funded or rejected within 6-8 weeks of submission.
2. **\$15,000-\$75,000.** These projects would be small, non-emergency projects, subject to a greater level of review than the previous category. Funds would be available within 120 days of application.
3. **Over \$75,000.** A limited number of larger institutional grants would be made available on a competitive basis. Applications would be accepted annually with funds disbursed 4-6 months after the due date for applications.

#### *Types of activities:*

Priorities for assistance are several. First, NGOs, associations and other private entities should be enlisted and supported by the CEPF to **assist state and federal agencies in the establishment and management of protected areas**. There are myriad protected areas in the Atlantic Forest, many of which could be significantly strengthened by cooperation with NGOs (Please see Annex 2 for list of potential targets for protected areas assistance). NGOs have a strong track record of bolstering parks by providing information (e.g., GIS), training, planning, infrastructure and other services.

One of the defining features of the Atlantic Forest is the need to promote conservation around and between parks in order to maintain ecologically viable areas of natural habitat. One of the leading priorities, therefore, should be to **assist private landowners in the conservation of forest on their properties**. This end can be achieved by registering the legally required Permanent Preservation Area and Legal Reserve, or through the creation of Private Natural Heritage (Patrimony) Reserves. NGOs

are proving indispensable to this process, as understaffed government agencies have proven incapable of responding to landowner requests for reserve designation.

Another key priority is to **support NGO work in the area of land reform**, in improving the planning of settlements and ending the practice of creating new communities on forested land. NGOs can contribute with surveys and maps of forest and agricultural land, complementing the traditional government process of assembling lists of eligible properties.

Finally, support should be provided for the **development of public policies conducive to the conservation of Atlantic Forest**. Given the large number of states involved and the large amount of authority wielded by states, policy research is needed in all the major Atlantic states, particularly Paraná, São Paulo, Rio de Janeiro and Bahia. Policy research foci should include logging and agriculture regulations, land-reform implementation and official lending practices, among others.

### *Local Ecosystem Facility*

We recommend a rolling foundation approval model for the grants under \$15,000 and annual RFPs for the two larger categories. Private conservation groups are, like the biome itself, too dispersed to follow the consortium model, and the expectation for a competitive, “democratic” process too great to make the foundation model feasible for the larger grants. The CEPF will need to strive to overcome the bureaucratic pitfalls and delays that have characterized competitive funding sources in the past. Also, it is recommended that the CEPF retain discretion over a defined portion of the funds in order to support emerging NGOs and associations that may be at a disadvantage in responding to open RFPs.

## **MADIDI-TAMBOPATA, BOLIVIA AND PERU**

### **Description**

The vast crescent of territory at the base of the Andes, stretching from Eastern Colombia to Northern Bolivia, by way of Ecuador and Peru, is recognized as being the richest terrestrial biome on earth. And the Madidi-Tambopata region, at the border of Peru and Bolivia is probably the least disturbed expanse of land in the crescent. Among the four ecosystems profiled here, the Madidi-Tambopata region is unique as a bi-national ecosystem containing an immense, officially protected forest wilderness.

Peru’s Tambopata-Candamo Reserved Zone (TCRZ), which includes the 537,053 ha Bahuaja-Sonene National Park and Pampas del Heath National Sanctuary, totals 1.5 million ha. On the Bolivian Side, the Madidi National Park and Integrated Management Area adds 1.8 million hectares, two-thirds strictly protected, and one-third for multiple use. Immediately to the east of the Madidi park is the Pílon Lajas Indigenous Territory and Biosphere Reserve. Elsewhere, the Andes piedmont has been penetrated by roads, heavily colonized, logged, exploited for oil and gas and otherwise notably impacted by human activity. Such pressures are not unknown in Madidi-Tambopata, but are less

intense, have resulted in very small permanent settlements and have left a complex of ecosystems that is spectacular for its size, diversity and intact state.

Lying at the southeastern extreme of Peru and in northwestern Bolivia, the region stretches to the west of the Tambopata River in Peru and is bounded by the Beni River in Bolivia. It is bisected by the Heath River, which defines the frontier between the two countries. The Bolivian side takes its name from the Madidi river, which drains the most remote and untouched part of the region. The Tuichi river, east of the Madidi, drains a vast swath of upland forest and flows into the Beni river. As a whole, the area stretches from lowland Amazonian forest and savannas in the north, to high-elevation montane forests in the south, embracing a wide diversity of habitats along this altitudinal gradient of 250 to nearly 6000 meters above sea level (Conservation International 1991).

The terrain of Madidi-Tambopata varies widely, from rugged Andean ridges to rolling foothills, to Amazonian terraces. Precipitation ranges from 1.5 meters annually east of the Rio Heath, to around three meters in parts of the Tambopata basin. Annual temperature averages are generally in the range of from 20-29 C, with slightly lower averages in the higher elevations of the Madidi National Park. Broad ecosystem categories represented in the area include Southwest Amazonian floodplain forest, savannas (pampas), Andes foothills, lower, middle and upper Yungas and rare dry tropical forest. At a finer level of definition, over 50 vegetation types have been identified in the Madidi National Park and at least twenty have been registered in the TCRZ.

Several ethnic groups within the Takana linguistic group have inhabited the lowlands of Madidi-Tambopata since pre-colonial times, probably interacting as long as 600 years ago with highland Andean groups that migrated to the higher elevation portions of the region during the Incan expansion of the 14<sup>th</sup> and the 15<sup>th</sup> centuries. On the Peruvian side, *Quechua* coffee farmers populate small isolated communities in Puno Department and the upper Tambopata watershed while three populations of Ese' eja (Takana) people, comprising around 600 individuals, survive in the lower foothills and lowlands. These groups are far outnumbered by over 60,000 highland *Quechua* & mestizo colonists who migrated to the Madre de Dios region over the last half-century.

In Bolivia, populations are more dispersed and, where concentrated, have lower population densities than those in Peru. Small groups of nomadic Araona and Toromona numbering less than 100 individuals occupy the lowland forests north of Madidi, proximate to sedentarized colonist communities. Acculturated Tacana (a subgroup of Takana speakers), numbering around 5,000, maintain subsistence-based hunting and agricultural economies in the communities of Tumupasa, Ixiamas and San Buenaventura along the lowland foothills north of Madidi National Park. The Tacana are matched in population by around 5,000 Aymara and mestizo colonists.

Within the multiple use zone and to the south of the Madidi National Park, *Quechua* communities dating to the 14<sup>th</sup> century Incan expansion, with a total population of around 17,000, populate dispersed rural communities adjacent to the park. Within the park, approximately 1,200 *Quechua* live in dry-forest and grasslands around Apolo, while approximately 360 people of mixed Tacana-*Quechua* ancestry live in moist forests in the Tuichi river community of San José de Uchupiamonas.

The Puerto Maldonado region of Madre de Dios department accounts for the largest concentration of people and economic activity in the Tambopata-Madidi wilderness. Also heavily populated are the environs of this city along the roads leading to Iñapari to the North and Cuzco to the West, as well as along the banks of the lower Tambopata river. Within the TCRZ itself, surveys indicated the presence of around 7,000 residents in the early 1990s, more or less evenly divided between areas north and south of Bahuaja-Sonene, which had no permanent human inhabitants. Southern residents are seasonal Quechua and Aymara migrants from the Altiplano who come to cultivate coffee between May and October. Those to the north are second- or third-generation residents who practice subsistence farming. As a whole, the department of Madre de Dios, which encompasses much of the area, has experienced considerable population growth in recent decades. From 1980 to 1990, Madre de Dios led Peru in population growth with an average annual increase of 5.55 percent. From 1990 to 1995, the rate fell to 3.64 percent, third in the country. The department's population is now over 60,000, nearly double the 1980 total (Aramburu 1996; CI 1994; Data on TCRZ population from 1991 Centro Eori census, Chicchón et al. 1995).

To the east of Madidi are the population centers of Rurrenabaque and San Buenaventura, with around 8,000 and 3,000 residents, respectively. Rurrenabaque has long been the regional market for timber and other forest products (animal skins), and now tourism. North of the park, the largest town is Ixiamas, to the south Apolo. Where Rurrenabaque and San Buenaventura are ethnic melting-pots, the Apolo area is populated mostly by descendents of 14<sup>th</sup> century Quechua migrants. Population growth in the Iturrealde province, encompassing the La Paz towns to the north and east of the park, has been a brisk 3.14 percent per year between 1976 and 1992. In Franz Tamayo province, which includes Apolo and the south end of the park, outmigration has resulted in a growth rate of 0.46 percent over the same period (Instituto Nacional de Estadísticas 1997).

## **History of Development**

The extractive economy of the TCRZ began around 1790 with exploitation of the tree *Cinchona spp.* for production of the anti-malarial, quinine. At the turn of the 20<sup>th</sup> century, the Amazonian rubber boom hit, spawning more than 100 rubber concessions in the basins of the Tambopata, Inambari, Madre de Dios, and Manu rivers. The transport route to the highlands followed the Tambopata along a mining company road. After the collapse of the rubber market, the region saw relatively little activity until the 1930s, when the road from Cuzco and Urcos brought a wave of gold mining. Starting in the 1950s brazilnut harvesting became a major economic activity in the lower Madre de Dios drainage. Brazilnut collecting continues to be a major economic mainstay of the region. Another current activity in the TCRZ – and much of the Andes piedmont – is oil exploration. Mobil won a concession in 1996 covering the entire southern portion of the TCRZ.

Finally, in the late 1980s and early 1990s, a growing market for jungle tourism spurred the development of numerous lodges and tour packages in Puerto Maldonado and the Tambopata river. The chief attractions are the clay licks frequented by macaws and parrots along the lower Tambopata, as well as good wildlife viewing opportunities along the river. The Explorer's Inn and Reserve, near the mouth of

the La Torre river has long been a center for tourism and research, though several other lodges have sprung up along the river in recent years. Tourism in the TCRZ is estimated at between 8,000 and 10,000 and visitors per year.

In some ways, the extractive history of the Madidi has been a mirror image of that along the Tambopata and Madre de Dios. The turn-of-the-century rubber boom lured Madidi's population away, to northern Beni, which had commercially attractive concentrations of rubber trees. Similarly, the development of the brazilnut market has attracted and maintained population in Bolivia's extreme north, far from the Andean foothills where the park is situated. Logging and oil exploration, on the other hand, have brought periodic spasms of economic activity to the Madidi area. In the mid-1970s Shell Oil conducted seismic testing in a concession granted in the Tuichi valley, Serranía Eslabón and the Arroyo Kerosene. At around the same time, an unpaved road was completed from San Buenaventura to Tumupasa and Ixiamas, a development that brought new colonist communities to traditionally Tacana, but unoccupied, lands on the northern boundary of the current park. Further exploration was carried out by Shell in the mid-1980s and by Total Inc., in 1995, but commercial development of hydrocarbons in the region has yet to take place. In 1997, Bolivia's new government issued new exploratory concessions to Spanish and Argentine companies in the Tuichi and Madidi watersheds.

The recent history of large-scale logging in the park dates to 1981, when Fatima Ltd. was granted a concession. Logging intensified in the early 1990s, with investments by San Borja and Santa Cruz timber operations, as well as some independent logging by Tacana residents in the Tuichi watershed. Logging peaked in the 1995-1997 period, with 47 logging camps in the Tuichi and Madidi watersheds. Wild meat consumption by loggers caused severe local declines in wildlife, discouraging tourism in the area. By the end of 1997, the consolidation of the park and the dwindling supply of mahogany led to the rapid bust of logging activity in the area. (CI-Bolivia unpublished data).

Nature tourism in the Madidi area has risen more or less simultaneously with that across the border in Tambopata, though not to the same degree. Popularized by a well-publicized account of an Israeli tourist's rescue from the Tuichi valley jungle, the area has seen steady growth in visitors since around 1990. Agencia Fluvial, the first locally owned operation sold 350 tours that year. In 1997 it sold ten times as many tours. Overall, tourism has risen from 1,000 tours purchased in 1992, to 7,000 in 1998. Attractions include both the jungle and pampas, the latter being popular because of easier wildlife viewing opportunities.

### **Current threats**

In the Madidi region, the most serious current conservation threat is the pressure to expand and improve **roads** in and around the park. Bridges are currently under construction over the 12 arroyos that interrupt the San Buenaventura-Ixiamas road. Road expansion continues along the flanks of the Serranía del Tigre, approaching the upper Madidi, driven by private timber concessionaires. Unplanned construction of a road from Tumupasa to San José has reportedly progressed several km. into the park without legally required environmental impact reporting and mitigation. Further, La Paz Prefecture and municipal officials continue to promote and seek funding for the construction of a road between Apolo

and Ixiamas, which would bisect the park. Finally, proposals have periodically been floated to international lenders to construct a road from Ixiamas to Puerto Maldonado, via Puerto Heath. Substantial implementation of these projects would most likely lead to large-scale colonization, as indicated by current land speculation and given the current pressure for land reform in Bolivia (CI-Bolivia, pers. comm.).

Another potential threat is the now resuscitated Bala Narrows **dam**, an idea first proposed in 1955 and then subsequently in 1973. The proposed 205-meter structure would dam the Rio Beni 15 km. south of Rurenabaque. The dam would affect Beni tributaries such as the Santa Elena, Cotacajes, Alto Beni, Tuichi, Quiquibey, Quendeque, Boopi and Kaka, inundating a large area (estimates range widely, by a factor of ten) of forest, eliminating riparian habitat and interrupting migrations of several fish species that spawn in the upper Beni. In the Madidi National Park, the resulting lake would likely submerge the Chalalán ecolodge, run by CI and the community of San José, as well as the Caquiahuara macaw licks and a lodge built nearby by EcoBolivia (Barrera 1998).

A third threat is that **oil and gas** deposits are actually developed by the current Spanish and Argentine concessionaires or other, future concessionaires. Oil spills, unearthed heavy metals and new rights-of-way for access and pipelines could upset ecosystem functions and induce colonization in the upper Madidi basin, which is one of the best preserved and most biologically diverse areas in all of the Amazon basin.

**Timber extraction** in the Madidi area is a reduced threat when compared to the pace of logging in the mid 1990s. This trend is due in part to the fact that commercial mahogany has been largely logged out, logging operations have moved north, to Pando, and park guards have begun to exercise their authority. However, a short-term resurgence of the industry is entirely possible, given commercially attractive densities of second-tier species cedar (*Cedrela fissilis*) and oak (*Amburana cearensis*). In 1997 the government re-issued a controversial timber concession within the park to logger FATIMA S.A. Among other problems, the concession raises sticky questions about rights of local residents to the forest resources in question.

In Peru, current pressures are similar, though in different degrees. Two **roads** are of concern due to their potential to induce colonization. One connects Puerto Maldonado to Iñapari, but, more importantly, represents a link in one of several much-discussed inter-oceanic transportation routes. The larger connection is between the Atlantic coast of Brazil and the Pacific coast of Peru. The other road links Puerto Maldonado with Puno. The larger significance of this connection is that it diversifies the Tambopata's outside links beyond Cuzco, which has traditionally played a powerful role in the development of the area. It also would facilitate migration by farmers from the crowded highlands around lake Titicaca. In both cases, at least seasonally passable tracks exist; at issue is their improvement to more permanent, reliable roads.

The existing road from Puerto Maldonado to Cuzco illustrates the potential consequences of road building in the area. This road is heavily colonized, and farmed much more intensively than older settlements along the major rivers. Where farmers on the Tambopata river may open a hectare a year

and follow the same amount, on the road farmers will clear five hectares or more without idling a similar area. This dynamic may be partly due to the new migrants' lack of experience with jungle farming, and is certainly due in part to the less productive soils bordering that particular road. In any case it is forcing farmers to log and farm in an increasingly wide band around the road.

**Oil** development represents another serious threat, probably more immediate than the threat posed by this activity in the Madidi area. Mobil's exploration has taken place in the Candamo basin in foothill terrain of the southern TCRZ. If oil is exploited, the risks from spills and the impacts of pipeline construction will be significant due to the rugged terrain. Further, exploitation will likely deter stricter protection of the southern portion of the Zone, which was excluded from Bahuaja-Sonene because of the Mobil concession. The threats from oil extraction are somewhat mitigated by the fact that Mobil has engaged CI to participate in joint monitoring of the biological impacts of the operation.

**Gold mining**, both small- and medium-scale, poses threats, particularly to aquatic life. On the Rio Malinowski, miners collect gold by washing the banks of the river and separating the metal from the resulting sediments. Larger operators run floating dredges collecting sediment straight from the river. The most ambitious operations, prevalent in the west of the TCRZ, use heavy equipment to mimic the first method on a grander scale. All three methods result in increased sediment loads, which have notably impacted the fish resources available to farmers living downstream of the confluence of the Malinowski and Tambopata.

## **Existing Conservation Investments**

### *Donors*

- Government of the Netherlands (Bolivia and Peru)
- United States Agency for International Development (Bolivia and Peru)
- Inter-American Development Bank, Multilateral Investment Fund (Bolivia)
- John D. and Catherine T. MacArthur Foundation (Bolivia and Peru)
- W. Alton Jones Foundation (Bolivia)
- Ashoka Foundation (Fellows in Bolivia and Peru)
- Marsh Foundation (Bolivia)
- Citibank (Peru)
- OXFAM (Peru)

### *Implementers*

#### Bolivia

**CARE (Denmark):** Since 1997 CARE has been implementing a pilot project in providing potable water and sanitation services and training in watershed protection to four rural communities in and around the Madidi National Park. CARE is now expanding that project to a projected 35 communities,



planning assistance to the government in management of the park, and developing the park's management plan together with the Institute of Ecology and Wildlife Conservation Society.

**Centro de la Defensa de la Cultura:** CEDEC (Cultural Defense Center) is a local NGO that has been implementing health programs based on malarial eradication and emergency response in and around the Madidi National Park since 1996. The group is also developing a crafts center in Tumupasa and intends to expand its activities to include sanitation linked to productive activities.

**Conservation International:** CI was an early advocate for park creation, following documentation of the area's biodiversity in a 1990 Rapid Biological Assessment (RAP) expedition. Since 1994, CI has worked on nursery production, agroforestry research and implementation of a community ecotourism project within the integrated management zone of the park. The project has social/health development, enterprise and scientific research components. In 1997 CI began an outreach campaign focusing on endangered primates and the impacts of illegal hunting on species and nature-based tourism. Since 1995, CI has monitored and communicated impacts and threats posed by logging, hunting, roads and oil/gas development. Finally, CI conducted a second RAP expedition in the area in 1997.

**Fundación EcoBolivia:** Since the 1960s, EcoBolivia's founder has pioneered awareness of the ecological importance of the Madidi and Tuichi wilderness among national and international publics. EcoBolivia was instrumental in early lobbying for park creation. Beginning in 1994, EcoBolivia was the first entity to post conservation signage within the protected area, resulting in the protection of critical habitat during a conflict-ridden logging boom. EcoBolivia and has continued to work for consolidation of the area's protected status and has constructed basic low-impact tourism infrastructure, near critical macaw habitat, near the mouth of the Rio Tuichi and at Arroyo Moita, near the northwestern extreme of the park.

**Veterinarians Without Borders:** VSF has co-managed the Pílon Lajas Biosphere Reserve and worked with colonists and indigenous Chimán people and others in the Reserve, adjacent to Madidi National Park, to the Southwest. Though working outside the immediate Madidi area, VSF shares an interest in the Beni watershed and its possible development for hydropower.

**Wildlife Conservation Society:** WCS is planning biological research in the Madidi area. WCS has been a leading supporter of EcoBolivia since 1993. Please see also under CARE, above.

**Government, Bolivia – Dirección General de la Biodiversidad:** DGB was responsible for protected area planning and passage of the Supreme Decree that created the park in 1995. Official conservation activities revolve around consolidating the national park. With funding from the Dutch government, DGB staffed the park and performed park protection beginning in 1997. In 1997, park management organized a community oversight committee to jointly take decisions regarding land and resource use in Madidi National Park and its integrated management area. Park staff were primarily responsible for the eviction of 47 logging camps from the park in 1997 and 1998. To date, fifteen guards have been trained, equipped and stationed at four guardposts, while a small administrative staff and the park director are based in San Buenaventura.

## Peru

**Asociación para la Conservación de la Selva Sur:** ACSS (Southern Jungle Conservation Association) originated as “friends of Manu,” and worked in the national park by that name. The organization is associated with ecotourism operations and now works in the Lago Sandoval area near Puerto Maldonado.

**Asociación Peruana para la Conservación:** APECO's (Peruvian Conservation Association) focus is on environmental education and has a formal agreement with the Ministry of Education to develop a training course for teachers on how to integrate environmental education into their curricula.

**Centro Bartolomeu de las Casas:** A group led by a Catholic priest, this group focuses on social issues, land tenure, and curbing impacts from mining and oil development.

**Centro Eori:** This group's focus is on strengthening local communities and their capacity for development and conservation of resources. Centro Eori has worked to assist native communities in gaining recognition for their territorial rights, and has conducted related research in the Ese' eja communities. The group has assisted FENAMAD and FADEMAD (see below).

**CESVI:** An Italian NGO, this group has aims similar to those of FENAMAD (See below): aid to Ese' Eja communities for needs such as brazilnut dryers, wells and small animal husbandry.

**Comercio Alternative para el Desarrollo de Productos no Tradicionales para Latinoamerica:** Candela's work centers on marketing alternative forest products. Its Puerto Maldonado operation has focussed on brazilnut marketing strategies to increase benefits to nut collectors. Support for Candela has come from the European funders and through CI-Peru.

**Conservation International:** As in the case of Madidi National Park, CI was an early advocate for creation of the Bahuaja-Sonene park and conducted a RAP expedition in the area, which provided supporting evidence for the park's importance. Currently CI is involved in a variety of activities that mostly fall under the rubric of sustainable development. These include work on sustainable agriculture along the Cuzco road, work to increase efficiency of brazilnut collection in the lower Madre de Dios basin, promotion of shade coffee in the Puno portion of the area, fauna and fisheries management, and management of non-timber forest products. These activities make up the organization's Prodescot (Tambopata Program for Conservation-based Development) initiative. In addition, CI monitors the biological impacts of Mobil's operations with funding from the company's foundation.

**Federación Agraria Departamental de Madre de Dios:** FADEMAD (Madre de Dios Agrarian Federation) is a small farmer group with 5,000 member families along principal roads and rivers around Puerto Maldonado. FADEMAD has implemented several activities aiming to increase the sustainability of colonist agriculture and has collaborated with conservation groups working in the area.

**Federación de Nativos de Madre de Dios:** FENAMAD (Madre de Dios Natives Federation) represents 40 indigenous groups in the province of Madre de Dios, four of them in the Tambopata area. In the TCRZ it assists the native communities with brazilnut management, use of river turtles, and other productive projects. FENAMAD has a sub-entity in the area – the Brazilnut Extractors Association, which focuses on interests of that group of people.

**Fundación Peruana para la Conservación de la Naturaleza:** Pronaturaleza, as it's called, played a lead role in the management of the Pampas del Heath National Sanctuary from 1990 to approximately 1996. The group has not had a presence in the region for the last couple of years, but now has funding to re-establish it's Puerto Maldonado base and will focus on conservation of Bahuaja-Sonene and the northern portion of the TCRZ.

**PREVIT:** This NGO has supported productive projects in Aymara and Quechua communities in the Puno portion of the TCRZ.

**The Tambopata Research Society:** TREES supports small-scale conservation activities, particularly in biological research. TREES has carried out wildlife monitoring work both in the northern and southern portions of the region, and has investigated the impact of human activities on local fauna.

**Wanamey:** This organization promotes education in Puerto Maldonado on environmental themes.

**Government, Peru – Instituto Nacional de Recursos Naturales:** Due to economic and political turmoil in the late 1980s and the early part of this decade, the TCRZ and Pampas de Heath sanctuary saw little official presence. During that time, the park administration function for the sanctuary has been assumed by Pronaturaleza. INRENA's Protected Areas and Wildlife Directorate is now reasserting itself and taking the lead role in the planning and management of the region's protected areas. The TCRZ and Bahuaja-Sonene National Park have 10 guards, stationed at six functioning posts.

## **CEPF Investment Strategy**

In contrast to the other ecosystems profiled here, in Tambopata-Madidi the Peruvian and Bolivian governments have already made large conservation commitments, officially protecting much of the region. The conservation opportunity here is to make the governments' conservation investments real, with effective field implementation of their objectives for protection. A further opportunity is to combine forces to manage the contiguous cross-border protected area more effectively and economically than is possible without binational coordination.

Of fundamental importance is assistance to Governments in consolidating parks. NGOs can play a useful role in equipping and training guards, helping build park infrastructure, disseminating information to increase visitation and public support for the parks, and providing interpretative services and materials. A related area in which NGOs can be of assistance to governments is to provide GIS services essential to planning and control of the protected areas.

These are all, strictly speaking, public functions that fall within the mandates of the Bolivian DGB and the Peruvian INRENA, such that NGO contributions in this area are best seen as complementary to government efforts. Nonetheless, throughout the tropics, NGO involvement with specific protected areas has proven an immensely important and practical form of public engagement and support for parks.

A related role for NGOs and the private sector in general is the promotion and management of tourism in Madidi-Tambopata. A thriving ecotourism sector has developed on both sides of the border and can only be expected to continue growing in the near future. Private entities – both for-profit and non-profit – can play a role in encouraging that growth, and in guiding it so that the quality of the natural/cultural experience and the resources on which they are based are not diminished. CEPF could facilitate the development of guidelines for tourist operations and publication of information on currently well-managed enterprises.

On the Peruvian side, a pressing concern for almost all groups in the area is to sort out land tenure, particularly immediately to the north of the TCRZ, as well as within and to the north of the Madidi National Park. A great deal of uncertainty exists over land tenure along the major roads and rivers, which complicates land-use planning and undermines the security of farmers' and indigenous groups' holdings. This disorder also can play havoc with security of traditionally used brazilnut harvest areas. As a group, the NGOs active in the area have natural advantages for assisting with the process of investigating the land tenure situation: established relations in most communities and research/GIS capacity.

A major threat to the integrity of the entire frontier natural area is the construction of new infrastructure and the development of public, particularly sub-surface, resources. Roads and oil development have the potential for large impacts on both sides of the border. On the Bolivian side there is also the threat of large-scale hydropower development. NGOs, associations and small enterprises are all legitimate stakeholders in these public decisions, but often see their participation limited by a lack of knowledge on

the projects and the criteria for their approval. CEPF can play a role in making their participation more robust by funding the transfer of knowledge on these large projects to the various groups working in the region and by increasing groups' capacity to comment on technical aspects of the projects.

The fact that the TCRZ and the Madidi National Park and Integrated Management Area are contiguous is not only enormously beneficial ecologically. It also presents significant opportunities for coordinated management. In particular, Peru and Bolivia share the Rio Heath watershed, one of the least accessible parts of the region. By sharing information, coordinating patrols and creating a framework for joint authority in the zone, the two sides could increase effectiveness and lower the costs associated with managing the basin.

In a more general sense, coordination between the Peruvian and Bolivian officials would present a number of advantages. The combined area would present a more unique and competitive funding opportunity for international aid donors. Ecologically driven management decisions could be taken for species that cross the international border. And, regulations on land uses promoted and proscribed could be harmonized so as to avoid "pushing" and "pulling" of particular economic activities across the border.

Therefore, CEPF should provide support for exchanges of information between the two countries, for exchange programs that take staff for professional sojourns from one country to the other, and for cross-border biological research projects. Further, priority should be placed on creating an information system for the entire Tambopata-Madidi (and beyond) biological corridor, which will be easily accessible by government staff in both countries. Finally, a framework should be developed for cross-boundary legal authority for park guards, and for housing a headquarters for a potential bi-national biosphere reserve.

### *Local Ecosystem Facility*

The Madidi-Tambopata biome is one where the coalition-style delivery could have real advantages (Please see discussion of alternative delivery methods in Section III). The area is clearly defined and there is significant geographic overlap in the activities of the various NGOs working there. Joint planning and implementation could draw groups closer together, and avoid the potential for duplication and conflicts. Further, if true international coordination in management of a shared protected area is to work, there must be a concrete way to bring the conservation actors from the two countries together. A process of allocating conservation funding is one way to attract participation by a large number of groups. As observed above, however, the CEPF will need to ensure that effective fulfillment of the ecosystem strategy is not trumped by a desire to be 100 percent inclusive in funding interested groups.

## **OKAVANGO DELTA, BOTSWANA**

### **Description**

The Okavango Delta stands apart from the other ecosystems profiled here for a very simple reason: it is a wetland, not a forest. It presents entirely different challenges from the others, having primarily to do with management of water resources and the surrounding rangeland. The 16,000 km<sup>2</sup> delta is created by a river with the same name, which descends from the highlands of Angola's Benguela Plateau as two tributaries, the Cubango and the Cuito. The rivers join together to form the Okavango, which then crosses Namibia's Caprivi strip before being channeled through narrow fault lines in Botswana, and ultimately spilling over into the sands of the Kalahari Desert.

The Okavango is one of only a few rivers in the world that does not flow to the sea, its path blocked by the same geological movements that created the rift of the Kalahari-Zimbabwe Axis. Earth movements continuously redirect the many channels in the Okavango delta, but the channels eventually come together as they run into the Thamalakane fault, which forms a natural barrier for over 200 km. The delta's waters run parallel to this fault and leave the delta draining southward in the form of the Boteti river. Inflow to the delta averages 10,300 million cubic meters per year. Outflow averages 288 million cubic meters per year. Ninety-five percent of the water flowing to the delta is lost through evapotranspiration, 2.5 percent is lost to infiltration, and 2.5 percent flows out of the delta via the Boteti. In the past 10 years there has been almost no outflow from the Okavango via the Boteti.

The Okavango Delta is not only home to a great number of aquatic, amphibian, and bird species, it is also the focal point of a wildlife dispersal area extending to Namibia, Zambia, and Zimbabwe. The delta attracts large-scale migrations of large mammals, including a wide variety of predators. Signature species for the grasslands surrounding the delta include the red lechwe, sitatunga and reedbuck. Tsessebe, impala, zebra, wildebeest, cape buffalo, hippopotamus, elephants and giraffes are also common. Leopard, lions, cheetahs, both southern species of hyena, wild dogs, and crocodiles are the more prominent predators.

The Okavango Delta is situated on the Tropic of Capricorn, at an altitude of 3,000 ft above sea level. It enjoys a subtropical climate, with cold winters in June and July, sometimes dropping to freezing. The spring and fall months are clear and mild, but the rainy summers from October to February are hot, with temperatures sometimes reaching over 40 C. Rainfall is sporadic, averaging 400 cm a year. The delta's regional importance is magnified by the fact that water levels peak during the dry season when rainfall in the region is scarce. This favorable timing is due to the fact that the rains in Angola, which constitute the primary source of water for the delta, take approximately six months to make their way south to Botswana and then filter through the wetlands.

The Okavango Basin sustains a population of about 100,000 indigenous peoples of varying ethnic backgrounds (Bushman, baYei, Humbukushu, Batswana). Indigenous peoples survive mainly on the delta's natural resources – fish and wildlife, wild fruits and vegetables, palm leaves for crafts, trees for dug-outs boats, and grass and reeds for building and medicinal plants. In the last 100 years cattle have

become a part of the local economy, but those living within the Okavango do not own cattle. The newest economic activity in the area, tourism, has recently begun to generate income for local inhabitants.

## **History of Development**

Threatened by Afrikaners eager to mine gold discovered in the eastern part of the country during the late 19<sup>th</sup> century, Botswana requested and obtained British assistance, becoming a British Protectorate in 1885 (protectorate of Bechuanaland). Although the British Cape Colony became part of the South African Union in 1910, Botswana did not follow suit and chose to remain autonomous. The price for that decision was economic isolation. By independence, in 1966, Botswana was one of the twenty-five poorest countries in the world.

That state of affairs changed radically shortly after independence, when diamonds were discovered. The first mine officially opened in 1971, and diamonds rapidly became the focal point of the economy. Since then, Botswana's economy has averaged a growth rate of 9.2% a year, the fastest in the world, though wealth has been very unequally distributed and growth has slowed of late. Together, production of diamonds and other minerals amounts to roughly a third of Botswana's GDP, down from a peak of 53% of GDP in 1988/89. The decline has been due in part to a growing manufacturing sector. The government lowered corporate tax rates in 1995/96, helping to attract foreign direct investment from Hyundai and Volvo. These companies have established assembly plants in Botswana, and vehicles are now second only to diamonds in terms of export earnings.

Lack of arable lands (only about 5 percent of the country) and unreliable rainfall combine to keep Botswana's food crop production low. Crops are primarily grown in the southern and eastern parts of the country – far from Okavango – which has most of the country's arable land. Botswana makes up for shortfalls in food crops with a strong livestock industry, which has spread to the remote Okavango in recent years. Cattle and other livestock have great traditional significance for Botswanans, and account for 80 percent of agricultural output. Because Botswana's cattle is kept mostly free of foot and mouth disease, the industry has access to European markets, where it benefits from a 90 percent reduction in import duties under the Lomé Convention.

Forestry and fishing are both limited, but both expanding industries. Commercial fishing, especially in the narrow northwestern panhandle of the Okavango has already begun to cause problems as fishermen are now using motor boats and fine mesh nets to take fish in greater quantities. A sawmill has also been built in Kasane to exploit Mopane forests to the northeast of the delta, even though forests are currently overexploited as sources of domestic fuel.

Finally, tourism in the Delta is increasing rapidly. Political unrest in Tanzania and Kenya, combined with overcrowding at popular sites in those countries has opened the door for other countries in the region to expand their share of the market. Botswana's tradition of democracy and political stability and its unique natural and wildlife resources make it a logical alternative. To date Botswana has sought to promote low-volume but high-end tourism as a means of maximizing revenues while minimizing impacts

on the delicate delta environment. This strategy has proven successful, as tourism has become the third largest contributor of GDP (after mining and livestock), with the Okavango Delta the leading tourist attraction.

## **Current Threats**

A number of forces could destabilize the delicate ecology of the delta. These threats can be divided into two categories. The first category includes threats to the delta's hydrological balance and aquatic life. The second category includes threats resulting from agricultural development plans around the delta.

The most obvious threat in the first category is large-scale **water withdrawal**. Namibia is currently in the process of implementing plans for a pipeline that would take water from the Okavango where it crosses the Caprivi strip, and divert it toward Windhoek, the Namibian capital. Although the amounts of water diverted in the short term would probably not spell disaster for the delta, there is concern that the pipeline was conceived without adequate environmental assessment or consideration of alternatives. Further, given the aridity of northeastern Namibia, it is expected that Namibia will gradually increase diversions until the delta is, in fact, seriously affected.

The second most serious threat would come from **dams** in Angola. Although political instability has to date prevented dams from being constructed, visits by Brazilian engineers with experience in dam construction indicate that Angola is at least considering this possibility. Aside from altering flow patterns, dams also accumulate sediments and prevent them from traveling downstream, a problem that deserves a few words of explanation:

Sedimentation is vital to the delta's functioning. As water flows into the delta, it spreads into secondary channels. As it enters these channels, it slows, and the suspended sediments begin to sink. As sediments sink, they accumulate and combine with peat in the reed beds to raise water levels in the channel. The channel then spills its waters into the surrounding floodplain where it is more accessible to terrestrial wildlife. When enough sedimentation and peat accumulate, the channel becomes blocked off to new water flows, and the channel dries to form a small island. Eventually the peat burns off, lowering the island, and water once again moves in. If water flowing through the delta contains less sedimentation, it will not only deposit less, but will most likely also scour channels and make them deeper. The result will be that channels will not overflow into floodplains as frequently, wildlife will suffer, and the hydrological balance will be disrupted.

**Overfishing** by commercial interests has also become a problem, especially in the "panhandle" segment of the Okavango river, the segment of river between the Caprivi and the delta itself. Commercial fishermen use power boats and fine mesh nets drawn from one bank to the other, and clear grass on the banks to dry their fish. As these practices increase, the impacts on the delta's marine life and on species living near the eroding river banks are being felt more acutely.

Among threats in the second category – those resulting from land-use around the delta – **cattle ranching** is the clearest and most pressing problem. **Overgrazing** by cattle is depleting vegetation and



exposing soils and eroding riverbanks. But, more importantly, veterinary cordon **fences**, erected to control disease by keeping cattle separate from wildlife, are preventing wildlife migrations. Cordoning off an area allows the government to claim the area as disease free, which in turn makes it eligible for beef sales to the European Community at highly advantageous terms under the Lomé Convention. These fences run for thousands of kilometers throughout most of the country, and in some areas are doubled and electrified. As a result, populations of several important species, such as wildebeest, have plummeted.

Veterinary cordon fences have been used in Botswana to control disease since the mid-1950s. However, in 1997 hundreds of kilometers of additional fences were erected near the delta and throughout the wildlife dispersal area, ostensibly to combat an outbreak of cattle lung disease. The usefulness of these fences was called into question, as the Government of Botswana was ultimately forced to slaughter close to 300,000 head of cattle to contain the outbreak. Whatever their effectiveness for veterinary control, the fences do appear to serve a second, non-veterinary purpose, which is to subdivide land and promote large-scale ranching. Ranching wealth is very concentrated, with only 5,000 of Botswana's 1.5 million people categorized as farmers. Many of the ranchers are also government officials, making the sector particularly influential.

The Government of Botswana is currently considering plans to sink boreholes for water in a newly fenced area northeast of the delta. If boreholes and ranches are established within this zone, which is currently free of large-scale development, the delta will be surrounded by agricultural development, and its viability as an ecosystem will be seriously compromised.

## **Existing Conservation Investments**

### *Donors*

- U.S. Agency for International Development
- European Union
- IUCN – World Conservation Union
- UK Department for International Development
- United Nations: DANCED
- Debswana Diamond Co.
- Land Rover
- The Byers Foundation
- The Marden Foundation
- The Auld Foundation
- The Laing Foundation

### *Implementers*

A smaller assortment of NGOs is active in the Okavango Delta than in some of the other ecosystems profiled here. Those present represent a mix of American and European NGOs and locally- or regionally-based groups.

**The Chobe Wildlife Trust:** CWT works in and around the Chobe National Park, assisting with wildlife management, reintroducing formerly indigenous species, conducting wildlife surveys, creating water points (artificial watering holes for cattle), and managing an interpretive center in the park. The Trust's work does not extend to the delta itself.

**Conservation International:** CI's program in Botswana is headquartered in the Delta, in the town of Maun. CI has established the Letswee Environmental Education Centre and Wildlife Education Park in Maun, and is working with five villages to open an Okavango Wilderness Camp, also for environmental education purposes. CI has also supported biological research on several indicator species in the delta, including wild dogs, lions, leopards, elephants, and African skimmers. Aside from coordination efforts via the Okavango Liaison Group and the Ad Hoc Committee on Fences (see below), CI also works directly with government to provide input on environmental laws and policies. Finally, CI has established the Shorobe Basketry Cooperative.

**International Union for the Conservation of Nature:** IUCN has an office in Gabarone, the capital city, and is active on policy issues relating to the delta, as well as transboundary issues in Chobe National Park.

**The Kalahari Conservation Society:** KCS focuses on land use and wildlife. KCS is based in Gabarone and has branch offices in Maun and Francistown. The organization conducts wildlife surveys and environmental impact assessments and contributes to protected areas management plans. Another important component of KCS's activities is lobbying government regarding wildlife and natural resource policies, and engaging in education and publicity efforts.

**The Kuru Development Trust:** KDT focuses on assisting marginalized communities (especially San bushmen) in achieving greater economic self-sufficiency. In particular, KDT provides advice for small business development and income generating activities in general. KDT manages agricultural projects and agricultural research, as well as a cultural center and an education and training center. KDT does not have an explicit conservation focus.

**The Okavango People's Wildlife Trust:** OPWT also works with communities, monitoring environmental health and advocating on their behalf. OPWT has been particularly active on the issue of fencing and hunting impacts on wildlife, and are planning to begin a fire education and prevention program.

**The Southern Africa Sustainable Use Specialist Group and the Peace Parks Foundation:** Both headquartered in South Africa, these groups work on transboundary conservation issues.

**World Wildlife Fund:** WWF works in the Caprivi Strip of Namibia, upstream of the delta on the Okavango River. With funding from USAID-Namibia, WWF is implementing a community development project called LIFE (Living in a Finite Environment).

**The Okavango Liaison Group:** Three NGOs, CI, the International Rivers Network (IRN), and the Kalahari Conservation Society, have come together to form the OLG, which presents a united front on conservation issues. CI was also involved in establishing the Ad Hoc Committee on Fences, a cross-sectoral committee designed to bring together NGOs, government representatives, academics, and the private sector to discuss veterinary cordon fences.

**Government:** Several protected areas exist in and around the delta, in particular the Moremi Game Reserve and the Chobe National Park. Botswana also has a National Conservation Strategy, which was adopted in 1990, and a number of environmental laws. However, Botswana does not have a unifying environmental statute or a constitutional provision that integrates the various environmental laws, and therefore implementation of these laws and policies is frequently limited by either incomplete or overlapping mandates.

Government efforts to better manage the delta and its dispersal areas include a commitment to conduct an environmental impact assessment of the veterinary cordon fences. The delta has also been designated a Ramsar (wetlands protection convention) site by IUCN. A management plan will be drafted for the wetland in keeping with the convention. Finally, Botswana, Angola and Namibia have formed the Okavango River Basin Commission (OKACOM) to coordinate and monitor conservation and sustainable use of the Okavango River, Delta, and watershed. Implementation of each of these measures has been slow, however, and the Government of Botswana is not currently engaging in extensive conservation programs in the delta.

### **CEPF Investment Strategy**

Despite the recent increase in the number of NGOs operating in and around the Okavango Delta biome, and despite the fact that biological and socio-economic studies of the region continue to be produced, the Okavango Delta remains highly threatened, and a coordinated conservation strategy has not yet emerged. This appears to be due in part to the fact that NGOs have not had access to a mechanism capable of disbursing funds rapidly. Small grants that are readily accessible in the short term are important because the government has acted quickly in the past to respond to certain crises, such as cattle disease outbreaks or droughts, without conducting environmental impact analyses. It is also important because the government frequently implements significant land-use decisions without prior consultation or warning. Local communities and NGOs must have the capacity to respond to events and government decisions that are likely to have a significant impact on the environment, and this in turn requires that they have access to a source of funding that can make rapid disbursements.

Another constraint is that the sources of funding available in the region have not to date adopted an ecosystem approach. One of the key problems that has prevented effective conservation is that funding has not been directed toward unifying the research and activities being conducted in the region and fostering communication between the stakeholders internationally. A source of funding that focuses specifically on ecosystem conservation on the international scale has not been available, and this has limited non-government organizations from developing a coordinated international Okavango Delta conservation strategy.

*Types of activities:*

There are a number of priorities for assistance within the Okavango Delta region. First, **fostering improved cross-border and cross-sectoral communications** between and among communities and governments will help promote successful transboundary initiatives. Such activities could include site visits by community members from Botswana to successful community-level projects in Namibia, as well as visits to government agencies to break down barriers between communities and the government. These activities could be complemented by cross-sectoral and cross-border communications targeting government.

Included within this priority is the need to **improve land-use planning** through community participation and awareness, coordination between governments of land-uses along the Caprivi border, inter-sectoral communication within governments and facilitation of dialogues between government agencies, local NGOs, and local communities whose livelihoods revolve around resources in the transboundary area, as well as between communities across national borders.

Another priority will be to **support land-use mapping as a tool for communities and decision-makers**. Specifically, a map showing official land-use classifications and actual land uses as well as the ecological and biological data discussed in this proposal would be a helpful baseline with which Governments and communities can design appropriate land use zones.

To help harmonize land-use planning in the Okavango Delta, another key priority will be to support **assessment of management systems and analysis of policies governing access to natural resources** in the region. Unless decision-making authority in the region is clear, implementing activities will be difficult. Among the activities which could be supported are an assessment of the tribal, regional and national land management authorities operating in the area, an analysis of laws and policies that might act as a barrier to transfrontier conservation in the study area, and a thorough comparative study of land-use policies with the specific goal of establishing a more efficient, transboundary conservation and development approach.

Finally, support should be provided for **a full economic assessment of current and alternative development strategies in the region**. Analyses are required at both community and government levels to assess the economic performance of alternative development strategies from both perspectives. Activities to be supported could include an analysis of the profitability of cattle ranching in north east Okavango, and a cost-benefit analysis to compare the economic performance of cattle ranching with alternative natural resource based development strategies such as ecotourism and wildlife utilization. This latter study could broaden into a socio-economic study of alternative development strategies from the perspective of the local communities.

### *Local Ecosystem Facility*

The Okavango Delta region is characterized by significant geographic overlap among NGOs that already work reasonably well together. For these reasons, a coalition-style delivery method could be effective as a local ecosystem facility. This system could also help to bring conservation stakeholders from both Botswana and Namibia together and facilitate communication and coordination among the various actors. However, as in the Madidi-Tambopata region, the CEPF will need to ensure that effective implementation of the ecosystem strategy is not harmed by a desire to be fund all interested groups.

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## ANNEX 1: GLOBAL BIODIVERSITY HOTSPOTS

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1. Caucasus
2. Atlantic Forest
3. Cape Floristic Region
4. Chocó-Darien-Western Ecuador
5. Brazilian Cerrado
6. Central Chile
7. Eastern Arc Mountains and Coastal Forests Tanzania and Kenya
8. Guinean Forests of West Africa
9. Mountains of South-Central China
10. Indo-Burma
11. Madagascar and Indian Ocean Islands
12. Mesoamerica
13. Philippines
14. Polynesia/Micronesia
15. Succulent Karoo
16. Sundaland
17. Tropical Andes
18. Wallacea
19. Western Ghats and Sri Lanka
20. Caribbean \*
21. California Floristic Province \*
22. Mediterranean \*
23. New Caledonia \*
24. New Zealand \*
25. Southwest Australia \*

Source: “Hotspots, Earth’s biologically richest and most endangered terrestrial ecoregions” Mittermeier et. al. 1999

\* These areas include countries not eligible for CEPF funding through the World Bank.

## ANNEX 2: NEEDS FOR FURTHER PUBLIC PROTECTED AREAS IN ATLANTIC FOREST

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Reviews in public conservation units reveal several serious gaps in the Atlantic Forest. In the Northern Atlantic Forest there is very little publicly protected land. Serious gaps exist between Una and Porto Seguro, North of Itacaré and in the inland and *restinga* forest in general. In the Southern Atlantic forest, gaps are particularly acute in the “seasonal” (deciduous and semi-deciduous) forest, aruacaria forest and *restingas*. Specific priority areas for new conservation units, expanded units or stricter protection of existing units included:

- Bodoquena area;
- Serra do Brigadeiro (MG);
- Marumbi State Park;
- Irati National Park;
- Quedas de Iguaçu;
- Superagui National Park;
- Bertioiga e Sebastião;
- Linhares Forest Reserve
- Bralanda Forest Reserve
- Guaratinga
- Porto Seguro
- Belmonte/Canavieiras
- Una
- Maraú/Camamú
- Recôncavo
- West of Bahia de Todos os Santos

*Sources: Priority setting processes for Northeastern and Southern/Southeastern Atlantic Forest (Conservation International, Fundação Biodiversitas, S.O.S. Mata Atlântica, Fundação André Tosello, Sociedade Nordestina de Ecologia); R. Rocha, pers. comm.*



**The Critical Ecosystems Partnership Fund  
Policy Conformity Annex for the Global Environment Facility**

1. General Considerations:

- The GEF Council is requested to approve a 5-year, \$25 million GEF contribution to the partnership.
- The partnership's Advisory Committee will be responsible for endorsing the funding envelope for each ecosystem (21 in total) based on each Ecosystem Profile (EP) consistency with this Conformity Annex. The GEF Secretariat will be represented on the Advisory Committee. The approval of each EP will be by consensus.
- GEF funding will be a 1-1 match to the annual World Bank contribution, not to exceed \$5 million per year.

2. Ecosystem-Specific issues at time of EP approval by Advisory Committee:

<b>Policy issue</b>	<b>Each Ecosystem Profile (EP)</b>
<p><b><u>1. Country Ownership and Country Drivenness</u></b></p> <p>(a) Ratification</p> <p>(b) Activities are national priorities as expressed in the NBSAP, CBD National Report, etc.</p>	<p>Confirmation that each country is eligible for GEF financing.</p> <p>EP will articulate the importance of these sites at the ecosystem level.</p> <p>Letters of endorsement from focal point(s) of each country required for each ecosystem. These letters will be sought using a simplified EP.</p>
<p><b><u>2. GEF Program and Policy Conformity</u></b></p> <p>(a) Fit with Ops</p> <p>(b) Global Environmental Issue Addressed</p> <p>(c) Baseline</p> <p>(d) Alternative GEF Scenario</p>	<p>Description.</p> <p>Description of global environmental benefits (biodiversity) to be secured/obtained.</p> <p>Fully described, including sectoral issues, root causes, threats, barriers to be removed, etc.</p> <p>Global benefits to be generated.</p>

<p>(e) GEF Incrementality</p> <p>(f) Sustainability</p> <p>(g) Replicability</p> <p>(h) Stakeholder Involvement</p> <p>(i) M&amp;E</p>	<p>GEF funds allocated on a matching-basis to the World Bank for the partnership as a whole</p> <p>Clearly outlined.</p> <p>Fully described with clear actions for dissemination at national and global levels.</p> <p>Identification of major stakeholders. Clearly identify the roles and responsibilities of relevant stakeholders within each ecosystem.</p> <p>Draft M&amp;E plan, including indicators to measure EP impact. Identify how EP incorporate lessons from similar past and ongoing projects.</p>
<p><b><u>3. Financing</u></b></p> <p>(a) Estimated sub-project size.</p> <p>(b) Sources of financing.</p> <p>(c) Financing instruments.</p> <p>(d) Cost-effectiveness.</p>	<p>Investment strategy that will be submitted for each ecosystem profile.</p> <p>Included in investment strategy.</p> <p>Grants administered by CI.</p> <p>Reference to standard description of cost-effectiveness at the program level indicating ecosystem-specific issues when appropriate.</p>
<p><b><u>4. Institutional Coordination and Support</u></b></p> <p><u>(a) Core Commitments</u></p> <p>(i) IA Assistance Program Fit</p> <p>(ii) Complementarity to GEF-funded Activities in Country.</p> <p>(iii) Links to Other Programs.</p> <p><u>(b) Coordination With Other IAs</u></p>	<p>Description of fit with IA program. Underlying causes of biodiversity loss addressed as part of the baseline.</p> <p>Full description as part of baseline description.</p> <p>Full description as part of baseline description.</p>

<p>(i) Identify relevant activities of other IAs and EAs.</p> <p>(ii) Outline Coordination Between IAs and Eas</p>	<p>Full description as part of baseline description.</p> <p>Description of coordination during EP preparation.</p>
<p><b><u>5. Responsiveness to Reviews</u></b></p> <p>(a) Response to STAP Comments.</p> <p>(b) Response to CBD Secretariat Comments.</p> <p>(c) Response to Other IAs.</p>	<p>STAP review for each EP.</p> <p>For each EP.</p> <p>For each EP.</p>
<p><b><u>6. Specific Assurances</u></b></p> <p>(a) CI Access to Funding for Program Implementation Activities</p>	<p>GEF funding will not exceed 50% of annual disbursements in the aggregate.</p>