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ON A

PROPOSED GRANT FROM THE
GLOBAL ENVIRONMENT FACILITY TRUST FUND

IN THE AMOUNT OF USD 7.18 MILLION

TO THE

FEDERATIVE REPUBLIC OF BRAZIL

FOR THE

INTEGRATED MANAGEMENT OF AQUATIC RESOURCES
IN THE AMAZON REGION PROJECT (AQUABIO)

April 27, 2006

CURRENCY EQUIVALENTS

(Exchange Rate Effective December 31, 2004)

Currency Unit = Real (R$)
R$2.75 = US$1

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ACTO	Amazon Cooperation Treaty Organization
AM	State of Amazonas
AMA	Monitoring and Analysis Project (under the Rain Forest Program)
ANA	National Water Agency
AP	Action Program for integrated management of aquatic resources
APP	Permanent Conservation Area
ARPA	Amazon Region Protected Areas Project
CAS	World Bank Country Assistance Strategy
CBD	Convention on Biological Diversity
CEPNOR	Fishing Research and Management Center for the Northern Region – IBAMA
CONABIO	National Biodiversity Commission
DIFLOR	Forestry Directorate – MMA
ELETRONORTE	Northern Brazil Electric Energy Utility Company
EMPAER	Rural Extension and Research Company of Mato Grosso
FASE	Association of Organizations for Social and Educational Assistance
SEMA	State Secretariat of Environment of Mato Grosso
FVA	*Vitória Amazônica* Foundation
GEF BA	Integrated and Sustainable Management of Transboundary Water Resources in the Amazon River Basin Project
GoB	Government of Brazil
GTA	Amazon Working Group (Association of Amazon NGOs)
IABIN	Inter-American Biodiversity Information Network
IBAMA	Brazilian Institute for the Environment and Renewable Natural Resources
INPA	Amazon National Research Institute
IPAM	Environmental Research Institute
IPÊ	Ecological Research Institute
ISA	Socio-Environmental Institute
KFW	German Development Bank
MCT	Ministry of Science and Technology
MDA	Ministry of Agrarian Development
MMA	Ministry of Environment
MT	State of Mato Grosso
NBP	National Biodiversity Policy
NEP II	Brazil Second National Environmental Project
NRPP	Natural Resources Policy Project, Rain Forest Program
OAS	Organization of American States
OEMA	State Environmental Agencies

ONGARA	Environmental Organization for the "Roncador Araguaia" Area
PA	State of Pará
PCU	Project Coordination Unit
PD/A	Type A Demonstration Projects, Rain Forest Pilot Program
PEPE	State Program of Strategic Preservation of Riparian Forests in Mato Grosso
PIX	Xingu Indigenous Park
POA	Annual Operational Plan
PPA	Multi-Year Plan of the Brazilian Government
PPDS-JUS	Community Plan for the Sustainable Development of the Area Downstream from the UHE Tucuruí Dam
PPG7/RFT	Pilot Program to Conserve the Brazilian Rain Forest
PROAMBIENTE	Socio-Environmental Development Program for Smallholder Agriculture
PROBIO	National Biodiversity Project
ProManejo	Forest Resources Management Project (under the Rain Forest Program)
PRONABIO	National Biodiversity Program
ProVárzea	Brazil Amazon Floodplain Natural Resources Management Project
RESEX	Support to Extractivist Reserves II Project
RFT	Rain Forest Trust Fund
SBF	MMA's Secretariat of Biodiversity and Forests – MMA
SDS	Amazon State Secretariat of the Environment and Sustainable Development
SIBA	Freshwater Biodiversity Information System
SIPAM	Amazon Protection System
SIVAM	Amazon Surveillance System
SNUC	National System of Conservation Units
UC	Conservation Unit or Protected Area
UFAM	Federal University of Amazonas
UFPA	Federal University of Pará
UNEMAT	State University of Mato Grosso
UNESCO	United Nations Educational, Scientific, and Cultural Organization

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BRAZIL
Integrated Management of Aquatic Resources in the Amazon Region - AquaBio

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A. STRATEGIC CONTEXT AND RATIONALE

1. Country and sector issues

The Amazon basin covers an area of approximately 7,000,000 km^2, of which about 58% (4,100,000 km^2) is located in Brazil. From a biodiversity perspective, the Amazon basin is unequalled; it is home to the world's richest assemblages of freshwater flora and fauna, including 3,000 fish species, approximately one third of the world's entire freshwater ichthyofauna. Many of the region's economic activities are based on the use of aquatic resources, which are increasingly at risk due to the uncontrolled and poorly planned expansion of high-impact activities in the Basin. The unchecked development of such activities affect water quality, biodiversity, and the availability of fish resources. In addition, these activities are also source of a growing number of conflicts among resource users, such as, fewer income generation opportunities for riverine dwellers (*ribeirinhos)*, reduced availability of jobs, and impacts on health and quality of life of local communities, especially indigenous groups, from water contamination and poorer nutrition due to reduced availability of fish.

The Amazon's aquatic ecosystems, its natural resources, and human communities dependent on them, are increasingly at risk from a number of **threats,** including: (i) direct use of aquatic resources at unsustainable levels through hunting (turtles, manatees) and fishing (commercial, aquarium trade, sport fishing), leading to the over-exploitation of some species such as *tambaqui, piramutaba, pirarucu,* and the cardinal tetra; (ii) direct contamination of rivers by increased dumping of organic and solid waste from expanding urban areas and mining activities; iii) changes in land use in upland areas (deforestation, expanding cattle ranching, urbanization) resulting in greater sediment loads and run-off contamination from fertilizers and pesticides; (iv) direct habitat conversion of riparian ecosystems from expansion of water buffalo grazing in floodplains (*várzeas*), agriculture and urbanization; and from (v) changes in flood and hydrological regimes from infrastructure (dams and navigation channels). A a root cause analysis of factors impacting globally significant biodiversity, in selected sub-basins, is presented in Annex 1, Table 1.

The Federal Government has responded to such problems by designing and implementing policies, programs, and projects, aimed mainly at sustainable management of floodplain natural resources. At the policy level, the government has enacted the National Biodiversity Policy (NBP) that provides an appropriate framework for present and future actions on conservation and sustainable use of aquatic resources. In addition, the National Water Agency (ANA) intends to intensify its efforts to implement the National Water Policy in the Amazon Basin, where conflicts over the use of aquatic resources will probably constitute the bulk of the issues discussed by the future River Basin Committees. Actions from such programs and projects include, among others: (i) the establishment of a mosaic of protected areas; (ii) on-the-ground testing of co-management[1] of fisheries resources; (iii) improvement and strengthening of

[1] In the Brazilian Amazon, co-management of fisheries resources involves negotiated agreements among various users of the resource, including riverine communities, commercial fishermen, and the National Environmental Protection Agency (Ibama). These agreements are aimed at finding locally adapted solutions for the implementation of national policies regarding the use of fisheries resources, and can include issues such as: where commercial fisheries can be practiced; who has access to the resources in a certain area; which species can be captured and at what times of the year; etc. Some successful experiences with co-management initiatives along the Solimões/Amazonas River have been supported by the ProVárzea Project and by the Mamirauá

monitoring and enforcement systems; and (iv) capacity building for sustainable resource use. Implementation of such projects has shown that threats can be addressed locally, and even threats originating from large-scale processes, such as land conversion and urbanization, can be mitigated through better implementation and coordination of policies, laws, and improved inter-institutional coordination.

Despite all these efforts, a series of **constraints** have made it difficult to effectively address the threats to the Amazon Basin: (i) public policies are insufficiently articulated across sectors to effectively address threats; (ii) weak organizational and institutional capacity at the basin, state, and local levels to deal with these issues in a participatory and integrated manner; (iii) insufficient availability of information that policy makers and resource managers need to make good decisions; and (iv) insufficient knowledge about alternatives for the sustainable use of land and aquatic resources, especially those that generate economic benefits for local communities while also generating positive impacts on aquatic biodiversity.

In order to achieve effective conservation of aquatic ecosystems within the diversity and vastness of the Brazilian Amazon, general plans and policies must reflect local ecological, cultural, and socioeconomic characteristics. From an ecological point of view, it is important to take into account the diversity of river systems in the region. There are basically three distinct river types within the Amazon: (i) sediment-rich "whitewater" rivers, such as the Amazon itself, that are rich in nutrients; (ii) "clearwater" rivers, relatively nutrient poor, and that can range from alkaline to acidic; and (iii) "blackwater" rivers, with very acidic waters that are nearly devoid of sediments and nutrients, but which have a dark color due to natural dissolved organic matter such as tannins. The interactions between river types, flood regimes, and distinct riparian ecosystems are responsible for a complex mosaic of aquatic habitats that characterize the Brazilian Amazon. From a social point of view, any approach will require the involvement of all stakeholders in a process of discussion, conflict resolution and decision-making within an integrated ecosystem management framework, with the objective of addressing threats to aquatic biodiversity, water resources, and quality of human life.

The proposed AquaBio Project aims at testing the development and implementation of an innovative approach to the conservation and sustainable use of aquatic ecosystems in three sub-basins that, together with the Floodplain Natural Resources Management Project (ProVárzea), would provide a representative sample of Amazonian aquatic ecosystems and problems that affect them. The lessons and results generated by the project would facilitate the mainstreaming of aquatic biodiversity concerns into production landscapes and sectors, and ensure that conservation and sustainable use of biodiversity is properly included in decision-making processes associated with the future establishment and operation of local watershed or sub-basin committees.

Country Eligibility: Brazil ratified the CBD on June 13, 1994

Sustainable Development Reserve, and initial data indicates positive results for the conservation of aquatic resources, especially fish.

Country Driveness: The Project would contribute directly to the implementation of the National Biodiversity Policy, and would also support implementation of the National Water Policy in the Amazon basin.

2. Rationale for Bank involvement

The AquaBio Project is one of the elements in the Bank's strategy for re-engagement in the Amazon, and is the only new operation focused on freshwater ecosystems. Its emphasis on the mainstreaming of freshwater biodiversity considerations into sector policies will benefit from the Bank's existing experience in facilitating dialogue for public policy discussion, and in assuming the role of mediator among regional, national, sub-national, and local actors in seeking consensus for the solution of multiple demands on "shared" natural resources.

Mainstreaming of environmental concerns into sector policies is being supported in Brazil by a large Programmatic Reform Loan for Environmental Sustainability with an associated Technical Assistance Loan. Elsewhere in Latin America, the Conservation of Biodiversity in the High Andes Project of Colombia is financing a successful component to integrate biodiversity considerations into sector-wide policies, and a long-standing Bank support to the Mesoamerican Biological Corridor, through a large number of projects and activities, has already institutionalized a new attitude toward biodiversity conservation in Mesoamerica. The AquaBio would also complement and support the actions of other existing Bank projects in the Brazilian Amazon, such as ProVárzea, Forest Resources Management Project (ProManejo), Ecological Corridors Project, and Amazon Region Protected Areas Project (ARPA), as well as the proposed Pará Integrated Development Project (under preparation).

3. Higher level objectives to which the project contributes

The project supports a major pillar of the Bank's Regional Environment Strategy and is consistent with the Bank's and Brazil's Country Assistance Strategy (CAS), contributing to two of its three long-term objectives: (i) improvement of water quality and of water resources management; and (ii) sustainable management of land, forests, and biodiversity (CAS Table 10). The project would also significantly contribute to one of the five pillars identified in the CAS (Environment and Natural Resources Management), addressing three issues identified therein: (i) natural resources management, including water, forests, and soils; (ii) environmental protection and management, including the development of linkages among actors/stakeholders regarding environmental issues; and (iii) global environmental externalities, including biodiversity.

The project's objectives are fully consistent with the provisions of the GEF Operational Strategy, and specifically with the Operational Program (OP) for Coastal, Marine, and Freshwater Ecosystems (OP2), with additional relevance to the OP for Integrated Land and Water Multiple Focal Area (OP9). The project fully supports the GEF Strategic Priority #2 for the Biodiversity Focal Area (Mainstreaming Biodiversity in Production Landscapes and Sectors), as it seeks to internalize the objectives of conservation and especially the sustainable use of aquatic biodiversity in the various sector programs and policies throughout the Amazon, especially fisheries, agriculture, and, to a lesser extent, mining and tourism.

B. PROJECT DESCRIPTION

1. Lending instrument

The project (total of US$ 17.13 m) would be partially financed by a GEF grant in the amount of US$ 7.18 m, with co-financing from (i) GoB resources (US$6.78 m); (ii) resources from re-directed baseline (US$2.02 m); (iii) GoMT (US$0.48 m); (iv) GoAM (US$0.59 m); (v) project beneficiaries (US$0.08 m).

2. Project development objective and key indicators

The project's development objective is to support the mainstreaming of a multi-stakeholder, integrated management approach to the conservation and sustainable use of freshwater biodiversity in public policies and programs in the Brazilian Amazon River Basin. This would in part be achieved through the generation and dissemination of sub-regional experiences that promote and facilitate the adoption of such an integrated management approach in the whole Amazon Basin. The global environmental objective is to reduce threats to the integrity of freshwater ecosystems in the Brazilian Amazon, and assure the conservation and sustainable use of its freshwater biodiversity of global importance.

Although some aspects of project implementation would target all states in the Brazilian Amazon, most project activities would take place in portions of the following three sub-basins (project target areas), selected due to their importance to freshwater biodiversity and because they encompass the main problems that afflict freshwater ecosystems in the Brazilian Amazon (see selection criteria in Annex 1): (a) lower and middle Negro river (high fishing pressure and presence of ornamental fisheries trade); (b) headwaters of the Xingu river (impacts of land degradation on freshwater ecosystems); and (c) lower Tocantins river, below the Tucuruí hydropower dam (negative impacts on freshwater fisheries from construction of a hydropower dam).

The key indicators that would be used to evaluate whether the project has achieved its objectives are (for more details and for other indicators at the component level see Annex 3):

- a proposal regarding institutional arrangements and processes needed to implement integrated management of aquatic resources developed, tested, and agreed on in three participating States, and discussed with the other six States of the Brazilian Amazon by PY6;
- Action Programs (APs) under implementation in three Project target areas, covering an area of about 290,845 km^2 within three river basins (1,950,000 km^2), with participation of natural resource user sectors at local, state, and federal levels by PY06;
- 32,941 km^2 of freshwater productive landscapes, including associated floodplains and riparian areas, under improved management, with positive impacts on freshwater biodiversity.

3. Project components

In order to improve articulation of public policies across sectors, as well as organization and institutional capacity, the AquaBio Project would promote the adoption of a decentralized

approach to ecosystem management. This would include support for participatory development and partial implementation of Action Programs (APs) in the three sub-basins, with institutional arrangements formulated and negotiated with users of natural resources, and support for a strong training and environmental education program, as an important mechanisms to induce needed technical and social changes under the project and improve participation in the implementation and monitoring of these sub-basin programs. The project would also remove barriers associated with insufficient information that policy makers and resource managers need to make good decisions, as well as those related to the scarcity of opportunities for discussion and decision-making through (i) the implementation of environmental awareness campaigns; (ii) carrying-out detailed participatory diagnostics in the project sub-basins, to facilitate better understanding of the problems related to aquatic biodiversity and water resources management; (iii) establishing an information and dissemination system on aquatic biodiversity (SIBA), and a project monitoring and evaluation system; and (iv) participatory formulation and implementation of the APs, with the promotion of fora for local participation in setting priorities and determining social and technical measures for handling water- biodiversity- and land/soil-related issues. Constraints associated with insufficient knowledge about alternatives for the sustainable use of land and aquatic resources would be addressed through the provision of small investments and technical assistance (demonstration activities sub-projects) to farmers, fishermen, indigenous people, and other resource users, in order to test new methodologies and technologies and generate reliable information on what works and what does not. In addition, to support the execution of activities defined in the APs (including more sustainable land use and fishing practices) beyond the life of the project, a financial sustainability strategy would be developed and implemented with pilot financial mechanisms adopted by the end of the project.

Four components have been identified. Additional details on project components and on the financing breakdown by sub-component and funding source can be found in Annexes 4 and 5.

Component 1 - Planning and Public Policy (Total US$1.26 m, GEF US$1.06 m).
The objective of this component is to develop and implement Action Programs for the integrated management of aquatic resources (APs) in three sub-basins of the Brazilian Amazon, generating replicable experiences that could become permanent public policies, with positive impacts on aquatic biodiversity, on the reduction of conflicts among various users of natural resources, and on the improvement of local communities' living and working conditions. This component would support: (a) carrying-out of detailed diagnostics of each of the three project target areas, and the elaboration and implementation of sub-basin Action Programs (APs); (b) the development and implementation of institutional mechanisms for integrated management of aquatic resources in sub-basins, and (c) the development of a financial strategy and mechanisms to provide financial resources for the full implementation of the APs in the long-term (see Attachment 1 to Annex 4).

Main outcomes: Institutional arrangements and processes established in three sub-basins of the Brazilian Amazon, to support the adoption of an integrated management approach applied to priority issues and problems that affect the aquatic biodiversity, water resources, and living conditions of local communities.

Component 2 - Demonstration Activities (Total US$6.43 m, GEF US$1.78 m).

The objective of this component is to generate experiences and lessons learned, including new technologies or production systems, on how to incorporate freshwater biodiversity concerns into various productive activities, providing inputs for the development of Action Programs for integrated management of aquatic resources. This component would support: (a) demonstration sub-projects that mainstream freshwater biodiversity in productive activities, and (b) other sub-projects, financed under the re-directed baseline, that create an enabling environment for the mainstreaming of freshwater biodiversity in productive activities. Each sub-project would have its own objectives, expected results, and a monitoring plan. Sub-projects financed by GEF and by the Brazilian government would be defined based on the detailed diagnostics and public consultations to be executed under Component 1. Some priority themes have already been identified during the initial consultations and diagnostics carried out during project preparation (see Attachment 2, Annex 4), but additional themes are likely to emerge during the diagnostics and consultations to be undertaken in project year one (PY1), as well as during the formulation of the APs during PY2 to PY5.

Criteria for eligibility. Site-specific criteria for sub-project selection under this component would be refined and finalized for each project target area during PY1, with stakeholder participation during the detailed diagnostic stage. However, based on the diagnostics carried out at project preparation, the following general criteria would guide the elaboration of specific criteria for each of the three Project target areas: proposals would have to (i) correspond to activities identified as priorities in the participatory diagnostic of each project target area; (ii) involve the use and/or conservation of natural resources; (iii) address the conservation of aquatic biodiversity, or involve activities to counteract the degradation of aquatic resources; (iv) demonstrate a potential positive impact on the sustainable use and conservation of aquatic ecosystems, including freshwater biodiversity; (v) show potential for positive impacts in relation to the costs of implementing the activity; (e) show potential for replication; (vi) be proposed by an officially constituted (*pessoa jurídica*) local organization, or in association with one; (vii) provide co-financing of at least 5% of the total sub-project amount, in cash or in kind; (h) have its own M&E system developed to monitor sub-project results and impacts; (viii) have an adequate Environmental Management Plan; and (ix) comply with GEF criteria for sub-project financing. The specific criteria to be used in each of the three project target areas would be finalized after the respective more detailed diagnostics are developed during the first year of project implementation, and would be defined in the Operational Manual in close collaboration with the Bank.

Main outcomes: The main outcome would be demonstration activities to support implementation of integrated management of aquatic resources developed and tested in Project target areas within three sub-basins of the Brazilian Amazon, with positive impacts on: aquatic biodiversity, the reduction of conflicts among various users of natural resources, and the living conditions of local communities. This component would also contribute to the sustainability of protected areas in the project impact area, because the communities around them would have adopted more sustainable production systems and technologies.

Component 3 - Building Capacity (Total US$3.67 m, GEF US$2.56 m)
The objective of this component is to prepare stakeholders, especially local ones (individuals and institutions), to be able to actively participate in the formulation, implementation, and monitoring

of strategies and action programs aimed at the conservation and sustainable use of freshwater biodiversity and water resources in the project areas. This component would support activities that are crucial to the long-term sustainability of project results, such as (a) environmental education, (b) training of rural extensionists and local people on sustainable methodologies and technologies, (c) institutional and individual training for the formation of partnerships and conflict resolution, and (d) support for the establishment of mechanisms for decision making and discussion and resolution of conflicts over the use of aquatic resources in the project target areas.

Main outcomes: The main outcome would be greater operational and decision-making capacity of government institutions, civil society organizations, and society at large, at local, state, and federal levels in the Brazilian Amazon, to support implementation of integrated management of aquatic resources.

Component 4 - Project Management, Monitoring and Evaluation (M&E), and Information Dissemination (Total US$5.80 m, GEF US$1.77 m).
The objective of this component is to coordinate, manage, and monitor actions developed under the scope of the project, foster integration among the various components and with other related projects and programs, indicate possible needs for changes in project implementation, and disseminate results at local, state, national and international levels. Notably it would support the implementation of a project physical-financial monitoring system and the development and implementation of an information system on aquatic biodiversity (SIBA).

Main outcomes: Main outcomes would be (i) more effective participation of government and civil society institutions in project activities, including monitoring and evaluation, (ii) a system to monitor project impacts fully implemented with participation of local stakeholders, (iii) an Aquatic Biodiversity Information System developed and making information available to the general public, and (iv) project results that lead to the adoption of integrated management of aquatic resources are disseminated and implemented beyond the project target areas.

The four components would be integrated at the sub-basin level through the following main activities in each sub-basin: (i) a diagnostic of the main threats and of the barriers to address them, (ii) dissemination of information, training, and a participatory consensus building process, involving resource users and government institutions, for elaboration of a plan for the conservation and management of aquatic resources, and (iii) establishment of a governance strategy for the long term implementation of such plan, including a framework for conflict mediation and resolution. This approach would contribute to the implementation of the National Biodiversity Policy as it supports a decentralized, inter-sectoral approach to the management of aquatic ecosystems, and incorporates economic, social, cultural (traditional knowledge), and environmental dimensions in the formulation and implementation of project supported action programs (APs), designed to address threats to biodiversity and resolution of conflicts over the use of aquatic resources. It would also contribute towards the implementation of the National Water Resources Policy, which establishes the decentralization of water resources management by means of River Basin Committees – not yet implemented in the Amazon. The interface between implementation of the AquaBio and these two national policies is presented in more detail in Annex 1.

4. Lessons learned and reflected in the project design

Project preparation was highly participatory and GEF PDF-B grant resources were crucial to support this process in such a geographically and socially complex environment. Although this approach resulted in an extended preparation phase, the end product is a project with a more solid implementation perspective due to (i) the contributions of such a varied group of stakeholders, and (ii) enough time for novel concepts (such as mainstreaming) to mature and be incorporated into project design.

The Project design considered and incorporated a series of experiences and "lessons learned" derived from other relevant projects and initiatives that address issues related to the conservation and sustainable use of natural resources, especially under the scope of the Pilot Program for the Brazilian Rainforest – PPG7 (ProVárzea, ProManejo, Ecological Corridors, PD/A, RESEX, and NRPP). Experience from such projects, especially the ProVárzea, indicates that effective conservation can best be achieved when local communities and resource users are organized and take on some of the responsibilities for legislation enforcement at the community level, after they understand what it takes to keep those resources available to them in the long run (sustainable development).

Project design also incorporates lessons learned from the creation and strengthening of Watershed Committees in the South, Southeast, and Northeast of Brazil. Among these, the more relevant lessons include: (a) The success and sustainability of initiatives and projects aimed at natural resources conservation increase significantly when (i) the various interest groups participate in their preparation and implementation, including training activities and monitoring the project's implementation and impacts; (ii) they generate benefits for both individuals and the communities involved, including women and youth; and (iii) they develop and implement mechanisms that support the continuation of efforts after project implementation is completed; (b) Training activities should include opportunities for the direct transmission and exchange of knowledge and experience among beneficiaries, such as seminars, workshops, field days, and radio programs; (c) Whenever possible, project implementation should make use of existing structures, institutions, and organizations, strengthening them to better perform their role and/or to take on additional responsibilities in the context of project implementation; and (d) Insofar as possible, the project strategy should be developed based on the region's social reality and potential, including existing knowledge in local research and teaching institutions.

5. Alternatives considered and reasons for rejection

An assessment was made of whether the project area should include black and clearwater ecosystems in all countries of the Amazon Basin, with demonstration activities in two or three transboundary rivers. This alternative was rejected due to the anticipated logistical difficulties involved in implementing a project involving intense local participatory activities, over such a large area, especially in a time when the Basin coordination activities of the Amazon Cooperation Treaty Organization (ACTO) were still being implemented from an itinerant (and thus less efficient) Secretariat. Fortunately, another GEF project, *Integrated and Sustainable Management of Transboundary Water Resources in the Amazon River Basin*, focusing primarily

on the transboundary issues and aspects of the basin, is currently under preparation by the ACTO, OAS, and UNEP.

The inclusion of a research component in the project area was also considered but rejected since the second phase of the Pilot Program's Science and Technology Sub-Program, in the amount of US$5.8 million, has just entered the implementation phase. Another alternative considered was to support the implementation, in the Brazilian Amazon, of River Basin Committees, as prescribed in Brazilian legislation. However, the GoB felt that first there should be an initiative such as the AquaBio Project to increase knowledge and institutional capacity as a way to ensure that biodiversity conservation would be properly included in the decision-making processes associated with the establishment and operation of such Committees.

C. IMPLEMENTATION

1. Project Implementation Strategy

Given the innovative nature of this project, a detailed project implementation review would take place at 24 months after project effectiveness. Implementation of project activities from various components would overlap in time, but overall project implementation would proceed along the following general lines:

- *Project dissemination and environmental awareness:* From the beginning to the end of project implementation, the project would (i) disseminate information at local, sub-basin and Federal level on project rationale, objectives and activities, (ii) promote a sense of individual and collective responsibility toward Amazonian aquatic ecosystems and their relationship to land use changes and other development initiatives, and (iii) increase awareness of existing environmental legislation, and of other related legislation, addressing freshwater biodiversity and aquatic resources, and the importance of sustainable use and conservation of such resources.

- *Training of stakeholders at all levels:* An extensive training and environmental education program would start in PY1, involving themes such as participatory methods, conflict resolution, dissemination of relevant knowledge and experiences. This training would prepare stakeholders to better identify and analyze social, economic and environmental sustainability, and conflicts, in order to enable the planning and implementation of actions for the adoption of sustainable aquatic ecosystem-based management practices.

- *Detailed participatory diagnosis of the three Project target areas (i.e. portions of the Negro, Tocantins and Xingu sub-basins, respectively):* Building on the diagnostics conducted during project preparation for each of the three sub-basins, from which the three project target areas were identified, this activity would finance specific studies and participatory diagnostic activities and workshops, to determine with more specificity and in greater detail (i) the main issues and problems to be addressed by the project at each target area; (ii) the relevant local stakeholders and conflicts; and (iii) existing initiatives and activities aligned with AquaBio's objectives.

- *Formation of Local and State Project Committees:* These advisory groups would empower stakeholders and provide legitimate fora where they would assess the detailed diagnostics, and follow-up with (i) selection or assessment of sub-projects, (ii) developing or approving action programs for testing and implementing integrated management of aquatic resources (APs – see item below) in the three Project target areas; (iii) fostering the replication and scaling-up of AquaBio's approach to other sub-basins in the Brazilian Amazon; and (iv) mainstreaming lessons learned into local and sub-basin policies and programs.

- *Formulation of Actions Programs for Integrated Management of Aquatic Resources (APs)*: In each Project target area an action program would be prepared in a participatory manner, starting in PY2, by first prioritizing themes and activities with potential to be financed under component 2 as demonstration sub-projects. These themes and activities would be negotiated and agreed among stakeholders in each Project target area, and would constitute the initial strategic actions to be addressed under the AP. Preparation of APs would continue from PY2 to PY5, in an iterative manner, incorporating experiences and lessons from implementation of demonstration activities (sub-projects under Component 2) and of training and discussions to advance conflict resolution on specific issues. APs would include, among others, proposed institutional arrangements, specific policy-related studies, and the development of a financial sustainability strategy to support the execution of selected activities.

- *Sub-projects Preparation and Selection:* Sub-projects would be prepared and proposed by local organizations or institutions, or in association with one of them following rules and criteria established in the Operational Manual. Specific selection criteria for each Project target area would be developed and agreed in a participatory manner during the first year of project implementation following the principles established during project preparation. Sub-project proposals would be screened and validated by the respective Local and State Project Committees and submitted for final analysis and approval by the Project Coordination, in collaboration with the respective sub-basin executing units.

- *Implementation of sub-projects* would be overseen by the Local Project Committee, with support from staff hired for each Project (staff would consist of technical specialists or administrative support contracted to oversee and coordinate project implementation at the local level, in close articulation with the Project Coordination).

- *Initial implementation of APs:* would start no later than PY5 and would extend beyond the life of the project as some relevant actions may occur over the medium (6-8 years) to long-term (20 years). This stage would also include implementation of measures identified in the financial sustainability strategy to make the relevant financial mechanisms fully operational.

- *Monitoring and evaluation* would occur according to the project's M&E system. Local project staff would contribute progress reports with the formats and frequency required, which would be aggregated by the sub-basin executing units and the Project Coordination. Participation of the beneficiaries in M&E would be maximized as they would be provided with feedback and contribute to decisions regarding any necessary mid-course corrections. Consolidated M&E reports would be submitted to CONABIO, the Bank, and other relevant

agencies. Services for conducting independent mid-term and ex-post evaluations would be contracted by the Project Coordination.

2. Partnership arrangements

The project's design and implementation strategy is based on the establishment of partnerships with other institutions and ongoing projects, including with the Brazilian Institute for the Environment and Natural Resources (IBAMA), the Brazilian National Water Agency (ANA), and with the Governments of the States of Amazonas, Mato Grosso, and Pará. Partnerships have also been agreed with (i) the *Integrated and Sustainable Management of Transboundary Water Resources in the Amazon River Basin* project under preparation by the Amazon Cooperation Treaty Organization – ACTO, with support from GEF/UNEP/OAS; (ii) the following MMA projects: Ecological Corridors, PROAMBIENTE, National Environmental Program (NEP-II), and Restoration of Water Springs and Riparian Areas (DIFLOR); (iii) Mato Grosso's State Program for the Strategic Conservation of Riparian Forests (PEPE); (iv) MCT's Science and Technology Subprogram Phase 2 (Science-2); and (v) with Eletronorte's Community Plan for the Sustainable Development of the Area Downstream from the UHE Tucurui Dam (PPDS-JUS). It is anticipated that other partnerships with public and private institutions would be formed at the federal, state, and municipal levels during project implementation.

Partnerships with NGOs, CSOs, and academic and scientific institutions identified during project preparation would also be established by means of technical cooperation agreements to develop or support actions related to the coordination and implementation of various project activities at the local level. The project would also foster partnerships with users of natural resources and their organizations.

3. Institutional and implementation arrangements

The Government of Brazil would be the Grant recipient, with the Ministry of Environment (MMA) as the Executing Agency through its Secretariat of Biodiversity and Forests (SBF).

The National Biodiversity Commission (CONABIO[2]) was selected as the **Project Steering Committee** because of its mandate and composition, which includes representatives from key ministries, civil society organizations, NGOs, and associations of users of natural resources with interests and conflicts in the sub-basins where the Project target areas are located. In relation to project implementation, CONABIO would: (i) foster the incorporation of experiences and lessons learned generated by the project into national public policy, especially sectoral ones; (ii) support the identification and monitor the implementation of measures to correct problems

[2] A more detailed description of CONABIO's mandate and responsibilities is in Annex 6. CONABIO is comprised of representatives of the Ministry of Environment, Ministry of Agriculture, Livestock, and Supply, Ministry of Science and Technology, Ministry of Health, Ministry of Foreign Relations, Ministry of Planning, Budget, and Management, Ministry of Agrarian Development, Ministry of National Integration, IBAMA, Brazilian Association of State Environmental Entities (ABEMA), National Confederation of Agricultural Workers (CONTAG), Brazilian Society for the Progress of Science (SBPC), Brazilian Academy of Science (ABC), Brazilian Forum of NGOs (Environmental and Social NGOs), and Coordination of Amazonian Indigenous Organizations (COIAB). CONABIO will invite ANA to participate as an invited member in all meetings where AquaBio-related issues are discussed. Other institutions and organizations would also be invited to participate depending upon agenda items to be discussed.

identified during project implementation; (iii) assess and validate the Annual Operational Plans (POAs); and (iv) participate in project evaluation.

A **Project Coordination Unit** (PCU), constituted by MMA staff, would be located under the Secretariat of Biodiversity and Forests (SFB/MMA). The PCU would be supported in the financial management and procurement functions by MMA's Executive Secretariat (SECEX/MMA), through the Subsecretariat of Planning, Budget and Management (SPOA), who would execute such functions. However, for the first two years of the project it has been agreed that UNESCO would carry out project procurement (see Annexes 7 and 8). The PCU would have responsibility for, among others: (i) managing and executing the project; (ii) coordinating the management of financial resources and procurement; (iii) reporting on the application of resources and results achieved; (iv) preparing management reports for the Secretary of Biodiversity and Forests, CONABIO, World Bank and the GEF, and other lead agencies; (v) promoting interinstitutional linkages; and (vi) monitoring, evaluating, and disseminating project results.

A **State Project Committee** would be formally established for each sub-basin by the end of PY1 with duties related to: (i) serving as a vehicle for mainstreaming project experiences and lessons at the state level for planning and public policies; (ii) supporting project implementation through inter-institutional coordination, in particular among institutions and programs contributing to the implementation of the re-directed baseline; (iii) mediating possible conflicts between or among groups of stakeholders; (iv) promoting the replication of the experiences of the project target are in other priority areas of the sub-basin; (v) assessing and validating sub-basin Annual Operating Plans (POAs); (vi) reviewing and approving the Sub-Basin Action Programs (APs); (vii) reviewing and approving target area demonstration activities (subprojects); and (iv) monitoring project execution, and suggesting necessary adjustments. The final composition of each State Project Committee would be discussed and agreed with stakeholders during the first year; but it is expected that it would have a maximum of 10 members, selected to represent governmental and nongovernmental stakeholders. However, it has been already agreed that the coordinators of the following projects would be represented in the relevant State Project Committees: NEP in Mato Grosso, Ecological Corridors in Amazonas, and Pará Integrated Development in Pará. When necessary, the State Project Committees would have the support of ad-hoc consultants hired by the project to provide expert advice on specific issues.

In each of the three sub-basins the MMA would be responsible for **project execution**, with support from the following institutions: (i) in the Tocantins sub-basin, –IBAMA and the Pará State Secretariat of Environment (SECTAM); (ii) in the Xingu sub-basin, IBAMA and the Mato Grosso State Secretariat of Environment – SEMA; (iii) for the Negro sub-basin, IBAMA and the Amazonas State Secretariat of Sustainable Development – SDS. Project execution at the sub-basin level would mostly utilize existing managerial, technical and administrative structures of partner institutions. Such arrangements, building on existing institutional and technical expertise, would foster a more efficient, less expensive, and faster implementation of AquaBio. IBAMA would also provide direct involvement of staff from its newly created Fishing Research and Management Center for the Northern Region (CEPNOR) in Manaus. That office is being opened to give institutional sustainability to ProVárzea project activities after project implementation is

completed, as well as to support implementation of the AquaBio and ensure coordination of project activities with other IBAMA offices in the Amazon region.

In addition, a **Local Project Committee** would be established for each Project target area, to be comprised of representatives of existing local governmental and non-governmental institutions and organizations and, whenever possible, this would include representatives of existing municipal development committees. The composition of the Local Project Committees would be agreed at the completion of the detailed target area diagnostic by the end of the first year of the project. Their responsibilities would be to: (i) serve as a vehicle for mainstreaming project experiences and lessons into local level and municipal public policy and planning; (ii) prepare and endorse the annual work plan for the target area; (iii) assess and validate the APs; (iv) review and endorse the selection of demonstration activities (subprojects); (v) supervise and monitor the implementation of project activities; and (vi) mediate existing conflicts between and among groups of stakeholders in the Project target area.

In each Project target area, the MMA would hire technical specialists to carry out project implementation at the local level, under supervision of the PCU and in close coordination with the respective sub-basin State Project Committee. The project would also contract specialized institutions with established activities at the local level, such as specialized NGOs, universities, foundations, or research institutions, for the execution of all or part of the planned actions in each respective Project Target Area. Some potential partners identified to date are: (i) in the Negro River sub-basin – Fundação Vitoria Amazonica (FVA), the National Amazon Research Institute (INPA), and Institute for Ecological Research (IPÊ); (ii) in the Xingu sub-basin – the Socio-Environmental Institute (ISA), the Environmental Organization for the *Roncador-Araguaia* Area (ONGARA), and the State University of Mato Grosso (UNEMAT); and (iii) in the Tocantins sub-basin – the Association of Organizations for Social and Educational Assistance (FASE), Amazon Research Institute (IPAM), and the Federal University of Pará (UFPA).

It is also expected that, given the pilot nature of Aquabio, project implementation arrangements would continue to evolve during the execution of this process project as new stakeholders become involved in project activities over time. See Annex 6 for additional details on project implementation arrangements, including the proposed organizational chart.

4. Monitoring and evaluation of outcomes/results

Monitoring and evaluation and information management are critical elements of AquaBio, and are described in detail under Component 4 in the detailed description of the project (Annex 4). Beneficiaries of the monitoring system would include: (i) the PCU; (ii) users of natural resources and aquatic biodiversity and their organizations; (iii) partner government agencies, NGOs, and universities/research institutes; (iv) other project partners; and (v) civil society organizations. The results of monitoring and evaluation activities, and of decision-making Monitoring and evaluation of outcomes/results
based on information generated by the monitoring program, would be shared with project beneficiaries at various levels. Consolidated monitoring and evaluation reports would be submitted to the World Bank. The PCU would contract specific studies, as well as independent mid-term and final evaluations. Together with monitoring and evaluation reports, these analyses

would provide inputs for eventual adjustments in project activities and management interventions to be incorporated in POAs. See Annexes 3 and 4 for additional information.

5. Sustainability and Replicability

The AquaBio intends to promote a new way of doing business in the Amazon: new approaches to policy implementation, partnerships, capacity development, institutions, and collaboration. The long-term implementation of integrated management of aquatic resources in the Amazon does not therefore require sustained special financing, or an institutional home, but rather requires that the concepts it promotes continue to be developed and mainstreamed in the Brazilian Amazon.

Institutional Sustainability: The proposed project would be institutionally linked to the Ministry of Environment (MMA), which has the mandate to ensure the sustainable use and conservation of water resources, and of fisheries resources and other aquatic biodiversity in the Amazon Basin. In light of the project's objective to improve the decentralized management of aquatic resources through more informed and participatory decision-making, the proposed project management structure would promote the integration of activities within existing programs, and the mobilization of resources to support the continuity of project activities. The new IBAMA field office, in Manaus, of the Fisheries Research and Management Center of the Northern Region – CEPNOR, would greatly contribute to the project's institutional sustainability in the medium and long term.

The Project's main interventions toward achieving institutional sustainability include: (i) public policy planning activities, that would contribute to the strengthening of the existing network of sectoral institutions, leading to improved capacity to manage natural resources and aquatic biodiversity; and (ii) a comprehensive monitoring and evaluation system that would strengthen the institutional capacity to manage and coordinate public sector interventions, and to disseminate project experiences and lessons learned to Amazonian states and to other countries of the Amazon Basin. Under its participatory approach, the proposed project would seek the support of local networks and institutions, would provide "training for trainers", and would work with local "environmental agents" and schools, thus promoting the sustainable use of natural resources among a variety of stakeholders.

***Financial sustainability*:** Subcomponent 1.3 would develop and implement a financial sustainability strategy to support the execution of selected activities under the APs, beyond the life of the project, with pilot financial mechanisms adopted by the end of the project. This would be achieved through the following activities: (i) initial identification of partners and stakeholders followed by the establishment of a common dialogue; (ii) identification of the outcomes and activities to be continued following the closure of the Project; (iii) assessment of the potential of the activities identified in (ii) above to attract external resources and/or generate financial returns to ensure their financial sustainability; (iv) identification and/or design of viable financial mechanisms/models to support financial sustainability (e.g., public investment programs and funds, environmentally friendly certification schemes, trust funds, etc.); and (v) the development and implementation of an action plan to make the relevant financial mechanisms fully operational. Additional details can be found in Annex 9.

Replicability: AquaBio was designed to include replicability as one of its key features. The project's demonstrative nature (that would support activities in at least some nine municipalities), and the differing characteristics of the three selected sub-basins representing the main aquatic ecosystems and types of threats to the environmental integrity of the Amazon Basin, provide a solid basis to support the replication of project activities and "lessons learned" to address similar problems elsewhere in the Amazon Basin, eventually including countries other than Brazil.

6. Critical risks and possible controversial aspects

Risks	Risk Mitigation Measures	Risk w/ mitiga-tion
Actors at federal level (ANA, Ministry of National Integration, etc.) and state governments do not coordinate.	Establishment of State Project Committees, and constant awareness raising, mobilization, and capacity development of these actors throughout project implementation.	M
Local communities and indigenous groups with low capacity to propose and execute activities that generate environmental and economic benefits.	The demonstration activities component proposes the contracting of NGOs and consulting firms to provide technical assistance to proponents, and assist with monitoring and sistematization of experiences and lessons learned.	M
Insufficient institutional capacity for project implementation at the Federal and State levels.	In the three sub-basins, project implementation would be supported by existing structures with proven administrative capacity for projects such as AquaBio.	M
Federal budget constraints	Yearly assurance of a specific budget line for AquaBio in the Federal budget.	M
Change in Federal and State Administrations	Detailed project implementation review 24 months after project effectiveness to identify and correct possible problems.	M

Risk Assessment: H (high), S (substantial), M (medium), L (low).

Overall project risk is Medium. No issues have been identified that might be controversial or pose reputational risks for the Bank.

7. Loan/credit conditions and covenants

No significant, non-standard conditions and covenants are envisioned for project effectiveness or implementation. General Conditions of Effectiveness would include: (i) that each of the necessary technical cooperation agreements, including that with UNESCO, have been signed in a manner satisfactory to the Bank, and (ii) that the General Project Coordinator and at least three other technical coordinators have been appointed.

D. APPRAISAL SUMMARY

1. Economic and financial analyses

Cost-effectiveness

The Project offers an excellent cost/benefit ratio, as it addresses the conservation of highly significant biodiversity under threat, but at an early enough stage where relatively modest investments in project activities would actually be able to help avoid major, irreversible damage in the medium to long term, and also avoid extremely costly ecosystem restoration activities in the future. The adoption of co-management schemes, as a way to improve the conservation status of freshwater biodiversity in the Amazon, has shown to be highly cost-effective when compared to approaches that try to achieve the same results based only on command and control initiatives. This is particularly true in the Brazilian Amazon, where command and control activities are very costly due to the sheer size of the area, the highly dispersed population pattern, and the difficulties of transportation and communication.

In the Xingu River Sub-basin (State of Mato Grosso) the project would be implemented with support from existing institutional capacity within SEMA, with support from the State's rural extension agency (EMPAER). In the Negro and Tocantins River Basins (States of Amazonas and Pará, respectively), where existing institutional capacity in the Project target areas is not as present, the Project has adopted a number of measures to improve its cost-effectiveness, such as obtaining the support of the existing ProVárzea Project Coordination Unit for implementation of some project activities – which would result in (i) reduced costs; (ii) better coordination and exchange of experiences between activities already under implementation along the mainstem of the Solimões/Amazon River and those to be implemented under the AquaBio along some of the tributaries; (iii) a faster start-up of project implementation due to the strong capacity that already exists in the unit, and leading to a greater probability that project targets and results would be achieved within the proposed timeframe. In addition, the establishment of the IBAMA-CEPNOR base in Manaus would ensure the sustainability of both ProVárzea and AquaBio initiatives in the medium and long-term.

2. Technical

The project would support the implementation of activities, on a demonstrative basis, that contribute to the development and dissemination in a user-friendly manner, of natural resources management experiences, to generate positive impacts for the sustainable use and conservation of aquatic resources. In the Amazon Region a number of relevant activities are currently being implemented, albeit in an isolated manner. The AquaBio Project proposes to test and implement such experiences within a river basin context, at the sub-basin level, and monitor their impacts on water and aquatic resources, and on the quality of life of the communities involved. The goal is to demonstrate the positive impacts of an integrated approach to the sustainable use of natural resources at sub-basin and local levels, and encourage the participation of public authorities and of local communities and organizations in planning and decision-making for the co-management of these resources.

3. Fiduciary

Financial management. The Grant would be implemented by MMA through its Secretariat of Biodiversity and Forests (SBF). A single financial and procurement management unit is being established to execute and implement all Bank-supported projects under SBF's responsibility. A financial management risk assessment was carried out and concluded that the financial management systems currently in place are satisfactory. The financial management risk associated with the proposed project has been assessed as low.

Procurement. With the exception of the procurement related to sub-projects under sub-component 2.1, all other procurement activities involving GEF funds would be carried out by UNESCO under a technical cooperation agreement with MMA, for a maximum period of two years after project signing. In the meantime, the MMA/SBF would work on installing in-house capacity to carry out all of the project's procurement activities. By the time project disbursements to sub-projects are expected to begin, around 18 months into project implementation, the MMA/SBF would have built enough capacity to support these activities without the assistance from an external agency. Before any disbursements to sub-project could occur, the procurement unit established by MMA/SBF would have to be assessed and approved by the Bank, an action plan to continue to improve its capacity would be agreed upon.

The 2004 Country Procurement Assessment for Brazil recognizes that the procurement function in the federal government is robust. An assessment of the capacity of UNESCO to implement procurement actions for the project confirmed that it would be able to carry out the procurement adequately. The overall risk assessment for the agency is moderate and thus would initially require bi-annual procurement post-reviews. To strengthen its procurement capacity and minimize risks, MMA and UNESCO have committed to provide training for all of their procurement staff on Bank procedures.

Procurement Plan. The recipient has developed a Procurement Plan for the activities to be carried out during the initial 18 months of project implementation, which provides the basis for the procurement methods. The Procurement Plan would be updated in agreement with the Project Team on an annual basis, or as required to reflect actual project implementation needs and improvements in institutional capacity. The final procurement plan for each calendar year should be submitted to the Bank no later than January 15 of the respective year.

4. Social

The threats to freshwater biodiversity in the Brazilian Amazon stem from an increase in human occupation and activity in the Brazilian Amazon, and from changes in the patterns of human behavior related to the use of natural resources. Such changes have also resulted in an increase in the occurrence of conflicts among resources users (see Annex 1), and in a demand from government and civil society to establish participatory processes for decision-making related to the resolution of such conflicts, and to the development and implementation of policies aimed at the sustainable use and conservation of natural resources in the Region as a means to avoid or minimize such conflicts in the short to the long term.

Resolution of such conflicts is fundamental to ensure the long-term conservation and sustainable use of aquatic resources. For this reason, the proposed AquaBio Project would promote and support actions that stimulate and facilitate the integration of needs of all users, including conservation, in the development and implementation of policies and programs that may impact the conservation and sustainable use of freshwater biodiversity in the Brazilian Amazon. The Project Monitoring and Evaluation System provides for the monitoring of indicators that track the evolution and success in developing action programs for integrated management of aquatic resources in the three sub-basins (including indicators of stakeholder participation, and institutional commitments – see Annex 3 for more details).

Indigenous Peoples. There are indigenous peoples living in two of the Project's target areas, within the Negro and the Xingu sub-basins. In the Negro target area there are 24 riverine indigenous communities of mixed ethnicities scattered along the river and tributaries, with an estimated population of 1,300. The Xingu target area includes two Xavante indigenous lands with a total population estimated at 1,400, and a portion of the Xingu Indigenous Park (PIX) with a total population of 4,700 representing 14 ethnicities. Representatives from indigenous groups from both basins have participated in project preparation activities, including public consultations, and their initial concerns have been incorporated into project design (see Annex 10). The Recipient prepared and consulted an Indigenous Peoples Strategy (IPDP) for the project, summarized in Annex 10. Indigenous people in the Xingu and Negro sub-basin target areas have expressed interest in participating in the project and would be eligible for all project activities. Indigenous people in the PIX have already expressed a particular interest in participating actively in the monitoring and evaluation of project impacts on freshwater biodiversity.

Stakeholder involvement. Key stakeholders associated with the Project may be classified in two groups: national and local stakeholders. The main national stakeholders include: (i) federal and state government institutions, including the National Environment Institute (IBAMA); (ii) national and international NGOs; (iii) national organizations from various private sector stakeholders; and (iv) universities and other research institutions. The main local stakeholders include: (i) local municipal government; (ii) municipal councils and other local associations; (iii) natural resource users, such as fishermen and small rural producers, as well as their families and associations, large commercial farming and ranching operations, and hydropower developers; (iii) indigenous groups; and (iv) local NGOs. The involvement of these stakeholders during project preparation included a series of meetings and public events with participation of more than 600 people.

During project implementation stakeholders would participate as follows: at the federal level in the project Steering Committee (CONABIO), which includes civil society as well as governmental representatives; and in the State and Local Project Committees with stakeholder representation including civil society. These committees would have responsibilities, among others, for mainstreaming project experiences in public policies, for reviewing annual work plans, APs, and demonstration subprojects, further detailed in Section C and Annex 6. In addition, partnerships would be established with universities, research institutions, and NGOs for the execution of project activities in the target project areas and for project monitoring. The participation of local stakeholders and beneficiaries would include: (i) involvement in the

planning, implementation, and monitoring of demonstration activities; (ii) inclusion, in the project's annual planning, of their demands for training in sustainable management of natural resources; and (iii) active participation in environmental education and capacity development programs.

During project implementation there would be ongoing participation by the actors involved and society in general, through seminars and workshops. Project documents are available on MMA's website and in the Project files: http://www.mma.gov.br/aquabio

5. Environment

The Project would generate positive environmental impacts through strengthening the capacity of government institutions and civil society to participate in decision-making that supports the sustainable use and conservation of freshwater biodiversity in the Brazilian Amazon and, in the medium and long term, through fostering better management and control of the threats that lead to degradation of the Region's aquatic resources. Direct, positive environmental impacts stemming from Project implementation would likely include: (i) the resolution of conflicts over the use of fishery resources and resulting improved management of such resources; (ii) better, sustainable management of aquatic resources, as a result of the mainstreaming of freshwater biodiversity concerns into public policies and actions at the sub-basin and local level; (iii) improved quality of water resources and fisheries for indigenous groups living in the PIX (Xingu sub-basin); and (iv) the production of environmental services associated with decreased soil erosion, riparian forest recovery, and conservation of overexploited aquatic species such as *tambaqui, piramutaba, filhote* and *pirarucu*.

6. Safeguard policies

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP/GP 4.01)	[X]	[ ]
Natural Habitats (OP/BP 4.04)	[X]	[ ]
Pest Management (OP 4.09)	[X]	[ ]
Cultural Property (OPN 11.03, being revised as OP 4.11)	[ ]	[X]
Involuntary Resettlement (OP/BP 4.12)	[ ]	[X]
Indigenous Peoples (OD 4.20, being revised as OP 4.10)	[X]	[ ]
Forests (OP/BP 4.36)	[X]	[ ]
Safety of Dams (OP/BP 4.37)	[ ]	[X]
Projects in Disputed Areas (OP/BP/GP 7.60)*	[ ]	[X]
Projects on International Waterways (OP/BP/GP 7.50)	[ ]	[X]

7. Policy Exceptions and Readiness

The Project does not require any exception to World Bank safeguard policies.

* *By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas*

Annex 1: Country and Sector or Program Background

Brazil: Integrated Management of Aquatic Resources in the Amazon Region - AquaBio

Background

The Amazon Basin (7 million km^2, including the Tocantins River sub-basin) is shared by eight countries (Brazil, Venezuela, Colombia, Ecuador, Bolivia, Peru, Surinam, and Guyana). The Brazilian part of the Amazon Basin covers about 58% of the total area, or 4.06 million km^2, and will henceforth be referred to as the Brazilian Amazon. The rivers of the Amazon Basin and their associated ecosystems are characterized by a rich diversity of freshwater fauna and flora of global importance, representing approximately 30% of the world's freshwater ichthyofauna, most of which is endemic. Although smaller, the numbers of amphibians, reptiles, and aquatic birds occurring in the Amazon Region are also highly significant in global terms. It is estimated that there are nearly 30,000 species of animals and plants, but the true number remains unknown due to the difficulty in completing inventories associated with problems of access and other logistical considerations.

The Amazon aquatic ecosystem comprises three very different kinds of waters: (i) whitewater rivers, also called sediment-rich rivers, such as the Amazon itself, that are rich in nutrients; (ii) clearwater rivers, relatively nutrient poor and that can range from alkaline to acidic; and (iii) blackwater rivers, with very acidic waters that are nearly devoid of sediments and nutrients, but which have a dark color due to natural dissolved organic matter such as tannins. The combinations of interactions among the various types of water, flood regimes, and riparian characteristics, have originated a complex mosaic of aquatic habitats in the Brazilian Amazon. The long-term conservation of freshwater biodiversity in the Amazon requires that all components of this large mosaic continue to be available to all species that make use of them. While some aquatic species may spend their whole life in only one aquatic habitat, most species use different parts of this mosaic during their life cycle, with the extreme being some species of catfish that migrate between the estuary and the Basin's headwaters throughout their lifetimes. The long-term conservation of freshwater biodiversity in the Amazon requires that all components of this large mosaic continue to be available to all species that make use of them.

There are a few protected areas in the Brazilian Amazon that include freshwater habitats and associated biodiversity of global importance. The main large ones are: (i) Mamirauá Sustainable Development Reserve, (ii) Jaú National Park, (iii) Amanã Sustainable Development Reserve, (iv) Anavilhanas Ecological Reserve, and (v) Araguaia National Park. The first three are contiguous, forming a biological corridor and represents a combined area of approximately 57,400 km^2. This area includes nutrient rich *várzea* floodplains and nutrient poor blackwater ecosystems, as well as the transitional ecosystems in between. The Anavilhanas Ecological Reserve, located on the Negro river (blackwater ecosystem), is the second largest freshwater archipelago in the world, with more than 400 islands. The Araguaia National Park contains clearwater aquatic ecosystems, but is currently under threat from increasing human occupation of its headwater areas. However, these protected areas are not enough to ensure effective conservation of freshwater biodiversity in the Brazilian Amazon.

Brazil's use of a "corridor approach" for the conservation of freshwater biodiversity, supported through the Ecological Corridors Project (Rainforest Pilot Program), is especially important in protecting aquatic migratory species since there is a need to maintain both their habitats and inter-connecting waters for purposes of migration. Achieving effective corridor protection tends to pose a greater challenge when compared with individual protected areas, typically one involving a wider public commitment to protect hydrological regimes, water quality, and migratory fish stocks. This commitment requires a great deal of participation by and coordination among all water and watershed users, as well as politicians and government agencies from various relevant sectors.

Similarly, Brazil's legislation governing the National System of Conservation Units Law (SNUC; Law Nº 9.985/00, Decree Nº 4.340/02) supports a new concept of protected areas in the region, one in which local people and other stakeholders are taken into consideration both during public consultation procedures prior to the creation of Conservation Units (UCs), and in the development of their respective management plans and councils. However, the Law's implementation has faced great difficulties, particularly in public institutions responsible for UC management (bureaucratic constraints, lack of staff, infrastructure, and training, etc.), which have been described as the "Achilles' heel" impeding the effective implementation of the SNUC. The Ecological Corridors Project and the Amazon Region Protected Areas (ARPA) Project are supporting activities aimed at improving this situation.

The major use of aquatic resources in the Amazon Region is in the fishing sector. The fishery resource represents an important source of protein, employment, and income for the local population. It is considered a complex activity that involves the utilization of various types of equipment and categories of users who exploit diverse fish species in different environments. Subsistence riparian fishing predominates, with surplus representing 60-70% of production, sold in the market. The other types of fishing practices in the Amazon are: commercial fishing for large urban centers by small, semi-professional fishermen; small-scale fishing specializing in ornamental fish for export companies (about 2,000 people depend on this activity on the Rio Negro, and some 20 to 50 million ornamental fish are exported from the Rio Negro each year); and sport fishing on boats and at hotels, which has been increasing significantly in recent years. Other significant uses of aquatic resources include local hunting and consumption of turtles, caiman, the Amazon river dolphin, and manatee.

The Region's living aquatic resources, while abundant, are nevertheless finite and increasingly being threatened by unplanned or poorly planned economic growth. This is an ongoing process that has increased over the last three decades, mostly as a consequence of past government policies and incentives aimed at the occupation of the Brazilian Region, and leading to the conversion of forests. Examples include the construction of infrastructure (such as roads and hydroelectric plants) and the introduction of commercial agriculture and cattle-raising as major economic activities. In addition, the problem has been exacerbated by a weak Government presence in the Amazon, which led to the current situation - a large number of rural settlers without legal title to the lands where they live and farm.

One **key issue** associated with this growth is the over-exploitation of some species that are constituent components of the Region's aquatic biodiversity. Examples include: Pirarucu

(*Arapaima gigas*), Piramutaba (*Brachyplatystoma vaillanti*), and the red-tailed catfich Pirara (*Phractocephalus hemioliopterus*). As a result, changes are increasingly being observed in the composition of commercially caught species, where over-exploited commercial species of greater size (and market value), such as the Piramutaba, are being replaced by smaller, still-abundant, species such as the smaller catfish Piracatinga (*Callophysus macropterus*). In addition, while before the local people would only consume large specimens of certain fish species, such as the Tambaqui (*Colossoma macropomum*), now it is common to find smaller, mostly immature, specimens of Tambaqui at local fish markets.

A second critical **issue** is the indirect impacts on the aquatic ecosystem associated with the environmental consequences of the previously described development model, including the conversion of forests. Major off-site impacts on aquatic resources include: silting of water bodies, changes in current regime, reduced flow in rivers, and reduced water quality, all with negative effects on the integrity of aquatic ecosystems and the consequent loss of biodiversity in the Region. In general, the existing amount of environmental liability is very high, with negative consequences to regional aquatic biodiversity.

Finally, the mining sector represents a major source of impacts, affecting aquatic resources not only in the proximity of the mining activities, but as a source of off-site contamination for which the consequences have yet to be fully understood.

At present, the adoption of effective measures to resolve these issues is impeded by a number of **barriers**. These can be grouped into the following: (i) public policies are insufficiently articulated across sectors to effectively address threats; (ii) weak organizational and institutional capacity at the basin, federal, state, and local levels to deal with these issues in a participatory and integrated manner, taking into account local environmental, cultural, and socioeconomic characteristics; (iii) barriers - particularly the lack of accessible systems for sharing existing information with resource users and other stakeholders - to the adoption of more sustainable harvesting practices of aquatic resources, and of appropriate land use practices that result in fewer negative impacts on freshwater ecosystems, while also generating economic benefits for local communities; (iv) absence of continuous monitoring and information systems that (a) track policy and institutional failures that may result in further degradation of freshwater biodiversity, and (b) improve the knowledge base about freshwater biodiversity and its ecology in the Brazilian Amazon, and about ecosystem responses to the intensification of natural resource use and other changes to the natural environment; and (v) few opportunities and fora for discussion and decision-making related to the issues above, to educate stakeholders about user needs and reach consensus on implementable policies.

The aquatic ecosystems of nutrient-rich whitewater rivers, and those of clear and blackwater rivers, characterized by the oligotrophy of the aquatic environment, need alternatives and different proposals for the conservation and sustainable use of their aquatic resources. In recognition of this complexity, and the overall size of the Brazilian Amazon, the proposed project design has adopted a pilot approach based on sub-basins as the basic planning unit, in order to properly address the issues and barriers described above.

Selection of Project sub-basins

The principal sub-basins considered for project intervention were: Javari, Içá, Juruá/Jutaí/Japurá, Purus, Negro, Madeira, Trombetas, Tapajós, Xingu, Jarí, and Tocantins. In view of the project's specific interest in clear and black water rivers, those sub-basins with headwaters in the Andes or under major Andean influence were not considered in the selection process, since they consist mostly of white water rivers: Javari, Içá, Juruá/Jutaí/Japurá, Purus, and Madeira.

For purposes of selecting specific sub-basins, a set of criteria was used, grouped into four major categories: (i) ecosystem and biodiversity; (ii) importance of aquatic resources and degree of threat; (iii) scientific information and knowledge; and (iv) degree of human development and local organizations. Based on the application of these indicators, the following sub-basins were selected for direct project intervention, listed in order of their importance: (1) Negro; (2) Xingu; (3) Tocantins; (4) Jari; (5) Tapajós; and (6) Trombetas. Due to constraints on budget and implementation capacity, in addition to the demonstrative nature of GEF projects, only the first three have been included in the project. A summary of the methodology used for selection of sub-basins and the complete methodology and results can be found in the project files.[3]

The three selected sub-basins, in addition to the ProVárzea project area, provide a representative sample of the various combinations of aquatic ecosystems and problems that affect them in the Brazilian Amazon. The Rio Negro is illustrative of areas where direct utilization is the main issue affecting aquatic resources, while, in the upper Xingu Basin, most negative impacts on the quality and abundance of aquatic resources area the result of unsustainable land use activities, including forest conversion and increasing urbanization. The lower Tocantins river, on the other hand, has suffered the direct irreversible impact of the construction and operation of a large hydroelectric dam.

The threats to freshwater biodiversity in the Brazilian Amazon stem from an increase in human occupation and activity in the Brazilian Amazon, and from changes in the patterns of human behavior related to the use of natural resources. Such changes have also resulted in an increase in the occurrence of conflicts among resources users, and the main conflicts that have been identified in the project area are: (a) In the mid and lower Negro sub-basin, (i) conflicts between local and commercial fisheries, especially where fisheries activities are now limited to areas outside Protected Areas, thus increasing competition for the same resource; (ii) conflicts between "food" fisheries, and sport fishing activities, since some rivers have been "closed" to food fisheries in order to ensure the availability of large specimens of sport fishes; (iii) conflicts between *piabeiros* (poor local fishermen that provide fish the aquarium trade) and environmental authorities, as well as with other fisheries; (b) In the upper Xingu sub-basin, (i) conflicts between

[3] The biodiversity importance of these sites was confirmed in an international workshop on "Conservation of Freshwater Biodiversity in Latin America and the Caribbean," held in Santa Cruz de la Sierra, Bolivia, in September 1995. In the workshop, the region called the "Amazon complex" was divided into eight distinct ecoregions: (1) Amazon estuary; (2) Amazon River channel; (3) tributaries of the Guyana shield; (4) Negro River; (5) Amazon River headwaters; (6) western Amazon plains; (7) tributaries of the Brazilian shield; and (8) Araguaia-Tocantins Basin. Ecoregions (2), (4), and (5) were recognized as being of global importance for aquatic biodiversity and recommended as being of the highest priority for conservation in Latin America, as its conservation status is considered vulnerable.

riverine dwellers/small farmers and large mechanized farming and ranching operations; (ii) conflicts over environmental quality and health between populations outside the PIX and the indigenous groups that live with the Park; and (c) In the lower Tocantins, (i) conflicts among fishermen of all types over the use of reduced fish stocks after construction of the Tucurui Dam; (ii) conflicts among local communities and Dam administrators over implementation of adequate measures to compensate for negative impacts on fisheries in the river section downstream of the Dam.

Project policy interface

The AquaBio project would support implementation of various national, state and local policies in the Brazilian Amazon, its major focus will be on implementation of specific articles under the National Biodiversity Policy and under the National Water Resources Policy.

(A) National Biodiversity Policy (Decree 4339/02)

Knowledge about the Biodiversity

10. General Objectives: generate, sistematize and make available information for the management of biodiversity in the various biomes, and its role in the functioning and maintenance of terrestrial and aquatic ecosystems, including national waters. Promote knowledge about Brazilian biodiversity, its distribution, its determining factors, its values, ecological functions, and potential for economic use.

Biodiversity Conservation

11.1.4. Support actions for the elaboration of ecological-economic zoning, on national, regional, state, and municipale scales, or at the level of river basins, with a focus on the establishment of protected areas, and adopting its conclusions with a minimum set of common guidelines and methodological directives, and with transparency, scientific rigor and social control.
11.1.11. Establish a national initiative for conservation and rehabilitation of freshwater biodiversity, and that of coastal and marine zones.

Sustainable Use of Biodiversity

12.2.8. Promote, in an integrated way and when legally permited, the sustainable use of forestry (timber and non-timber), fishery and faunistic resources, giving priviledge to certified management, the replenishment, the multiple use and maintenance of stocks.

Biodiversity Monitoring, Evaluation, Prevention and Mitigation of Impacts

13.2.16. At the level of river basins, support actions aimed at zoning and identification of critical areas, for the conservation of biodiversity and of water resources.
13.2.18. Support studies on impacts on biodiversity in the different river basins, especially in riparian vegetation, headwaters, water springs, and other permanent conservation areas and in areas critical to the conservation of water resources.
13.3.11. Promote the restoration, rehabilitation, and conservation of biodiversity in the different river basins, especially in riparian vegetation, headwaters, water springs, and other permanent conservation areas and in areas critical to the conservation of water resources.

(B) National Water Resources Policy (Law 9.433, 08 January of 1997)

Article 1
IV – management of water resources should always contemplate the multiple use of the resource;
V – the river basin is the territorial unit for implementation of this policy;
VI – management of water resources should be descentralized and include participation from the Public Sector, of water users, and of communities.

Article 3
II – management of water resources should be adapted to the physical, biotic, demographic, economic, social, and cultural diversity of the various regions in the country;
III – management of water resouces should be integrated with environmental management;
IV – planning and management of water resources should be articulated with that of other user sectors, and with regional, state, and national planning;
V – management of water resources should be articulated with land use management.

Article 9
The classification of water bodies according to their main use aims to:
I – ensure that water bodies would have a quality that is compatible with the most demanding requirements applicable to them;
II – decrease the cost of pollution control by supporting the adoption of permanent preventive measures.

Article 26
Basic principles for the implementation of the Water Resources Information Systems are:
I – decentralization of data and information gathering and production;
III – access to data and information is guaranteed for society at large.

Article 29
For implementation of the National Water Policy, it is the role of the Federal Executive Government:
III – to implement and manage, on a national basis, the Water Resources Information System;
IV – to promote the integration between water resources management and environmental management.

Article 39, paragraph 3
In the River Basin Committees of rivers with basins that include indigenous lands, the following representatives should be included:
I – a member from the National Indian Foundation (FUNAI) as a representative from the Federal Government;
II – members from indigenous communities located in the basin or with interests in it.

National Water Resources Council (Resolution 12, of July 19, 2000)

Article 3
In the absence of Water Agencies, proposals for the classification of water bodies can be elaborated by river basin municipal consortia or associations, with the participation of government institutions responsible for water resources management and in collaboration with government environmental organizations.

Table 1 - Root Cause Analysis of Factors Impacting Globally Significant Biodiversity in Sub-Basins N= Negro River; X= Xingu River; T= Tocantins River					
Impact on globally significant biodiversity	**Cause**	**Root causes**	**Legal and policy framework in place**	**Project activities to deal with root cause**	Responsible institutions in the context of AquaBio
Reduction of stocks of commercially important fish species	Over-fishing (N and T) Habitat degradation (X and T)	Open access resource (N, T and X) No other income source (N and T) Higher income from fishing than other available income options (N and T)	National fisheries law (regulates when, where and what, how to fish) Law of protection of endangered species (identifies threatened, endangered and overexploited fish species)	Enforcement of laws and implementation of fishery statistics Restriction of fishing licenses/ permits Provide alternative livelihoods to commercial fisherpeople Increase awareness of consequences of over-fishing, and of existing laws and regulations Promotion of fishing agreements among users (acordos de pesca) Elaboration of APs and establishment of discussion fora	**IBAMA, state and municipal environmental agencies** **Special Secretariat of Fisheries; Ministry of Agriculture** **Various federal, state credit/technical assistance programs/lines** **Governmental and non-governmental environmental education programs** **IBAMA, state and municipal environmental agencies**
Decreased numbers of other aquatic biodiversity (turtles, caimans, manatees)	Hunting (N, T and X) Habitat degradation (X and T)	Highly prized food (high market prices) (N, X and T)	Fauna protection law (prohibits hunting of wildlife) Law of protection of endangered species (identifies threatened and endangered species)	Enforcement of laws and implementation of SIBA Provide alternative livelihoods to local communities Increase awareness of consequences of illegal hunting, and of existing laws and regulations Elaboration of APs and establishment of discussion fora	**IBAMA, state and municipal environmental agencies** **Various federal, state credit/technical assistance programs/lines** **Governmental and non-governmental environmental education programs**
Degraded ecosystem which includes globally significant biodiversity	**Change in flow and flooding patterns (T and X)** **Increased sedimentation of streams and increased water temperature (X)** **Land conversion of headwaters leading to decreased flows and decreased water quality (X)** **Decreased water quality (X and T)**	**Hydropower Dam (T)** **Degradation of riparian areas due to deforestation and agricultural use (X and T)** **High price of commodities (X and T)** **Regional planning policy and agricultural credit lines (X and T)** **Urban areas dumping solid waste and untreated waste water (X and T)**	**National Water Law** **National forestry code (protects riparian vegetation and springs)** **National Water Resources Code** **Water Quality regulations (CONAMA resolution on stream classification)**	**Enforcement of laws and implementation of SIBA** **Monitoring of water quality, quantity, and of aquatic biodiversity (SIBA)** **Introduce or enforce regulations on use of fertilizers and pesticides and disposal of containers** **Encourage no-till agriculture and reforestation of riparian zones** **Increased awareness of consequences of environmental degradation, including solid waste, especially on aquatic ecosystems** **Elaboration of APs and establishment of discussion for a**	**IBAMA, state and municipal environmental agencies** **Municipalities** **Governmental and non-governmental environmental education programs**

Annex 2: Major Related Projects Financed by the Bank and/or other Agencies

Brazil: Integrated Management of Aquatic Resources in the Amazon Region - AquaBio

Sector	Project Name *	Status	Progress	Start and End Dates	Amount During Aquabio (US$ m)
Natural Resources Management	Brazil Floodplain (Várzea) Natural Resources Management Project	Ongoing	S	2000-2007	3.40
Natural Resources Management	Forest Resources Management Project	Ongoing	S	1998-2006	6.09
Environmental Management	Second National Environment Program	Ongoing	S	2000-2006	2.35
Protected Area Management	Ecological Corridors Project (Central Amazon)	Ongoing	S	2001-2006	2.59
Protected Areas	Amazon Region Protected Areas Project	Ongoing	S	1996-2007	10.40
Biodiversity	National Biodiversity Project	Ongoing	S	2001-2005	--
Environmental Management	Natural Resources Policy Project	Ongoing	S	1995-2006	1.89
Environmental Management and Monitoring	Monitoring and Analysis Project	Ongoing	S	1999-2006	1.39
Biological Information Systems	Inter-American Biodiversity Information Network	Ongoing	S	2004-2009	5.5
Scientific Research	Sub-program of Science and Technology Phase II	Ongoing		2005-2008	5.0
Environmental Management/Mainstreaming	National Biodiversity Mainstreaming and Institutional Consolidation GEF Project	In Preparation			
Integrated Rural Development	Pará Integrated Development	In Preparation			
Other Agencies					
Water Pollution	Igarapé 40 GEF Project	In Preparation (UNDP)			
Environmental Management and Institutional Strengthening	Integrated Management of Transboundary Water Resources in the Amazon River Basin	In Preparation (UNEP)			

Annex 3: Results Framework and Monitoring

Brazil: Integrated Management of Aquatic Resources in the Amazon Region – AquaBio

Project Development Objective (PDO)	Outcome Indicators	Use of the Results Information
PDO To support the mainstreaming of a multi-stakeholder, integrated management approach to the conservation and sustainable use of freshwater biodiversity in public policies and programs in the Brazilian Amazon River Basin.	By **PY06,** a proposal regarding institutional arrangements and processes for integrated management of aquatic resources developed, tested, and agreed on in participating States (3), and discussed with the other States (6) of the Brazilian Amazon. BY **PY04**, action programs for integrated management (APs) under implementation in three Project target areas, covering an area of about 290,845 km^2 within three river basins (1,950,000 km2), with participation of natural resource user sectors at local, state, and federal levels. By **PY06**, strengthened institutional capacity to implement integrated management in three sub-basins, in Federal Government institutions (3), State governments (9), Mayors' offices (9), non-governmental organizations (15), trainer of trainers and local leaders (90), special interest groups (15) schools (45), and local communities (45).	**PY03** reevaluate the project implementation strategy if fewer than 6 States are participating in discussions of proposals for integrated management, or if less than two of the three sub-basins have APs under development. **PY03** reevaluate the capacity building strategy if the achieved target for any stakeholder group is less than 50%.
Project Global Environmental Objective		
GEO To reduce threats to the integrity of freshwater ecosystems in the Brazilian Amazon, and assure the conservation and sustainable use of its freshwater biodiversity of global importance.	By **PY06**, project results providing a basis for future expansion of integrated management of aquatic resources to other sub-basins of the Brazilian Amazon; experiences and lessons learned shared with stakeholders of the nine states of the Brazilian Amazon and other countries of the Amazon Basin (6 national events, 2 international workshops, 2 media campaigns, and production of dissemination materials). By **PY06,** increase in the number and diversity of representatives from the producer and commercial sectors actively participating in the discussion opportunities supported by the project. By **PY06**, 39,941 km^2 of productive freshwater landscapes, including associated floodplains and riparian areas, under improved management in 3 sub-basins, with positive impacts on freshwater biodiversity.	**PY03** intensify capacity building and dissemination efforts if fewer than 6 States are actively participating in discussion about integrated management, or if there has been less than a 25% increase in the number of representatives from the producer and commercial sectors actively participating in the discussion opportunities supported by the project.
Intermediate results (one per component)	**Indicators of the Result for each Component**	**Use of the Indicators in Monitoring**

Component 1 Title: Planning and Public Policy Result: Institutional arrangements and processes established in three sub-basins of the Brazilian Amazon, supporting the adoption of an integrated management approach applied to the priority issues and problems affecting aquatic biodiversity, water resources, and living conditions of local communities.	**Component 1** In each of the three Project Impact Areas, a detailed participatory diagnostics completed, and strategic demonstration activities identified by the end of **PY01**. An Action Program (AP) developed for each of the three sub-basins with institutional arrangements formulated and negotiated with natural resource users by the end of **PY03,** and under implementation in **PY04,** with participation of government institutions (Federal Government,3 State governments, local authorities of a minimum of 9 municipalities), 15 NGOs and civil society organizations (such as cooperatives, fishermen colonies and associations, indigenous associations, rural producers, and others). By **PY05**, eight AP-related studies completed, aimed at mainstreaming experiences of integrated management of aquatic resources into public policies. By **PY06**, a developed and negotiated strategy for financial support to the implementation of the 3 APs, with pilot financial mechanisms adopted beginning in **PY05.** By **PY06**, a proposal for institutional arrangements and processes for integrated management laid out and discussed with stakeholders in the other 6 states of the Brazilian Amazon, with input from the experiences generated in the demonstration areas.	**PY01** adjust efforts if less than two diagnostic activities are underway. **PY02** reevaluate capacity building and dissemination strategy if fewer than two AP proposals are in discussion, or if less than 50% of the target public is involved. **PY03** reevaluate the real need for more studies if fewer than 50% are contracted. **PY04** intensify dissemination efforts if fewer than two proposals of financial mechanisms are under discussion. **PY03** reevaluate the strategy for awareness raising if fewer than six States are participating in discussions of proposals for integrated management.
Component 2 Title: Demonstration Activities to Support Mainstreaming of Freshwater Biodiversity. Result: Demonstration activities in various sectors to support integrated management of aquatic resources developed and tested in three sub-basins of the Brazilian Amazon, with positive impact on aquatic biodiversity, on reducing conflicts among natural resource users, and on the improvement of the living	**Component 2** Demonstration activities (30) completed by **PY 06**: at least 20 demonstration activities identified based on the detailed diagnostics (Component 1) by the end of **PY02**, with at least 10 under implementation in **PY02**. Lessons generated, experiences systematized, and made available to the public (a total of at least 3 communication products, with at least one in each of the 3 sub-basins, by **FY04** and a total of 6 communication products by **PY06**.	Review project implementation strategy and intensify efforts if fewer than 10 activities are identified by the end of **PY01**, or if fewer than 10 have begun implementation by end of **PY02.** **PY03** intensify efforts to systematize experiences if fewer than three communication products have been developed.

conditions of local communities.		
Component 3 Title: Building Capacity for integrated management of aquatic resources. Result: Greater operational and decision-making capacity of institutions and civil society organizations at local, state, and federal levels in the Brazilian Amazon, to support implementation of integrated management of aquatic resources.	**Component 3** By **PY06**, strengthened institutional capacity to implement integrated management of aquatic resources in three sub-basins, in Federal Government institutions (3), State governments (9), Mayors' offices (9), non-governmental organizations (15), trainer of trainers and local leaders (90), special interest groups (15) schools (45), and local communities (45). By **PY06**, 10 proposals for projects that contribute to the implementation of integrated management developed by indigenous groups, women's associations, or youth groups, and submitted to other funding entities (such as PRONAF). By **PY06,** 150 capacity building and environmental education events offered to natural resource users, technicians, and decision makers in the three sub-basins,, promoting greater interest among the various players in the implementation of integrated management of aquatic resources. By **PY06,** awareness raising events for effective participation in integrated management held in local communities (45), schools (45), and NGOs (15)**.** By **PY05,** 50% of those beneficiaries that received training are adopting technologies promoted by the project. Appropriate training materials designed and produced/published for at least 6 stakeholder groups by **PY04** (may include videos, manuals, field trips, etc).	**PY03** reevaluate the capacity building strategy if the achieved target for any stakeholder group is less than 50%. **PY04** increase technical assistance and capacity building efforts if fewer than nine proposals are developed. **PY02** reevaluate the component strategy if fewer than 72 events are offered, or if there is no significant increase in participation of main stakeholders. **PY02** increase awareness raising efforts if less than 80% of the target indicators are achieved. **PY03** increase capacity building and technical support if less than 30% of beneficiaries have adopted technologies promoted. . **PY02** evaluate strategy if training materials produced for fewer than 3 stakeholder groups.
Component 4 Title: Project Management, Monitoring and Evaluation (M&E), and Information Dissemination. Result: Increased institutional capacity to effectively manage and coordinate project actions in the three sub-basins, monitor project impacts,	**Component 4** By **PY01**, effective participation in project execution of government (3 federal, 3 state, and 9 municipal) and civil society organizations (2 in each municipality – 15). System to monitor project impacts fully operational in **PY02,** with participation of local stakeholders**.**	**PY01**evaluate the participation of key stakeholders regarding project execution; adjust awareness raising efforts if less than 50% of target indicator is achieved. **PY01** increase efforts if the project impact monitoring system

and disseminate experiences generated by the project.		is still not defined or sufficiently detailed.
	Project Implementation Monitoring System (SIGMA) operational and providing information for continued improvement of project implementation from early **PY01**.	**PY01** SIGMA fully functional.
	An information system on aquatic biodiversity and fishery statistics (SIBA) implemented in **PY02**, making information available to the general public.	**PY01** intensify efforts if SIBA is still not being developed.
	By **PY06**, project information dissemination implemented through seminars (at least 3) and diagnostic reports (3) by PY02, and international seminars (2), regional seminars (6), external evaluation reports (2), progress reports (15), and media campaigns (2).	**PY03** conduct mid-term evaluation and readjust project implementation if necessary.

Project Monitoring and Evaluation

Objectives

The Project's Monitoring and Evaluation (M&E) System would monitor the implementation progress of project supported activities (through the SIGMA) as well as measure their impact on freshwater ecosystems. Information generated by the M&E system would be made available for real time project planning management, as well as for use by beneficiaries, partner institutions and the public in general. The Project would also support the creation and implementation of an aquatic resources information system (SIBA), beginning in the Project target areas but with the objective of eventually expanding to include other areas of the Amazon Basin. The M&E system would entail the following activities: (i) planning for implementation of project monitoring and evaluation activities; (ii) definition of specific methods and tools to monitor the impact indicators defined in the logical framework; (iii) implementation of a data storage system, and (iv) making the information available to stakeholders at all levels.

Results and indicators

Results expected include: (i) a functioning aquatic biodiversity resource information system (SIBA); (ii) the IBAMA/ProVárzea fisheries statistics system strengthened with new data collection points located in the Project target areas; (iii) a system to monitor the impacts of the project's technical strategy on aquatic biota and water quality at selected points in the Xingu River Project target area, including two points where major tributaries of the Xingu enter the Xingu Indigenous Park; (iv) an accessible and user-friendly database of project results; (iv) an operational project implementation monitoring system (SIGMA); and (v) external mid-term and final project evaluations. **Table 1** presents a summary of the activities and targets to be achieved.

To measure project impacts, the monitoring system would use a set of indicators, included in the Logical Framework, which would be measured and interpreted, as much as possible, with the effective participation of local stakeholders. These indicators include: (i) biological indicators of aquatic biodiversity (fish, bottom-dwelling invertebrates, plankton, turtles, and riparian vegetation); (ii) data collected at fish market stations (species, quantity/kg, average length,

fishing location, fishing effort, etc.); (iii) data on results of fishing agreements (reduction of conflicts, economic impacts, and impacts on fish populations); (iv) improvement of water quality (physical chemical, sediment, and pesticide indicators); and (v) the area in km^2 of productive freshwater landscapes that are under improved management as a result of project activities. The use of the GEF Tracking Tool for SP2 to report some of the indicators would be agreed with the Recipient at the time of project negotiations, and the completed Tracking Tool would be attached to the Minutes of Negotiations.

Information management

Data collected under the M&E System would be disseminated to all stakeholders, including project management staff, thus allowing for timely decision-making regarding necessary adjustments for improving project implementation. The M&E team, including partner institutions, would be responsible for data collection, analysis, and the "translation" of information into a format accessible to local communities. Information would be made available by means of events, publications, reports, internet, radio, and other communication media appropriate for the various stakeholder groups.

Geographic scope and selection of intervention areas

In view of the different uses of natural resources and stages of degradation of aquatic biodiversity, as well as varying local institutional capacity and arrangements, the AquaBio Project would operate in a different way in each of the three project impact areas. Within these impact areas, target areas for on-the-ground interventions would be selected in each of the three sub-basins, to demonstrate methodologies which promote restoration of components of the landscape and conservation of biodiversity. The impact of these interventions would be measured according to the Project M & E Plan. Monitoring and evaluation activities would be limited to the geographic focus of the project actions, in the various spheres of intervention and planning: production system, properties (family), producers groups, municipality, community, microwatershed and sub-river basins. Results, successful experiences, and lessons learned would be disseminated throughout the Brazilian Amazon, and also to to other countries in the Amazon Basin.

Criteria for selection of monitoring sites within the three Project target areas include: (i) within three microwatershed in the headwaters of the Xingu River, monitoring sites would be selected considering the degree of degradation of natural resources and impact on aquatic resources; interest of local residents, presence of other existing projects and initiatives, location in relation to institutional support structures, and degree of representation of the current land use; (ii) the collection points for information on aquatic biodiversity in the mid and lower Rio Negro and the lower Tocantins River regions would be the areas of greatest commercial and sport fishing as well as those of collection of live aquarium fish; (iii) fish landing monitoring stations would be located in each municipality selected for intervention in the Rio Negro and Tocantins River basins; (iv) fishing agreements indicated by partner institutions and in the areas of greatest interest for aquatic biodiversity would be monitored .

Beneficiaries

The beneficiaries of the Monitoring and Evaluation System would include: (i) internal– the project management structure and its components; (ii) local public – direct beneficiaries, their

families and organizations; (iii) institutional partners – universities, NGO's, and governments; (iv) partner projects; and (v) civil society.

Operational strategy

Initial seminar

Early in Project Year (PY) 1, an initial seminar would be held in each of the three sub-basins with the participation of local residents, their leaders and representatives, government and non-governmental institutions, representatives of other projects, and municipal governments. The seminars would be a continuation of the relationships already established by the AquaBio project during project preparation, and would serve to mark the official beginning of project implementation. Seminar objectives would include: (i) formal presentation of the Project and provision of more detailed information; (ii) explanation of the criteria used for site-selection and evaluation of the project; (iii) collection of information and suggestions to help finalize the Project's PY 1 work plan, the M & E Plan, the implementation strategy for creation and establishment of the Aquatic Biodiversity Information System, and (iv) process for establishing the project baseline. The first year operational plan (POA) would include a revision of the indicator table and of their means of verification. The indicators of project impact would also be finalized. The final version of the Monitoring and Evaluation Plan would include performance indicators that are consistent and coherent with the expected project results.

These initial seminars would support the preparation of the following products: (i) a revised Monitoring and Evaluation Plan; (ii) first year work plan, including establishment of the project baseline; and (iii) a validated strategy for implementation of the Aquatic Biodiversity Information System.

Development of the baseline

The plan for development of the baseline would be completed at the initial seminar. The development of the baseline would use a methodology that permits local community participation in the process. Multidisciplinary inter-institutional teams would be formed from partner institutions, including community organizations, to carry out the baseline studies. These teams would go through a training process with the objective of standardizing methodological procedures and defining commitments and responsibilities. The baseline products are: (i) a report of the baseline in each region selected for project interventions; and (ii) a final assessment of the needs for studies and research on other elements of biodiversity to be incorporated into the SIBA.

The results of the data analyses and the baseline study reports would be disseminated on the Project's webpage and through seminars with local communities. At these seminars, participants would discuss the status of aquatic resources and propose and prioritorize actions to solve the problems identified.

Implementation of the monitoring and evaluation plan, and the Aquatic Biodiversity Information System (SIBA)

The process to monitor the status of aquatic biodiversity as well as actions of the AquaBio Project would begin with a series of seminars with the objective of presenting the results of the baseline established in the previous step to the communities and other stakeholders. The SIBA

would include ecosystem level indicators, such as area of floodplain with original vegetation, and also habitat and species-specific indicators; these indicators would be monitored through partnerships with universities, research institutions, NGOs, and local community organizations. The information collected for both M & E and biodiversity monitoring objectives would be included in a geo-referenced database, accessible to the public. The information would also be made available through bulletins, folders, radio, television, internet, and other events, for use by the local community in generating local knowledge and awareness, leading to the adoption of actions to reverse and arrest the process of degradation of natural resources and its impacts on freshwater ecosystems.

The teams responsible for monitoring aquatic resources in each region would present annual progress reports, including the achievement of the targets established in the work plan. The reports would also identify the adjustments needed to improve project implementation. Intermediate and specific reports would be developed during the year as deemed necessary by the teams and institutions involved.

To maintain the momentum and motivation of the technical teams and communities, as well as keeping the public informed of the project results, the following events would be carried out:
(i) Working meetings – Would involve the local project teams, partner institutions and the local community, to discuss short term operational matters and to receive the results of the information collected. These meetings would be held each quarter and last one day; and
(ii) Seminars – All participants of the initial seminar would be invited to regional seminars held annually for presentation and discussion of project results. The highest priorities for the following year and adjustments needed in the work plan would also be defined. These seminars would offer an opportunity for exchange of experiences among the projects underway. National and international scale seminars would be held in the third and fifth years of the project to present the advances of the AquaBio project as well as the trends of aquatic biodiversity.

Institutional arrangements
The institutional arrangements for the M&E sub-component would consist of: (i) in the headwaters of the Xingu River, the coordination of project activities would be the responsibility of FEMA, since the M&E would have the support, among other potential partners, of UNEMAT, EMPAER, TNC, IPAM (active in the Rio Tanguro area), ISA and municipal governments, local NGOs and associations; (ii) in the middle and lower Rio Negro, as well as in the lower Tocantins, the coordination of project monitoring activities would be under the responsibility of IBAMA/ProVárzea, with support from other potential partners such as Eletronorte, FASE, UFPA, INPA, UFAM, FVA, IPÊ, municipal governments, NGOs, and local associations.

In all of the project areas, the AquaBio would have access to information from ANA concerning water resources and to the existing infrastructure of SIPAM/SIVAM for implementation support, such as remote data transmission. The project would sign agreements necessary to establish the needed institutional arrangements. Details of the monitoring activities themselves would be finalized once the demonstration areas and activities under Component 2 are completed in PY 1 of the Project.

Sustainability and replicability of results

One of the Project's main strategies is to increase awareness of local communities and their leaders of the importance of sustaining project supported outcomes related to aquatic biota and water resources. In addition a major component of the project focuses on training local communities to continually adopt best practices of natural resource management, maintain fishing agreements, monitor fish landings, and systematically collect information relating to aquatic biodiversity, incorporating all these aspects in decision making for resource management.

The institutional arrangement and the production of information-related materials would contribute to the continuation of the monitoring, supported by the sustainability strategy to be proposed by the Project. The Project would reinforce the following mechanisms to guarantee continuity of the project actions and results: (i) government commitment to incorporate the results into public policy; (ii) involvement of the local communities in self- management, through a process of formal and non-formal education and training; (iii) involvement of NGOs; (iv) involvement of teaching and research institutions; and (v) creation of a multidisciplinary and geo-referenced data base that can be accessed by different stakeholders involved in aquatic resource conservation in the Amazon region.

External evaluation

Mid-term evaluation

An external and independent mid-term evaluation would be carried out in the beginning PY 4. This evaluation would provide an in-depth analysis of progress towards achieving project outcomes and the identification of possible adjustments where warranted in the AquaBio Project. The evaluation would focus on the effectiveness in achieving project results and in meeting the implementation schedule, identifying areas and components which need adjustments, emphasizing lessons learned up to that point which could guide actions in the project's final phase. The Terms of Reference of this evaluation would be presented by the Project Management Team and negotiated with the GEF/World Bank.

Final evaluation

An external and independent evaluation would be carried out at the end of the project, focusing on the same questions and indicators as the mid-term evaluation. The final evaluation would aim to identify the project impacts and sustainability of project results, and the degree of achievement of long-term results. This evaluation would also have the purpose of indicating future actions needed to assure continuity of the process of local self-management for the restoration, conservation, and sustainable use of aquatic resources in the Amazon Basin.

M&E activities and targets

Table 1 below presents a summary of the activities, expected results and targets of the AquaBio project M&E system and Aquatic Resources Information System.

Table 1 – Activities, results, and targets of the M&E Plan and of the Aquatic Resource Information System

Activities	Results	Units	Indicators of the results						Total Target
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
1. Monitoring aquatic biodiversity **a)** Implement and maintain a System of Physical-Financial Monitoring − SIGMA.	Physical and Financial System implemented.	Software (production and maintenance)	1	1	1	1	1	1	A functioning system.
b) Carry out initial seminar in each of the three sub-basins.	Initial seminar carried out	Reports	3						A report of results of the initial seminar.
c) Establish baseline for each of the three sub-basins for project intervention.	Baseline established	Reports	3						A report of the baseline.
d) Monitor daily project progress based on an M&E plan and the selection of indicators for the different dimensions and themes developed beginning at the baseline.	Daily project monitoring.	M&E Plan and monitoring network (development and monitoring).	1	1	1	1	1	1	An M&E Plan and a monitoring network.
e) Implement an Aquatic Biodiversity Information System (SIBA)	Elements of biodiversity being monitored.	SIBA implemented.		1	1	1	1	1	A system of information about aquatic biodiversity.
f) Create a georeferenced data base - GIS	A functioning georeferenced data base - GIS.	Georeferenced data base - GIS		1	1	1	1	1	A georeferenced data base - GIS
g) Carry out working meetings	Working meetings carried out.	Reports and minutes.	3	6	6	6	6	3	30 reports and minutes of meetings.
h) Carry out seminars and develop reports	Seminars carried out and reports developed.	Reports		3	3	4	3	4	17 regional seminars and respective reports; two national seminars and respective reports; six reports of project progress.
2. External evaluation **a)** Implement external mid-term final evaluation.	Project evaluation implemented.	Evaluation reports.			1			1	Two evaluation reports.

Annex 4: Detailed Project Description

Brazil: Integrated Management of Aquatic Resources in the Amazon Region - AquaBio

The AquaBio Project addresses various issues that directly or indirectly affect the sustainability and conservation of aquatic biodiversity and water resources in the Brazilian Amazon, and will operate on three major fronts that were identified as constraints for long-term conservation and sustainable use of aquatic resources in the Brazilian Amazon: (i) strengthening the institutional capacity of various stakeholder groups to participate in decision-making processes involving the use and conservation of aquatic and water resources; (ii) supporting the creation or strengthening of discussion fora at the local, regional (sub-basin), national, and international levels; and (iii) learning from the testing, on a demonstrative basis, of new methodologies and technologies for the restoration and sustainable use of natural resources that affect the sustainability of aquatic resources in the Amazon Basin, and proposing the implementation of successful ones on a larger scale. Among the sector issues, environmental threats and constraints outlined in Section A.1, the project would focus on those linked most closely to the Government's priorities for biodiversity conservation in terms of reduction and prevention of negative impacts of development activities on aquatic resources, and the consequences of such threats as a source of a growing number of conflicts among resource users.

The Project's **development objective** (DO) is to support the mainstreaming of a multi-stakeholder, integrated management approach to the conservation and sustainable use of freshwater biodiversity in public policies and programs in the Brazilian Amazon River Basin.

The project's **global environmental objective** (GEO) is to reduce threats to the integrity of freshwater ecosystems in the Brazilian Amazon, and assure the conservation and sustainable use of its freshwater biodiversity of global importance, especially through the generation and dissemination of experiences that promote the development, replication, and scaling-up of an integrated management of aquatic biodiversity and water resources in the Amazon Basin over the long term.

In order to reach its objectives, the AquaBio Project would promote and support actions that stimulate and facilitate the integration of needs of all users, including conservation, in the development and implementation of policies and programs that may impact the conservation and sustainable use of freshwater biodiversity in the Brazilian Amazon. This integrated approach is an ecosystem management approach adapted to the reality of the Brazilian Amazon, to mainstream aquatic biodiversity into production landscapes and sectors, and ensure that conservation and sustainable use of biodiversity is properly included in the decision-making processes associated with the establishment and operation of local watershed or sub-basin committees.

Implementation of this innovative approach will require involvement of all stakeholders in a process of discussion, conflict resolution and decision-making within an integrated ecosystem management framework, with the objective of addressing threats to aquatic biodiversity, water resources, and quality of human life. The basic planning unit in this integrated ecosystem framework is the drainage sub-basin (or portions of sub-basins), and the following activities would take place in each unit: (i) a diagnostic of the main threats and of the barriers to address

them, (ii) dissemination of information, training, and a participatory consensus building process, involving resource users and government institutions, for elaboration of a plan for the conservation and management of aquatic resources, and (iii) establishment of a governance strategy for the long term implementation of such plan, including a framework for conflict mediation and resolution. This approach would contribute to the implementation of the National Biodiversity Policy as it supports a decentralized, inter-sectoral approach to the management of aquatic ecosystems, and incorporates economic, social, cultural (traditional knowledge), and environmental dimensions in the formulation and implementation of project supported action programs (APs), designed to address threats to biodiversity and resolution of conflicts over the use of aquatic resources. It would also contribute to the implementation of the National Water Resources Policy, which establishes the decentralization of water resources management by means of River Basin Committees – not yet implemented in the Amazon.

The Project would include the nine states of the Brazilian Amazon (Amazon Region) but project activities would be concentrated in three pilot sub-basins located in the States of Amazonas, Pará, and Mato Grosso, respectively. These are: Lower and Middle Rio Negro (Amazonas State), Lower Tocantins (Pará State) and Upper Xingu (Mato Grosso State). Due to the piloting and demonstrative nature of the Project and the considerable size of the sub-basins (the total area of the three sub-basins is 1,950,000 km^2), field activities would be concentrated in **portions of the three sub-basins**, from now on referred to as **project target areas** (see map in Annex 17), covering an area of about 290,845 km^2.

This 6 year Project would be implemented through the following components and sub-components:

Component 1 – Planning and Public Policy: (1.1) Sub-basin Action Programs; (1.2) Institutional Arrangements for Integrated Management of Aquatic Resources; and (1.3) Financial Sustainability

Component 2 – Demonstration Activities: (2.1) Mainstreaming of freshwater biodiversity sub-projects; and (2.2) Support for mainstreaming of freshwater biodiversity sub-projects

Component 3 –Building Capacity: (3.1) Training; (3.2) Environmental Education; (3.3) Institutional Strengthening; and (3.4) Sustainable Public Fora for Integrated Aquatic Resources Management

Component 4 – Project Management, Monitoring and Evaluation (M&E), and Information Dissemination: (4.1) Management and Coordination; (4.2) Monitoring and Evaluation; and (4.3) Information Dissemination

The total cost of the Project is an estimated US$ 17.13 m. Distributed by funding source these are: GEF (US$ 7.18 m); GoB (US$ 6.78 m); resources from the re-directed baseline (US$2.02 m); State of Mato Grosso (US $ 0.48 m); State of Amazonas (US $ 0.59 m); Project beneficiaries (US $ 0.08 m). It is likely that additional resources would be later available from other governmental initiatives at the federal, state, and municipal levels, as well as from the private sector, but those are not possible to be predicted at this time.

The expected main project outcomes are:

- Institutional arrangements and processes established in three sub-basins of the Brazilian Amazon, to support the adoption of integrated management of aquatic resources, to address priority issues and problems that affect the long-term conservation and sustainability of freshwater biodiversity, water resources, and the welfare of local communities;
- Demonstration activities to test and implement technologies and methodologies that support the mainstreaming of freshwater biodiversity concerns into relevant production sectors, developed in the project target areas of three sub-basins of the Brazilian Amazon;
- Greater operational and decision-making capacity by institutions and civil society at local, state, and federal levels, to adopt and implement integrated management of aquatic resources; and
- Strengthened institutional capacity to manage and coordinate actions in the three sub-basins, monitor impacts, and disseminate the experiences generated by the project.

Project outcomes would be measured using the following outcome and process indicators (for more details, see Annex 3):

- A proposal regarding institutional arrangements and processes for integrated management of aquatic resources discussed with the nine States of the Brazilian Amazon by project year 6 (PY6);
- Action programs (APs) for integrated management of aquatic resources operating in three project target areas, and covering an area of about 290,845 km^2, with about 32,941 km^2 of freshwater ecosystems benefiting from the sustainable management of its natural resources, including biodiversity (PY6);
- Demonstration activities (at least five for each of the three sub-basins) selected on the basis of participatory diagnostics by the end of PY1 and implemented from the first trimester of PY2;
- Capacity strengthened to support integrated management of aquatic resources in the following key institutions: (i) public institutions (Federal government, 9 State governments, and at least 9 municipal governments); 15 non-governmental organizations (representative entities of civil society, cooperatives, colonies and associations of fishermen, indigenous associations, and others); 90 multipliers and leaders; 15 special interest groups (women, youth, farmers, and fishermen); 45 schools, and 45 local communities by PY6;
- Area of riparian forests recovered or under sustainable management by PY6;
- Increase in the average size of three of the main fish species captured in the project area by PY6;
- Conservation of aquatic biodiversity and water resources taken into account in decision-making processes associated with new investments and development plans in three sub-basins – measured by the frequency of consultation with relevant stakeholder groups;
- A financial sustainability strategy developed and negotiated by PY6;
- 150 training and environmental education events offered to natural resources users, technicians, and decision-makers in the three participating sub-basins by PY6;
- Mobilization and raising of awareness in 45 local communities, 45 schools, and 15 non-governmental organizations for effective participation in integrated management of aquatic resources by PY6;

- Public fora in support of integrated management stakeholders strengthened and/or created in sub-basins (three local and three state committees strengthened by PY6);
- An Information System on Aquatic Biodiversity (SIBA) created and made available to the general public, beginning in PY2; and
- Objectives and results of the Project disseminated (at least three seminars and three diagnostic documents by PY2, two international seminars, six regional seminars, two external evaluation reports, 15 progress reports, and two media campaigns by PY6).

Project outcomes would be widely disseminated to contribute to the facilitation of the development and implementation of action programs for integrated management of aquatic resources in other areas of the Amazon.

Stakeholder participation is included in all Project components at varying levels of intervention (national, state [sub-basin), and local [municipal]). More specifically, project activities would involve governmental institutions (the federal government, state governments (9); and municipal governments (at least 9); NGOs representing civil society, cooperatives, small fishermen unions and associations, indigenous associations, and others (15); trainers and local leaders (90); local communities (45); schools (45); specific interest groups (e.g., women, youth); and the production sector (15). Moreover, all phases of the Project would include participatory evaluations and stakeholder involvement.

DETAILED DESCRIPTION OF COMPONENTS

Component 1: Planning and Public Policy (US$1.25 m, 7.3% of project cost)

Objectives: The main objective of this component is to develop and implement integrated management of aquatic resources through the preparation and partial implementation of Action Programs for integrated management of aquatic resources (APs) in three sub-basins of the Brazilian Amazon, generating replicable experiences that could become permanent public policies, with positive impacts on aquatic biodiversity, on the reduction of conflicts among various users of natural resources, and on the improvement of local communities' living and working conditions. Such actions programs would address portions of sub-basins (project target areas), and would have well-defined political, institutional, and financial arrangements to facilitate effective implementation by the various stakeholders – States, local municipal governments, private companies, rural and indigenous communities, community associations and non-governmental organizations. In addition, the project would develop mechanisms to ensure institutional and financial sustainability of actions under the APs after project completion.

Main outcomes: Institutional arrangements and processes established in three sub-basins of the Brazilian Amazon, to support the adoption of an integrated management approach applied to priority issues and problems that affect the aquatic biodiversity, water resources, and living conditions of local communities.

Main outputs: (i) an Action Program (AP) developed for each of the three project target areas, with institutional arrangements formulated and negotiated with natural resource users, with participation of government institutions, NGOs, and civil society organizations (such as

cooperatives, fishermen colonies and associations, indigenous associations, rural producers, and others); (ii) eight AP-related studies completed, aimed at mainstreaming experiences of integrated management of aquatic resources into public policies; (iii) a strategy for financial support for implementation of the 3 APs designed and negotiated, with pilot financial mechanisms adopted; (iv) a proposal for institutional arrangements and processes for scaling-up implementation of integrated management of aquatic resources in the Amazon, laid out and discussed with stakeholders in all 9 states of the Brazilian Amazon, with input from the experiences generated in the demonstration areas.

Target groups: State and municipal governments, producer associations and civil society organizations (CSOs)[4] in the nine states of the Brazilian Amazon, with special emphasis on those living in the three Project target areas.

Geographic scope: The component's activities would be concentrated initially in the Project target areas (portions of sub-basins) composed by the following municipalities in the 3 sub-basins: in the Upper Xingu River (State of Mato Grosso), Água Boa, Canarana, and Querência; in the Lower Tocantins River (State of Pará), four municipalities to be chosen among those of Abaetetuba, Barcarena, Igarapé-Miri, Limoeiro do Ajuru, Oeiras do Pará, Cametá, Baião, Mocajuba, and Moju; in the Lower and Middle Negro River (State of Amazonas), Novo Airão, Barcelos, and Santa Isabel. Project experiences would be scaled-up through dissemination at the sub-basin level first, followed by dissemination to the whole Brazilian Amazon and then at the level of the whole Basin.

Sub-component 1.1: Sub-basin Action Programs. (US$0.92 m, 5.4% of total cost). This subcomponent would finance the preparation and partial implementation, in a participatory manner, of Action Programs (APs) to test and implement integrated management of aquatic resources in the three Project target areas (portions of the Negro, Tocantins, and Xingu sub-basins), with institutional arrangements formulated and negotiated with users of natural resources. APs would focus on a geographical area at a scale that facilitates a bottom-up approach with significant stakeholder participation, while at the same time addressing priority problems that are relevant and manageable at that scale (project target area). These three pilots would generate significant experiences and lessons learned that could be replicated initially to other areas at the same scale, while also producing recommendations for scaling-up this approach at the level of other sub-basins and subsequently of the whole basin. Participatory, bottom-up planning and implementation would increase ownership and facilitate conflict management and resolution.

The implementation period of the APs would likely extend beyond the life of the project as some relevant actions may occur over the medium (six to eight years), and long term (20 years). Specific activities would include: (i) carrying-out detailed participatory diagnostics in the project target areas, to facilitate better understanding of the problems related to aquatic biodiversity and water resources management; (ii) identification and agreement/negotiation on the respective actions and activities to be included in each of the three APs, including the priority themes and areas to be selected for implementation of pilot demonstration activities (under comp. 2); (iii)

[4] Producer associations may include, among others, farmers, fishermen, artisans, private entrepreneurs, etc; civil society organizations (CSOs) might include associations of women, indigenous groups, teachers, and local NGOs.

conducting sectoral and environmental studies, (iv) formulation of the APs (PY2 to PY5), incorporating experiences and lessons obtained during the implementation of demonstration activities (Component 2) initiated in PY2; (v) monitoring and evaluation of the institutional arrangements adopted during the formulation of the APs; and (v) participatory processes and events leading to the endorsement of the APs.

Participatory *sub-basin planning and management* would foster ownership, involving, whenever required, the association of sub-basin land and water users, civil society organizations and the local representatives of concerned agencies (MMA and relevant sectoral ministers, state government sectoral and environmental agencies, municipal governments and/or other line agencies such as health and social action) to collectively define, share, and address problem situations. With close assistance from AquaBio staff and consultants, as well as ANA, IBAMA and relevant state government staff, the APs would be prepared by the stakeholders, setting priorities and determining social and technical measures (the latter including eventual sustainable productive small-infrastructure measures), which would cover priorities for protecting aquatic biodiversity, reducing conflicts among various users of natural resources, and improving local communities' living and working conditions.

Sub-component 1.2: Institutional Arrangements for Integrated Management of Aquatic Resources. (US$0.21 m, 1.3% of total cost)**.** This subcomponent would finance the formulation and discussion, with inputs from experiences generated in the three project target areas, of a proposal for institutional arrangements and processes to allow for the adoption and scaling up of this approach to other sub-basins in the Brazilian Amazon. This sub-component would support the following activities: (i) organizing and presenting in a user-friendly manner the "lessons-learned" derived from preparation of participatory diagnostics and formulation of the APs in the three project target areas; (ii) definition of a menu of alternatives for the development and implementation of APs (including proposals for activities, policies, and financial and institutional arrangements) that could serve as examples for scaling up this approach to other sub-basins in the Amazon; and (iii) seminars and meetings with interested parties from the other six Amazonian States in Brazil, to present and discuss (and eventually obtain endorsement of) the the project's approach for implementing integrated management of aquatic resources.

Subcomponent 1.3: Financial Sustainability. (US$0.1 m, 0.6% of total cost). This subcomponent would finance the development and implementation of a financial sustainability strategy to support the execution of activities identified in the APs, beyond the life of the project, with pilot financial mechanisms adopted by the end of the project. This would be achieved through the following activities: (i) initial identification of partners and stakeholders followed by the establishment of a common dialogue; (ii) identification of the outcomes and activities to be continued following the closure of the Project; (iii) assessment of the potential of the activities identified in (ii) above to attract external resources and/or generate financial returns to ensure their financial sustainability; (iv) identification and/or design of viable financial mechanisms/models to support financial sustainability of selected activities (e.g., public investment programs and funds, environmentally friendly certification schemes, trust funds, etc.); and (v) the development and implementation of a financial sustainability action plan to make the relevant financial mechanisms fully operational. For details on the elements and more specific activities of this strategy, see Attachment 1 to this Annex.

Component 2: Demonstration Activities (US$ 6.42 m, 37.5% of project cost)

Objectives: This component aims to generate experiences and lessons learned, including new technologies or production systems, on how to incorporate freshwater biodiversity concerns into various productive activities, providing inputs for the development of APs as the basis to formulate and implement integrated management of aquatic resources. Demonstration activities would support this objective, and would be small and few in numbers, but each would have its own objectives, expected results, and a monitoring plan. The demonstration activities (sub-projects) financed by GEF and the Brazilian government under sub-component 2.1 would be defined based on detailed diagnostics and public consultations in the three project target areas. During the initial consultations and diagnostics undertaken as a part of project preparation, some priority themes were identified for possible support. Moreover, a number of other activities are expected to be co-financed through other relevant programs or institutions under sub-component 2.1 (see Attachment 3 to this Annex). Additional themes are likely to be identified during the more detailed diagnostics and consultations that would be undertaken in the project target areas during the first year of project implementation (PY1), as well as during the formulation of the APs.

Main outcomes: A limited number (maximum of 30) of strategic demonstration activities in various productive sectors, to support implementation of integrated management of aquatic resources, developed and tested in project target areas within three sub-basins of the Brazilian Amazon, with positive impacts on aquatic biodiversity, on the reduction of conflicts among various users of natural resources, and on the living conditions of local communities. This component would also contribute to the sustainability of protected areas in the project impact area, because the communities around them would have been exposed to examples of more sustainable production systems and technologies, and would likely begin to also adopt them.

Main outputs: Implementation of demonstration activities, based on detailed diagnostic studies (see sub-component 1.1 above); and development and local dissemination of at least six communication and dissemination products, presenting lessons learned and associated experiences systematized and made available to the stakeholders and general public at the local, sub-basin, and Brazilian Amazon levels.

*Target group***:** Stakeholders in the production and public sectors, including producer associations, CSOs, rural and urban leaders, decision-makers, rural extensionists and other technical professionals working with natural resource use.

Geographic scope: The component's activities would be limited to the three Project target areas, composed by the municipalities mentioned in component 1.

Sources of funding. This component includes two sub-components financed by different sources of funding: i) sub-component 2.1, to be supported by GEF funds and GoB resources, would provide financial support to the testing of production practices that would facilitate the transition from non-sustainable practices to sustainable livelihood activities within an integrated management framework (see Annex 4, Attachment 2 for examples of possible subproject

themes); (ii) sub-component 2.2 would be financed under ongoing state and federal programs, consisting of subprojects under the *re-directed baseline* in support of mainstreaming of freshwater biodiversity (see Annex 4, Attachment 2 for examples of subproject themes to be funded under the re-directed baseline).

Sub-component 2.1: Mainstreaming of freshwater biodiversity sub-projects. (US$3.33 m, 19.5 of project cost). This sub-component would finance the development and implementation of a limited number of pilot demonstration activities (subprojects), to be identified in PY1 during the detailed diagnostics of the three project target areas, with the objective of mainstreaming conservation and sustainable use of freshwater biodiversity into productive sectors, by generating examples of adaptive productive systems and technologies that eliminate or reduce negative impacts on freshwater ecosystems.

Categories of subprojects eligible for grants. Possible activities identified during project preparation (Attachment 2 to this Annex) would fall largely under the seven categories: (i) co-management of aquatic resources associated with the resolution of conflicts over access to and the sustainable use of fisheries resources; (ii) management of access and sustainable use of ornamental fisheries resources; (iii) economic activities that offer alternatives to predatory or degrading activities, contributing directly to reduced pressure on aquatic biodiversity (e.g. family production of vegetables, small animals, beekeeping, handicraft, production of plant essences, production and use of medicinal plants); and (v) ecotourism and the integration of the communities into tourism activities in general; (vi) management of household effluents and of solid waste; and (vii) in the lower Tocantins, training of local organizations in management and monitoring of social and environmental impacts of the implementation of the Community Plan for the Sustainable Development of the Area Downstream of Tucurui Dam - PPDS-JUS.

Subproject beneficiaries. The financial support provided under this subcomponent would be characterized by demand-driven subproject selection based on proposals prepared and submitted by eligible project participants living in project target areas, with support from project technicians. It could provide grants to rural and indigenous community groups and organizations, including fishermen, riverine dwellers, farmer families, ranchers and artisans, as well as to local NGOs and municipalities.

Number of subprojects and upper thresholds for grant applications. Grants to financed sub-projects would be demand-driven, . For project design and appraisal purposes, it is estimated that about 30 subprojects (10 per project target area) would be supported under this subcomponent, with maximum amounts of US$30,000 to US$70,000.

Criteria for eligibility. Criteria for sub-project selection under this component would be specific for each project target area, and would be developed, during PY1, with stakeholder participation during the detailed diagnostic stage. However, and based on the diagnostics carried out at project preparation, the following general criteria would guide the elaboration of specific criteria for each of the three Project target areas: proposals would have to (i) correspond to activities identified as priorities in the participatory diagnostic of each project target area; (ii) involve the use and/or conservation of natural resources; (iii) whether it addresses the conservation of aquatic biodiversity, or involve activities to counteract the degradation of aquatic resources; (iv)

have a positive impact on the sustainable use and conservation of aquatic ecosystems, including freshwater biodiversity; (v) potential for positive impacts in relation to the costs of implementing the activity; (e) potential for replication; (vi) be proposed by an officially constituted (*pessoa jurídica*) local organization, or in association with one; (vii) provide co-financing of at least 5% of the total sub-project amount, in cash or in kind; (h) have its own M&E system developed to monitor sub-project results and impacts; and (viii) have an adequate Environmental Management Plan. The specific criteria to be used in each of the three project target areas would be defined after the respective more detailed diagnostics are developed during the first year of project implementation, and would be defined in the Operational Manual in close collaboration with the Bank.

Sub-component 2.2: Support for the mainstreaming of freshwater biodiversity sub-projects (US$3.09 m, 18% of total cost). This sub-component would support activities, within the re-directed baseline, that mainstream the conservation and sustainable use of freshwater biodiversity into existing programs and activities in the project target areas. Possible activities to be co-finance by the redirected baseline were identified during project preparation, such as (i) commercialization of products obtained through the sustainable management of natural resources; (ii) alternatives for fire and deforestation control, and environmental education; (iii) rehabilitation of native riparian vegetation; (iv) adoption of integrated solid waste management, aimed at water and soil conservation; (v) restoration of degraded lands, including erosion control; and (vi) development of sustainable tourism to generate alternative employment and income.

Sub-project beneficiaries and criteria: beneficiaries and criteria of demonstration activities financed under this sub-component would have to comply with the criteria set forth in each of the specific re-directed baseline project or program.

Component 3: Building Capacity (US$ 3.66 m, 21.4% of project cost)

Objectives: The goal of this component is to help prepare stakeholders, especially local ones (including indigenous people), to be able to actively participate in and contribute effectively to the formulation, implementation, and monitoring of strategies and action programs aimed at the conservation and sustainable use of freshwater biodiversity and water resources in the project areas, and bringing local environmental perspectives and traditional knowledge to this process. Activities include, among others, support for training (such as on indigenous and environmental legislation, and conflict resolution techniques), a variety of capacity building activities (such as on sustainable fisheries, and co-management approaches), environmental education and the formation of partnerships. The underlying objective is to empower local actors, including indigenous peoples, by leveling the playing field in terms of improving: access to information (environmental, ecological, political and other types via trainings, environmental education and other means); ability to exercise citizenship rights as well as duties; and strengthening local organizations, including indigenous associations, in terms of preparation and support for more active participation in public debate and in the to be established sub-basin committees and other fora.

Main outcomes: Greater operational and decision-making capacity of institutions and civil society organizations at local, state, and federal levels in the Brazilian Amazon, to carry out medium and long-term planning and manage conflicts in support of implementation of integrated management of aquatic resources.

Main outputs: (i) strengthened institutional capacity to implement integrated management of aquatic resources in three sub-basins, in Federal Government institutions, State governments, municipal governments, NGOs, trainer of trainers and local leaders, including indigenous people, special interest groups, schools, and local communities; (ii) at least 10 proposals for projects that contribute to the implementation of integrated management of aquatic resources developed by indigenous groups, women's associations, or youth groups, and submitted to other funding entities (such as PRONAF); (iii) 150 capacity building and environmental education events offered to natural resource users, technicians, and decision makers in the three sub-basins, promoting greater interest among the various players in the implementation of integrated management of aquatic resources; (iv) awareness raising events for effective participation in integrated management of aquatic resources held in local communities, schools, and NGOs**.**

Target groups: Activities would target institutions and people. Among the institutions, priority would be given to those that can contribute most to the management of aquatic biodiversity and water resources, such as community and producer associations, NGOs, and government institutions. Among individuals, special attention would be given to those from producer associations, rural and urban leaders, decision-makers, those responsible for activities, programs, and agencies related to aquatic biodiversity and water resources, and technicians from institutions related to natural resource use (such as rural extension agents).

Geographic scope: Environmental education, training and other capacity building activities would initially concentrate in the three project target areas, but some training would be offered to stakeholders at the three sub-basins (state level) and of the whole Brazilian Amazon. The majority of actions would be developed in rural areas, in order to reach, as much as possible, those populations who are the most dependent on the use of natural resources.

Sub-component 3.1: Training. (US$2.55 m, 14.9% of project cost). This sub-component would finance: (i) environmental training for agents and facilitators (multipliers), so they can obtain a clearer understanding of the interactions, concept and principles of integrated management of aquatic biodiversity, so as to promote them into water resources management processes; and (ii) operational training for producer associations and farmers, to adopt technologies and traditional knowledge appropriate for the conservation and sustainable use of biodiversity and water resources.

Training would include two broad categories of beneficiaries: institutions and people. Institutions are especially lacking in skills related to management and institutional development. Among the institutions, priority would be given to those that can contribute most to the management of aquatic biodiversity and water resources, such as community associations, cooperatives, NGOs, and government institutions. The group of "people" would be comprised mainly of riverine dwellers, farmer/ranchers, indigenous people, artisans who use natural resources, rural and urban leaders, decision-makers, those responsible for activities, programs and agencies related to aquatic biodiversity and water resources, and technicians of entities

related to natural resource use. The majority of the beneficiaries would act at the local level in the project target areas, but the benefits of training would reach the states of Mato Grosso, Pará, and Amazonas, where entities and technicians would attend training events, seminars, and workshops directed at aquatic biodiversity management.

Sub-component 3.2: Environmental Education. (US$0.61 m, 3.6% of total cost). The objective of this sub-component is to improve the awareness and knowledge, among project stakeholders, of the main questions and problems that affect aquatic biodiversity and water resources in the Amazon Basin, and their relationship to the living conditions of communities living in the Amazon Basin. This sub-component would finance the following activities: (i) increased awareness among local stakeholders about issues relevant to freshwater biodiversity, through meetings, brochures, folders, debates, radio programs, etc; (ii) creation of conditions that foster changes in human and organizational behavior, through the establishment of working groups at the local and state level, execution of specific tasks, field days, seminars, and other forms of exchange of experiences; (iii) formal educational activities (e.g., development of educational materials for schools and curriculum modification, school-based competitions in writing, theatre, poetry, etc.); and (iv) non-formal educational activities (e.g., group stock-taking and dissemination of relevant lessons-learned; exchange of experiences among communities; support for the creation of voluntary groups to take care of environmental management; etc.

Subcomponent 3.3: Institutional Strengthening. (US$0.26 m, 1.5% of total cost). The objective of this sub-component is to promote the formation of partnerships among existing organizations and strengthening or supporting the creation of on the ground initiatives for establishing community associations and rural cooperatives related to the sustainable use of aquatic biodiversity and water resources. Specific activities supported under this sub-component would include: (i) fostering the establishment of partnerships among relevant social organizations; (ii) helping to create or strengthen organizations related to the conservation of freshwater ecosystems, by involving them in the development and implementation of strategies that lead to greater effectiveness of their own activities; and (iii) targeted support to special interest groups, such as women, indigenous communities, and youth.

Subcomponent 3.4: Sustainable Public Fora for Integrated Aquatic Resources Management.(US$0.23 m, 1.4% of project cost). This sub-component would finance the development or strengthening, and partial implementation of an Institutional Framework that would support the sustainability of Project activities and results well beyond the life of the Project. This sub-component would enhance the opportunities for discussion, conflict management, and decision-making, and strengthen the instances of coordination and support to local/territorial development, such as development or strengthening of fora and local councils in the three project target areas.

Component 4: Project Management, Monitoring and Evaluation (M&E), and Information Dissemination (US$ 5.80 m, 33.8% of project cost)

Objectives: The objective of this component would be to coordinate, manage, and monitor, on a continuous basis, all activities supported under the project, as well as disseminate project results and lessons-learned at the local, sub-basin, national and international level. This component

would collaborate with other related projects and programs, especially those in the re-directed baseline, to ensure the development and implementation of integrated management of aquatic resources on a pilot basis.

Main outcomes: (i) effective participation, including financial support of different government sectoral institutions, civil society, and the private sector, in project activities including those associated with the preparation and implementation of the APs; (ii) a system to monitor project impacts fully implemented with participation of local stakeholders; (iii) a physical and financial monitoring system (SIGMA) implemented and providing information for continued improvement of project implementation; (iv) an Aquatic Biodiversity Information System developed and generating information available to the general public; and (v) project results disseminated through events and media campaigns that lead to the adoption of practices for integrated management of aquatic resources by institutions and civil society in general.

Target group: Principal beneficiaries would be government and other technical staff and natural resource users in the demonstration areas, as well as in other Brazilian Amazonian states and in member countries of the Amazon Cooperation Treaty Organization (ACTO). In addition, the M&E system would benefit research institutions, advocacy groups, and society at large with an interest in the long-term conservation of freshwater ecosystems in the Amazon Basin.

Geographic scope: This component would act in different scales in the Amazon Basin, in accordance with its respective sub-components. At the most restricted scale, Project Management would focus on the three project target areas of direct project intervention, and at the broadest scale, the all the countries that share the Amazon Basin constitute the sphere for the Project Dissemination sub-component.

Sub-component 4.1. Management and Coordination. (US$3.10 m, 18.1% of total cost). This sub-component would coordinate, at the federal, sub-basin, and local levels, the internal and external actions needed for project execution, including (i) entering data into the SIGMA and using the resulting information for daily decision making for successful project implementation; (ii) the execution of project related procurement, financial and accounting procedures; (iii) consolidating expense and other implementation reports, and offering guidance and training on improved managerial skills for all parties involved in project implementation; (iv) fostering integration among the various components and with other related projects and programs; and (v) identifying and indicating possible need for changes in project implementation procedures.

Sub-component 4.2. Monitoring and Evaluation. (US$2.24 m, 13.1% of total cost). This sub-component would (i) implement the project monitoring system (SIGMA), (ii) monitor daily progress in project execution, (iii) measure the impacts of project actions, and (iv) disseminate management and planning information both within the Project itself and to beneficiaries, partner institutions, and society. Another objective would be the creation and implementation of the aquatic biodiversity information system (SIBA), first in the Project target areas and later expanding throughout the Amazon. This would be accomplished through: (i) regular uploading of current project information into the SIGMA; (ii) carrying-out regular meetings with the Steering Committee and State and Local Project Committees, and producing and disseminating minutes of such meetings; (iii) elaboration of semester Project Implementation Reports; (iv)

carrying-out the necessary activities to achieve the implementation and operation of the SIBA, and to make its information available to the general public; (v) follow the implementation of Project activities in all components, and make sure they are all integrated in the best possible way to achieve Project objectives; and (vi) supervise implementation of the individual monitoring plans for each demonstration activity to ensure that they are progressing accordingly to plan, and suggest modifications where necessary. A detailed description of this sub-component can be found in Annex 3.

Sub-component 4.3. Information Dissemination. (US$0.45 m, 2.6% of total cost). The objective of this sub-component is to provide institutions and civil society, systematized knowledge, validated experiences, and strategies that can be adapted for the integrated management of aquatic biodiversity and water resources. Information dissemination would grow and diversify as project implementation progresses. In the first year, its principal focus would be on the dissemination of basic information to raise awareness about Aquabio throughout the Brazilian Amazon. Beginning in the second year, dissemination of results to potential users would begin and continue to build and diversify leading to the distribution of "lessons learned" in the Project's final years. A dissemination event at the national level, with participation from other member states of the ACTO, would take place during the third year of project implementation. On a day-to-day basis, the following dissemination media would be employed: (i) home page (project news, technical information, results attained); (ii) printed monthly report (project news sent to the states and municipalities of the demonstration areas); (iii) news for the media (print, radio, and television); (iv) educational programs to be transmitted by radio; (v) educational programs on videotape to be shown on regional TV and used in formal education and/or meetings and courses; (vi) printed material for distribution especially in the demonstration areas: booklets, folders, reports; and (vii) other media that may eventually be identified during the course of the project.

Attachment 1: Proposed Methodology for the Project Financial Sustainability Strategy

The project subcomponent 1.3 would develop and implement a financial sustainability strategy to support the execution of selected activities under the Action Programs for integrated management of aquatic resources (APs), beyond the life of the project, with pilot financial mechanisms adopted by the end of the project. This would be achieved through the following activities: (i) initial identification of partners and stakeholders followed by the establishment of a common dialogue; (ii) identification of the outcomes and activities to be continued following the closure of the Project; (iii) assessment of the potential of the activities identified in (ii) above to attract external resources and/or generate financial returns to ensure their financial sustainability; (iv) identification and/or design of viable financial mechanisms/models to support financial sustainability (e.g., public investment programs and funds, environmentally friendly certification schemes, trust funds, etc.); and (v) the development and implementation of an action plan to make the relevant financial mechanisms fully operational.

The methodological approach to develop the sustainability framework and strategy has been developed during project preparation, and entails the following major lines of action:

1) Building Partnerships and Alliances: the objective is to establish a dialogue with partners and stakeholders that have vested interests in being involved with the AquaBio project and potentially would support, with financial and/or human resources, project activities and outcomes at local, national, regional and international level.

2) Identifying Budgets and Financial Mechanisms and/or Revenues: the objective is to identify public budgets that can be tapped, assess the functioning of existing financial mechanisms and funds, and/or design new financial mechanisms that could be establish to facilitate external or self-financing structures to support the activities; and /or start activities that generate additional revenues;

3) Implement the Financial Sustainability Strategy: the objective is to start implementing the strategy in project year 5 and 6 to make sure that it is taken up and to be able to address difficulties while the project is still ongoing.

Expected outcome of the subcomponent: A financial sustainability framework indicating monetary resources and commitments human resource and eventually political support, and of engaged public and private institutions/organizations to sustain outcomes and activities of AquaBio for the next 10-15 years after project termination;

During the implementation of the project the following sequence of activities will be pursued which will be mainly carried out by the project coordinator, an assisting national financial sustainability expert, short term national assignments with consultants and local organizations:

1.2.1. Initial identification of partners and stakeholders followed by the establishment of a common dialogue: This activity promotes an ongoing lobbying effort at national and international level and throughout project implementation to establish a dialogue with partners and stakeholders having vested interests in being involved with and continuing and financing Aquabio activities after the termination of the project. This dialogue will be held with

national/provincial/local government agencies, municipalities, civil society organizations, multi-lateral/bi-lateral development agencies, non-governmental organizations, private foundations, private sector organization, academic institutions, etc. Part of the dialogue would also be to define how outcomes of AquaBio Project would feed into the PPG7 plan and other existing national policy plans and frameworks.

1.2.2 Identification of the outcomes and activities to be continued following the closure of the Project: This activity aims at the identification of AquaBio activities and outcomes that should be continued and sustained according to local and national actors on a recurrent basis after the termination of the grant-funded project implementation phase. Through a consultative process it will be defined which AquaBio activities and outcomes should be continued, which one's could be economically self-sustained in the long run and which one's would need external funding, what would be the actions undertaken to continue, by whom, what would be the recurrent costs involved, what commitments could be made of various actors to get engaged. This activity would include sub-activities such as i) assessing institutional and human resource capacity to follow-up with implementation, monitoring and formalisation of outcomes e.g. (1) the fishing agreements and (2) the APs in the project pilot sub-basins of Negro, Xingu, and Tocantins at the federal institutional level; ii) a participatory evaluation and assessment of good practice outcomes enhancing conservation of freshwater biodiversity through improved integrated management of water resources in the Amazon Basin; and iii) an evaluation of the Freshwater Biodiversity Information System (SIBA);

Activity 1.2.3 Assessment of the potential of the activities identified in 1.2.2 above to attract external resources and/or generate financial returns to ensure their financial sustainability: This activity focuses on determining profiles of the desired outcomes and activities in order to assess their potentiality to generate revenues for self-sustaining or for attracting external funding. This will include a) assess the relevance of AquaBio outcomes to the Amazon Basin and to the global fora b) the diffusion and awareness raising of these outcomes at national and international level, including, among others, presentations of the project results in three international scientific and /or political conferences/events related to aquatic resources and biodiversity.

Activity 1.2.4 Identification and/or design of viable financial mechanisms/models to support financial sustainability (e.g., public investment programs and funds, environmentally friendly certification schemes, trust funds, etc.)*:* This activity supports the identification of existing public sources, the assessment of existing financial mechanisms and the design of new and innovative funds to finance AquaBio project outcomes and activities to be continued and sustained within existing policy regulations. Under this activity the following sub-activities will be conducted:

Step1: Public programs and public budget funds: Identify and discuss how different government programs/ public institution programs can integrate AquaBio activities in their programmes and budgets comprising a) state and national regular program funds (IBAMA, ANA, SBF, SRH, other MMA secretariats), b) the Integrated Rural Development Plan of Eletronorte (PPDS/Jus);

Step 2: Existing public and private funds: Identify existing and well-functioning funds for follow-up of projects activities (at local, regional and national, international level). In particular, this would include a) assess the functioning of revolving local development funds at municipality

level (e.g. in Rio Xingu- administered by the Agriculture Secretary) b) assess the potentials of the national water tariff law (Outorga) to collect revenues and establish a fund managed by local water user associations (in Rio Xingu and Tocantins); c) assess how royalty payments from Eletronorte could support activities developed under the AquaBio project through a local development fund to reduce the pressure on aquatic resources (mainly for Tocantins, Xingu);

Step 3: New Innovative Funds/ Financial Mechanisms: Design, based on the assessment made, new innovative funds that support the implementation of activities in a economically feasible and sustainable way. In particular this would include: a) assess the possibility to establish local/regional funds supplied by law enforcement payments from illegal activities related to damaging aquatic ecosystems[5]; b) understand the functioning of the ICMS- Ecológico in Pará and evaluate how the tax reduction system for ecological production could be of any relevance to the AquaBio project; c) identify and develop payment mechanism for selected environmental services which would be funded through global and local funds e.g. (prototype carbon fund, bio-carbon fund, community fund).

STEP 4: Improve access to markets of local products though labeling: Assess the possibility to establish a brand for commodities produced under conditions (such as indigenous and/or organic products) that reduce the negative impacts on freshwater biodiversity in the Amazon Basin. This brand would enhance sustainable production systems and at the same time improve market access (in particular for Rio Xingu).

Activity 1.2.4 The development and implementation of an action plan to make the relevant financial mechanisms fully operational: this activity aims at the finalization and promotion and implementation of the financial sustainability framework and strategy, during P0Y5 and PY06, indicating political, human resource and monetary commitments to sustain outcomes of AquaBio from public and private institutions and actors for the next 10-15 years. To facilitate the implementation of the Financial Sustainability Strategy project staff, local organisations and local actors will be capacitated in managing funds, financial mechanisms, writing applications for global funds, learning about fund raising strategies in different training workshops throughout the project implementation which will be carried out under Component 3 capacity-building. Additionally, stakeholder consultations will be held in each sub-basin to confirm the commitment and possible contribution (human capacity and financial capacity) of local actors and their interest in sustaining activities, and to consult what financial sustainability mechanism could be applied and how continued monitoring and evaluation could be covered.

[5] This activity should be closely coordinated with the Programa de Desenvolvimento Socioambiental da Produção Familiar Rural (Proambiente) which developed a range of different local social and development funds.

Attachment 2: Illustrative Demonstration Activities to be Financed under Component 2

The following priority themes, for financing under the Mainstreaming of Freshwater Biodiversity Sub-project (Comp 2, sub-component 1)GEF financed), have been identified during project preparation for the three Project sub-basins:

Negro River sub-basin: (i) co-management of aquatic resources associated with the resolution of conflicts over access to and the sustainable use of fisheries resources (areas to be defined in the detailed diagnostic in PY01); (ii) management of access and sustainable use of ornamental fisheries resources (areas to be defined in the detailed diagnostic in PY01); (iii) economic activities that offer alternatives to predatory or degrading activities, contributing directly to reduced pressure on aquatic biodiversity (e.g. family production of vegetables, small animals, beekeeping, handicraft, production of plant essences, production and use of medicinal plants); and (v) ecotourism and the integration of the communities into tourism activities in general.

Xingu River sub-basin: (i) co-management of aquatic resources associated with support to improved sustainable management of lands for agriculture and ranching; restoration and conservation of riparian forests (areas to be defined in the detailed diagnostic in PY01); (ii) family production of vegetables, small animals, beekeeping, handicraft, production of plant essences and/or medicinal plants; and (iii) management of household effluents and of solid waste.

Tocantins River sub-basin: (i) co-management of aquatic resources associated with the resolution of conflicts over access and sustainable use of fisheries resources (areas to be defined in the detailed diagnostic in PY01); (ii) support to actions to improve the sustainable management of land for agricultural use (areas to be defined in the detailed diagnostic in PY01); and (iii) training of local organizations in management and monitoring of social and environmental impacts of the implementation of PPDS-JUS.

Attachment 3: Illustrative Demonstration Activities to be Co-financed under Component 2

The following priority themes, for financing under the Support for Mainstreaming of Freshwater Biodiversity Sub-projects (GEF financed), have been identified during project preparation for two of the Project sub-basins:

Interstitial Areas within the Central Amazon Ecological Corridors Project. The Project objective is to implement biodiversity conservation in the interstitial areas of the corridor (outside conservation units and indigenous areas) and promote the conservation and development of sustainable forms of land use. It is directed specifically toward the private sector, community groups, and NGOs. Priority support would be given to areas contiguous to conservation units and indigenous lands. Two thematic areas of sub-projects would provide support to Sub-component 2 of the AquaBio project: (i) promotion of sustainable management to foster local support for changes in land use in priority areas while addressing the economic needs of populations affected by the corridor. Examples of sub-projects include management of well-preserved ecosystems, restoration of degraded ecosystems, commercialization of products obtained through the sustainable management of natural resources, alternatives for fire and deforestation control, and environmental education; and (ii) promotion of conservation and environmental education principally in Private Natural Heritage Reserves (RPPN), Legal Reserves, and Permanent Preservation Areas. This thematic area could include legal and technical assistance to landowners for the creation of RPPNs, economic proposals of low environmental impact, training in natural resource management, and income-generating initiatives, such as tourism.

Restoration of Water Springs and Riparian Areas (DIFLOR/SBF). The Forestry Directorate of the Environment Ministry, through the National Environment Fund, is completing the preparation of a call for proposals aimed at restoring riparian forests. Resources from this fund are expected to finance three demonstration projects in the Xingu and Tocantins river sub-basins.

State Program for the Strategic Conservation of Riparian Forests (PEPE). The lines of action of this Government of Mato Grosso supported Program include the restoration of degraded riparian forests, interventions to halt erosion – including improvement of rural roads, training of rural producers, and the promotion of environmental awareness.

National Environmental Program (PNMA II). This actions associated with this multi-donor supported Program (World Bank, Governments of Brazil and Mato Grosso) are designed to promote integrated solid waste management, aimed at water and soil conservation, restoration of degraded lands, interventions to halt erosion, training of rural producers, and development of sustainable tourism to generate alternative employment and income. The project would work in 17 municipalities in Mato Grosso, including Canarana and Água Boa where actions are foreseen for the appropriate disposal of solid waste through the construction of sanitary landfills and training in their operation.

Annex 5: Project Costs

Brazil: Integrated Management of Aquatic Resources in the Amazon Region - AquaBio

Project Costs by Component and Subcomponent
(US$ '000)

	GoB*	GEF	Government Mato Grosso	Government Amazonas	Beneficiaries	Total	
	Amount	Amount	Amount	Amount	Amount	Amount	%
1 Planning and Public Policy							
1.1 Sub-basin action programs	136.1	785.6	-	-	-	921.7	5.4
1.2 Institutional arrangements for Integrated management	30.3	184.9	-	-	-	215.2	1.3
1.3 Financial sustainability	9.0	91.1	-	-	-	100.0	0.6
Subtotal comp. 1	175.4	1,061.6	-	-	-	1,257.0	7.3
2 Demonstration activities							
2.1 Mainstreaming freshwater biodiversity sub-projects	1,473.4	1,781.7	-	-	78.9	3,334,0	19.5
2.2 Support for mainstreaming freshwater biodiversity sub-projects	2,024.1		482.5	586.0		3,092.7	18.0
Subtotal comp. 2	3,497.5	1,781.7	482.5	586.0	78.9	6,426.7	37.5
3 Building capacity							
3.1 Training	966.1	1,586.4	-	-	-	2,552.5	14.9
3.2 Environmental education	82.1	536.1	-	-	-	618.3	3.6
3.3 Institutional strengthening	32.6	230.5	-	-	-	263.1	1.5
3.4 Sustainable public fora for integrated management	23.1	209.4	-	-	-	232.5	1.4
Subtotal comp. 3	1,103.9	2,562.5	-	-	-	3,666.4	21.4
4 Management, M&E and dissemination							
4.1 Management and coordination	2,224.5	877.4	-	-	-	3,101.9	18.1
4.2 Monitoring and evaluation	1,600.4	648.6	-	-	-	2,249.0	13.1
4.3 Dissemination of information	202.3	248.2	-	-	-	450.4	2.6
Subtotal comp. 4	4,027.1	1,774.2	-	-	-	5,801.3	33.8
Total PROJECT COSTS	8,803.9	7,180.0	482.5	586.0	78.9	17,131.4	100.0

* The co-financing from the Government of Brazil (GoB) would be constituted of: (i) US$6,779,844 of own budget resources allocated to MMA and IBAMA; (ii) US$1,465,001 from the Ecological Corridors re-directed baseline; and (iii) US$559,098 from the PNMA II re-directed baseline.

Annex 6: Implementation Arrangements

Brazil: Integrated Management of Aquatic Resources in the Amazon Region – AquaBio

The institutional implementation arrangements described below reflect the diversity of institutional capacity and interest in freshwater biodiversity issues demonstrated by various potential partners during project preparation. Given that this is a process project and a basic premise of integrated management of aquatic resources is involving new stakeholders and partners, some modification to the arrangements are expected over time.

The Government of Brazil would be the Grant recipient, with the Ministry of Environment (MMA) as the Executing Agency through its Secretariat of Biodiversity and Forests (SBF).

Project Steering Committee. The National Biodiversity Commission (CONABIO[6]) was selected to serve as the Project Steering Committee because of its composition, which includes representatives from key ministries, civil society organizations, and representatives of sectors that use biodiversity resources. The choice of CONABIO is also based on its mandate, defined in Art. 6 of Decree No. 4.339 of August 22, 2002. Its first responsibility was coordinating the preparation of the National Biodiversity Policy (PNB). In relation to the PNB, CONABIO is also responsible for:

- Proposing measures for the implementation of the PNB, promoting the decentralization of the execution of actions, and ensuring the participation of interested sectors;
- Providing technical assistance to public and private agents responsible for the execution of the PNB within the country, so that its principles, guidelines, and objectives are complied with;
- Promoting linkage among programs, projects, and activities with regard to the implementation of the PNB's principles and guidelines, and promoting the integration of relevant sectoral policies;
- Identifying the need for and proposing the creation or modification of instruments needed for the proper execution of principles and guidelines for implementation of the PNB;
- Promoting inter-institutional and international for the implementation of the PNB's principles and guidelines;
- Promoting debates and public consultations on issues related to the formulation of proposals regarding the PNB;
- Creating and coordinating technical chambers consisting of invitees and members, for the purpose of promoting discussion and linkage on relevant issues for the implementation of the PNB's principles and guidelines;

[6] CONABIO is comprised of representatives of the Ministry of Environment, Ministry of Agriculture, Livestock, and Supply, Ministry of Science and Technology, Ministry of Health, Ministry of Foreign Relations, Ministry of Planning, Budget, and Management, Ministry of Agrarian Development, Ministry of National Integration, IBAMA, Brazilian Association of State Environmental Entities (ABEMA), National Confederation of Agricultural Workers (CONTAG), Brazilian Society for the Progress of Science (SBPC), Brazilian Academy of Science (ABC), Brazilian Forum of NGOs (Environmental and Social NGOs), and Coordination of Amazonian Indigenous Organizations (COIAB). CONABIO will invite ANA to participate as an invited member in all meetings where AquaBio-related issues are discussed. Other institutions and organizations would also be invited to participate depending upon agenda items to be discussed. .

- Monitoring and evaluating the execution of thematic components for the implementation of the PNB's principles and guidelines, and coordinating the preparation of national reports on biodiversity;
- Monitoring the execution of planned actions to fulfill the principles and guidelines for the implementation of the PNB; and
- Proposing PRONABIO's overall guidelines in support of the execution of planned actions for the implementation of the PNB's principles and guidelines, and identifying demands and sources of financial resources.

In addition, CONABIO also has numerous other responsibilities associated with the conservation of biodiversity in Brazil, such as: (i) identifying and proposing priority actions for biodiversity research, conservation, sustainable use, monitoring, evaluation, prevention and mitigation of impacts as well as distribution of benefits derived from use of biodiversity resources; (ii) promoting the implementation of commitments made by the GoB in relation to the Convention on Biological Diversity (CBD); (iii) encouraging inter-institutional and international cooperation for the implementation of the principles and guidelines of the CBD in the country.

In relation to project implementation, it has been agreed that CONABIO -- in its role as Project Steering Committee – would fulfill the following functions[7]:

- Foster the incorporation of experiences and lessons learned generated by the project into national public policy, especially sectoral ones
- Assess and validate the Annual Operational Plans (POAs);
- Participate in project evaluation; and
- Support the identification and monitor the implementation of measures to correct problems identified during project implementation.

Project Coordination Unit. The Project Coordination Unit (PCU), constituted by MMA staff, would be established within the Secretariat of Biodiversity and Forests (SFB/MMA). The PCU would be supported in the financial management and procurement functions by MMA's Executive Secretariat (SECEX/MMA), who would execute such functions. However, for the first two years of the project it has been agreed that UNESCO would carry out procurement (see Annexes 7 and 8). The Project Coordination Unit would at minimum consist of one manager, four component coordinators, and two administrative assistants with duties in the areas of bidding, contracts and accounting, as well as three administrative support staff.

The PCU would have responsibility for, among others:

- Managing and executing the project;
- Managing financial resources and procurement;
- Reporting on the application of resources and results achieved;

[7] At CONABIO's discretion, these attributions, or part of them, may be delegated to a thematic committee constituted by a subset of CONABIO members, and complemented with appropriate experts as needed.

- Preparing management reports for the Secretary of Biodiversity and Forests, CONABIO, and other lead agencies;
- Promoting interinstitutional linkages;
- Monitoring, evaluating, and disseminating project results;
- Coordinating with ACTO and ANA on issues related to the interface between the AquaBio and the ACTO/UNEP/OAS GEF Project for the Amazon Basin (under preparation); and
- Coordinating with other Donors and Programs, including USAID's *Amazon Basin Conservation Initiative*.

State Project Committees. For each sub-basin, a State Project Committee would be formally established by the end of the first year of project implementation. These Committees would have responsibilities for:

- Serving as a vehicle for mainstreaming project experiences and lessons at the state level for planning and public policies;
- Assessing and validating sub-basin Annual Operating Plans (POAs);
- Reviewing and approving the Sub-Basin Action Programs (APs);
- Reviewing and approving target area demonstration activities (subprojects);
- Monitoring project execution, and suggesting necessary adjustments;
- Supporting project implementation through inter-institutional coordination, in particular among institutions and programs contributing to the implementation of the re-directed baseline;
- Mediating possible conflicts between or among groups of stakeholders; and
- Promoting the replication of the experiences of the project target are in other priority areas of the sub-basin.

The composition of each State Project Committee would be discussed and agreed with stakeholders during the first year; it is expected to have a maximum of 10 members, selected to represent governmental and nongovernmental stakeholders. However, it has been already agreed that the coordinators of the following projects would be represented in the relevant State Project Committees: NEP in Mato Grosso, Ecological Corridors in Amazonas, and Pará Integrated Development in Pará. When necessary, these Committees Advisory Councils would have the support of ad-hoc consultants hired by the project, to provide expert advice on specific issues.

In each of the three sub-basins the MMA would be responsible for **project execution**, with support from the following institutions: (i) in the Tocantins sub-basin, –IBAMA and the Pará State Secretariat of Environment (SECTAM); (ii) in the Xingu sub-basin, IBAMA and the Mato Grosso State Secretariat of Environment – SEMA; (iii) for the Negro sub-basin, IBAMA and the Amazonas State Secretariat of Sustainable Development – SDS. Project execution at the sub-basin level would mostly utilize existing managerial, technical and administrative structures of partner institutions. Such arrangements, building on existing institutional and technical expertise, would foster a more efficient, less expensive, and faster implementation of AquaBio. IBAMA would also provide direct involvement of staff from its newly created Fishing Research and Management Center for the Northern Region (CEPNOR) in Manaus. That office is being opened to give institutional sustainability to ProVárzea project activities after project implementation is

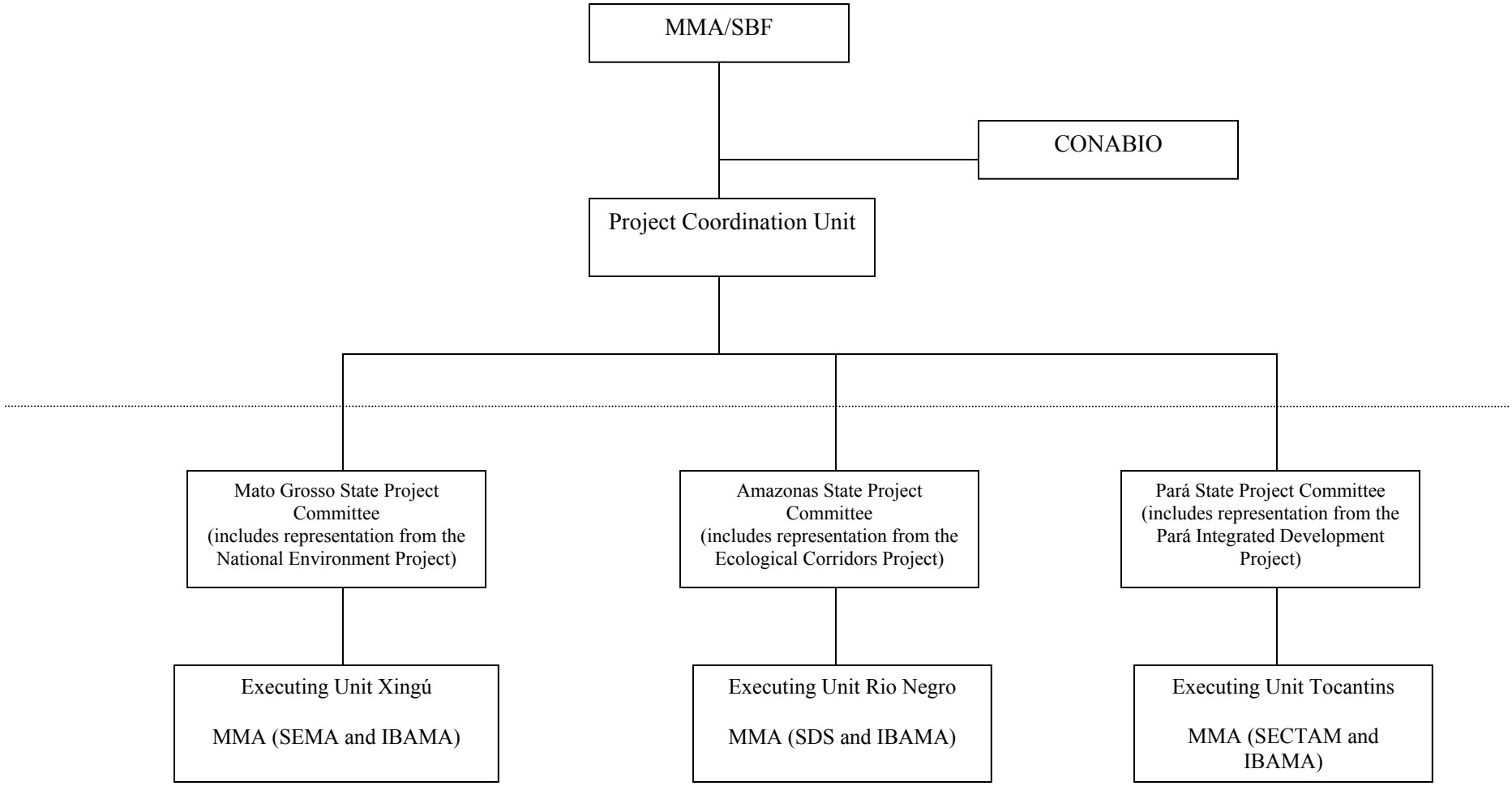
completed, as well as to support implementation of the AquaBio and ensure coordination of project activities with other IBAMA offices in the Amazon region.

In addition, Local Project Committees would be established for each Project target area, and would be comprised of representatives of existing local governmental and nongovernmental institutions and organizations and, whenever possible, this would include representatives of existing municipal development committees to facilitate later mainstreaming of project experiences into municipal public policies. The composition of each Local Project Committee would be discussed and agreed at the completion of the detailed target area diagnostic by the end of the first year of the project. Their responsibilities would be to:

- Serve as a vehicle for mainstreaming project experiences and lessons into local level and municipal planning and public policy;
- Prepare and endorse the annual work plan for the Project target area;
- Assess and validate the action program (APs);
- Review and endorse the selection of demonstration activities (subprojects);
- Supervise and monitor the implementation of project activities, and
- Mediate existing conflicts between and among groups of stakeholders in the Project target area.

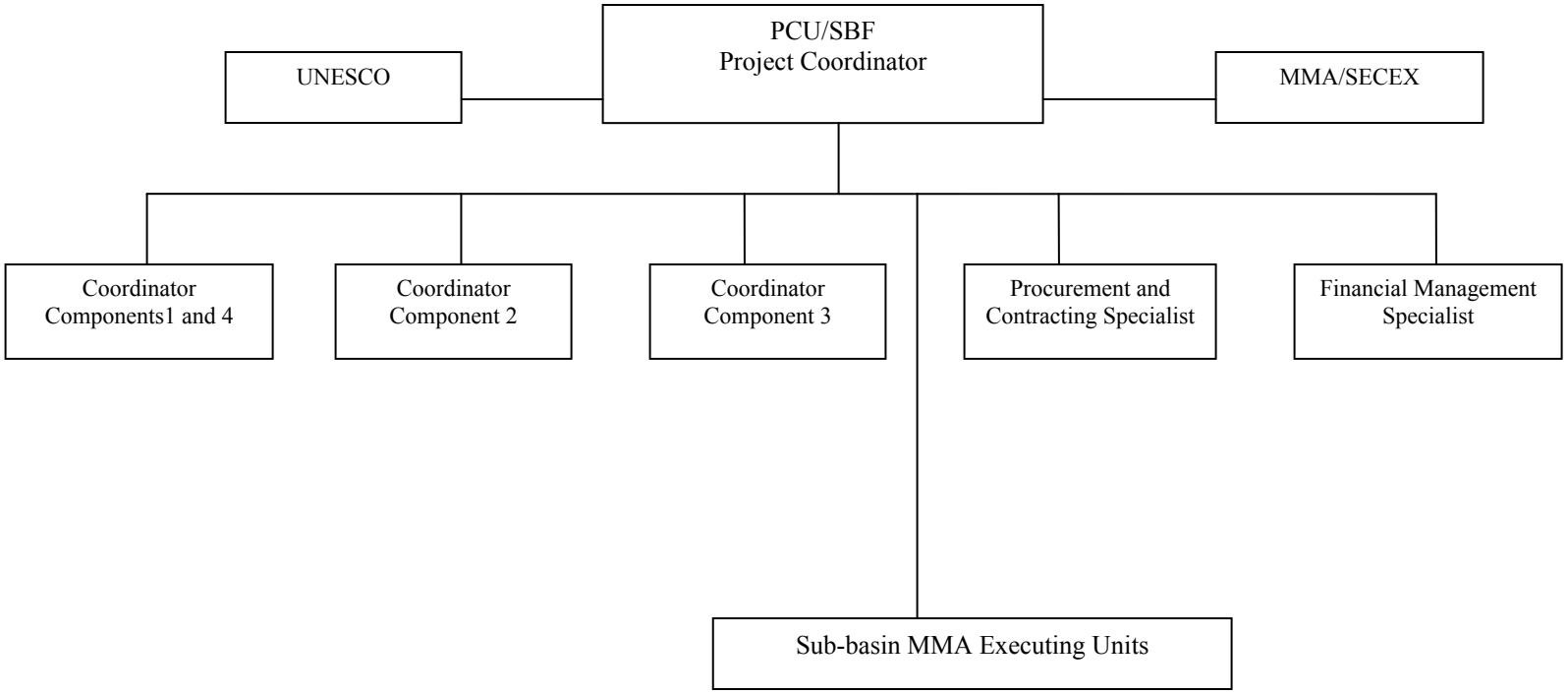
In each Project target area, the MMA would hire technical specialists to carry out project implementation at the local level, under supervision of the PCU and in close coordination with the respective sub-basin State Project Committee. In addition the PCU would also contract specialized institutions with established activities at the local level, such as specialized NGOs, universities, foundations, or research institutions, for the execution of all or part of the planned actions in each respective Project target area. Some potential partners identified to date are: (i) in the Negro River sub-basin – Fundação Vitoria Amazonica (FVA), the National Amazon Research Institute (INPA), and Institute for Ecological Research (IPÊ); (ii) in the Xingu sub-basin – the Socio-Environmental Institute (ISA), the Environmental Organization for the *Roncador-Araguaia* Area (ONGARA), and the State University of Mato Grosso (UNEMAT); and (iii) in the Tocantins sub-basin – the Association of Organizations for Social and Educational Assistance (FASE), Amazon Research Institute (IPAM), and the Federal University of Pará (UFPA).

PROJECT MANAGEMENT STRUCTURE



Obs: Potential local partners: Amazonas – FVA, IPÊ, INPA; Mato Grosso – ISA, ONGARA, UNEMAT; Pará – FASE, IPAM, UFPA.

PROJECT EXECUTIVE STRUCTURE



Annex 7: Financial Management and Disbursement Arrangements

Brazil: Integrated Management of Aquatic Resources in the Amazon Region - AquaBio

I - FM Assessment

1. Grant/Project objectives:

The Grant will provide funds and assist the Government of Brazil in its goal of implementing an integrated management of aquatic resources in the Brazilian Amazon, and help to make it effective and sustainable.

2. Grant Executing Agency:

The Grant will be implemented by the Environment Ministry through its Biodiversity and Forests Secretariat. A project implementation group is being created to execute and implement the administrative functions of all Projects under SBF's responsibility.

3. Financial Management Assessment:

A financial management risk assessment was carried out in October 2005, in accordance with OP/BP 10.02 and the Guidelines for Assessment of Financial Management Arrangements in World Bank Financed Projects issued by the Financial Management Sector Board on October 15, 2003. The purpose of the assessment is to determine whether the IA (Implementing Agency) has or will have by effectiveness acceptable financial management and disbursements arrangements in place to adequately control, manage, account and report about the funds to be allocated to this Project. These arrangements include, but are not limited to its capacity to: (a) properly manage and account for all Grant's proceeds, expenditures and transactions, (b) produce timely, accurate and reliable financial statements and reports, including Financial Monitoring Reports (FMRs) for Project Management and other Bank purposes, (c) safeguard the Project's assets, and (c) disburse Bank funds in the most efficient way, in accordance to applicable Bank rules and procedures. The assessment involved analysis of: a) Budgeting, financial, accounting and reporting system; b) financial and administrative staff to be engaged in the Project; c) review of funds flow mechanism, d) review of internal controls and administrative procedures, e) disbursement methodology; f) reporting requirements, including format, contents and frequency of FMRs submission to the Bank, and g) external audit arrangements.

4. Conclusion of Financial Management Assessment:

The conclusion of the FM assessment is that the financial management arrangements as set out for this Grant, satisfy the Bank's minimum requirements and that financial management systems are in place that can effectively control and monitor the Project preparation financed by the Grant, and provide with reasonable assurance, accurate and timely information on the progress of Project implementation.

5. Financial Management Risk Analysis:

The overall financial management risk associated with this project is considered **low**, as demonstrated in the Risk Framework below:

Risk Framework

Risk	H	S	M	L	Comments
Inherent Risks					
i. Federal Government				X	
ii. Entity specific				X	
iii. Project specific				X	
Control Risks					
iv. Implementing Agency			X		
v. Flow of funds				X	Funds flow directly to Project's special account
vi. Staff			X		
vii. Accounting policies and procedures				X	SIAFI and SIGMA, see para.7 & 8
viii. Internal Audit					Not applicable
ix. External Audit				X	Secretaria Federal de Controle
x. Reporting and monitoring				X	
xi. Computer Systems				X	SIAFI and SIGMA

H – High, S - Substantial, M – Moderate, L - Low

This is a federal Project and there are no major FM or accountability risks.
FM strengths: full integration with overall PFM of STN, good systems SIAFI and SIGMA.
Risk mitigation measures: annual supervision Missions, review of quarterly unaudited financial statements, review of SOEs, yearly audit.

II - Financial Management Arrangements

6. Project Implementation Unit & Staffing:

The Grant will be implemented under the Coordination of the MMA (Environment Ministry) through its Biodiversity and Forests Secretariat. The PCU will have a Financial Coordination in charge of all Administrative/Financial matters, and legal documentation, accounting, disbursing, reporting and systems operation. During the first two years of project implementation UNESCO will provide assistance in the procurement of part goods, services and hiring of consultants. It is expected that UNESCO would disburse between 10% and 15% of Grant funds during those initial two years. Project procurement for years 3 to 6 of project implementation would be fully carried out by the MMA, after enough staff are trained and assigned to perform these functions. The Bank conducted a Financial Management Assessment of UNESCO in Brazil in August of 2002, with satisfactory results.

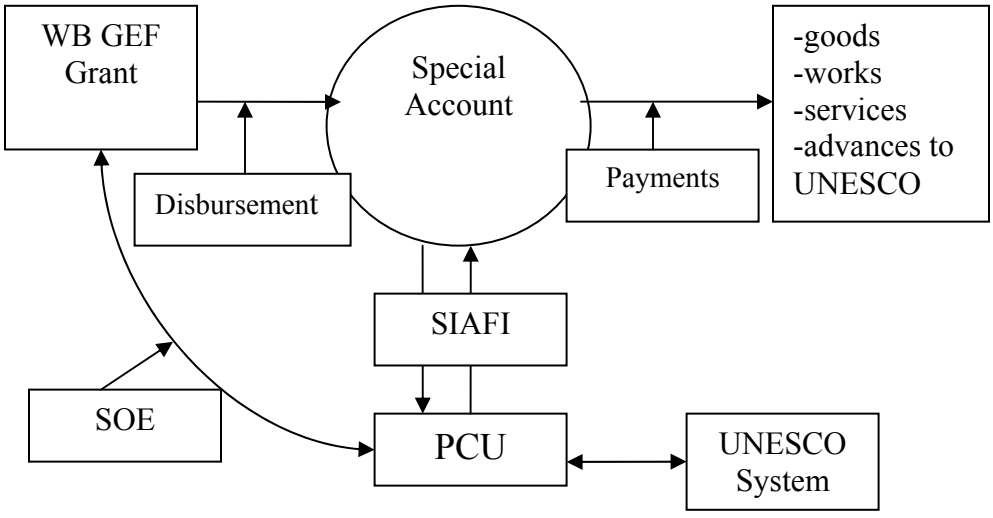
After UNESCO ceases to provide assistance for project implementation, all disbursements would be made directly by MMA. At that time, if the Bank and the Recipient agree that some of the procurement and disbursement functions should be decentralized to the State level, all

new disbursing entities would be assessed by the Bank regarding their financial management and procurement capabilities before any disbursements can actually take place.

7. Flow of Funds and Disbursement of Grant Funds:

As per procedures currently in place determined by STN (Treasury Secretariat of the Finance Ministry), all the resources required for the Project, including those for UNESCO will be advanced by STN through a budgetary Unit (UG – Unidade Gestora) to be established in SIAFI[8]. Once the annual federal budget is approved, this UG will receive their share of the federal annual budget and all payments and expenses will be charged in this budgetary Unit. As the Project implementation process goes on, the PCU will book all commitments (empenhos) and payments (liquidações) and Bank's payment orders through SIAFI. UNESCO will document all payments done from the advances received, through its own system which will also be booked in SIAFI. Specifically in the case of this Grant, a special account will be opened to receive a Grant advance to start the Project. The funds to be transferred to UNESCO will be withdrawn from the special account. Periodically, after payments are documented by UNESCO the PCU will issue SOEs and submit to the Bank for replenishment of the Special Account.

Disbursements will be transaction based (SOE) to be issued on basis of payments actually made and recorded in SIAFI. A payment report (OB – Ordem Bancária) will be periodically (ex. Monthly or quarterly) extracted from SIAFI, classified by cost category and included in a SOE which will than be submitted to the Bank. Payments made by UNESCO will also be included in the SOE. To this purpose the PCU will have access to UNESCO records to check payments for the same period to include in the FMR. The amounts disbursed will be deposited directly in the Special Account.



Flow of funds:

[8] Sistema Integrado de Administração Financeira

i. National Treasury provides funds to the PCU from the Special Account through SIAFI.
ii. PCU makes payments for goods, works, services and advances to UNESCO through SIAFI, withdrawing funds from the Treasury's single Bank account.
iii. PCU collects data of payments made from SIAFI and of payments made by UNESCO, and prepares SOEs for submission to the Bank.
iv. After reviewing the SOEs, the Bank disburses Grant funds directly to the Special Account.

8. Accounting Policies, Information System and Internal Controls:

Budgeting and financial execution will be done via SIAFI. Once the annual federal budget is approved by the Congress, the Financial/Budget Unit of the Environment Ministry (MMA) will record the approved budgetary resources in SIAFI for the Project in its specific UG. All commitments (empenhos), liquidations (liquidações) and payments must be done through SIAFI. MMA uses a internally developed system – SIGMA to control, monitor, account and prepare financial reporting for all its Projects. Besides all these functions, SIGMA is able to issue all required reports in FMR format. SIGMA is also accessible via Web which facilitates data input from the various Project's partners and participants.

9. Reporting – FMRs:

The following quarterly FMRs will be issued directly from SIGMA for management and reporting purposes:

1. RSF 1 – Source and application of funds by cost category as per Grant Agreement,
2. RSF 2 – Statement of Investments by components and subcomponents,
3. RSF 3 – Disbursements reconciliation with Bank's Client Connection site.

All the FMRs will be in local currency (R$), and expenditures figures will be stated by quarter and accumulated for the Project. FMRs will be submitted to the Bank up to 45 days after the closing of each quarter. Year end FMRs could be used for external auditing purposes.

10. External audit/supervision:

External audit will be performed by SFC – Secretaria Federal de Controle Interno da Controladoria-Geral da União, as part of their regular yearly audit of all Federal Projects.
At least one supervision Mission will be carried out by the Bank each year.

Annex 8: Procurement Arrangements

Brazil: Integrated Management of Aquatic Resources in the Amazon Region - AquaBio

A. General

Procurement for the proposed project would be carried out in accordance with the World Bank's "Guidelines: Procurement under IBRD Loans and IDA Credits" dated May 2004; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004, and the provisions stipulated in the Legal Agreement. The general description of various items under different expenditure category is described below. For each contract to be financed by the Loan/Credit, the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and time frame are agreed between the Borrower and the Bank project team in the Procurement Plan. The Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

Procurement of Works: Works procured under this project, would include very small works under Component 2 – Subprojects. All such contracts will be for less than US$100,000 and will be procured following shopping procedures.

Procurement of Goods: Goods estimated to cost US$350,000 equivalent per contract or more will be procured through International Competitive Bidding (ICB) procedures. Goods and Non-consulting services estimated to cost more than US$100,000 equivalent and less than US$250,000 equivalent per contract may be procured under contracts awarded on the basis of NCB procedures. At this stage, no ICB or NCB were identified. Goods procured under this project would basically include vehicles, ICT equipment, and office furniture. The procurement will be done using shopping procedures. Other goods may be needed for the sub-projects under Component 2 – Subprojects. All goods contracts will be for less than US$100,000 and will be procured following shopping procedures.

Procurement of non-consulting services: These would basically include logistics for training activities and workshops under Component 3 and other services that may be needed for the sub-projects under Component 2. Printing services may also be needed for info dissemination activities under Component 4 of the project. All such contracts will be for less than US$100,000 and will be procured following shopping procedures.

Community Participation: Certain goods and services required under Sub-components 4.2 and 4.3 may be procured on the basis of community participation, in accordance with the procedures set forth in the Operational Manual.

Selection of Consultants : Consultants services for the project would include: (i) planning and public policy studies and activities under Component 1; (ii) discrete services, mainly from individual consultants, under Component 2; (iii) capacity building under Component 3; and (iv) management, M&E, and info dissemination under Component 4. Short lists of consultants for services estimated to cost less than $500,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant

Guidelines. According to the initial procurement plan, all consulting services could be selected following CQS. Throughout project implementation, in addition to CQS and individual consultants, the project may also select and hire consultants on the basis of QCBS, SFB, and LCS.

Special Arrangements for Selection of Consultants: For the activities to be developed under the components indicated below, it is expected that short lists will be comprised of local NGOs, Universities, private or public foundations, or other local CSOs. Because of the nature of the services required, expertise, and the remoteness of the areas where the services will be provided, the Bank would exceptionally accept short lists of less than six firms: usually three, but in a few cases, there may only be two qualified firms available. Subject to the Bank's prior review, sole sourcing may also be considered, if justified. National advertisement of the respective contracts is not required.

1. *Subcomponent 3.1 - Training*. There may not be enough organizations with capacity to deliver specialized training in remote areas or to indigenous groups. In some of the more remote project areas we may have very few organizations with the right profile for the job, which includes having knowledge of the local culture and costumes.
2. *Subcomponent 3.2 - Environmental education*. Same comments as above. To be effective, environmental education needs to be delivered in small but frequent doses. It would not be cost-effective to bring consultants from far away to deliver these kinds of small, target training events.
3. *Subcomponent 3.3 - Institutional strengthening*. We may not have enough institutions with capacity to compete to provide support to indigenous groups on improving the efficiency and functioning of their organizations.

Operational Costs: Operational costs would be necessary under the project to finance per diem and maintenance and operation costs. They would be procured using the implementing agency's administrative procedures which were reviewed and found acceptable to the Bank.

B. Assessment of the agency's capacity to implement procurement

With the exception of the procurement related to sub-projects under Component 2, all other procurement activities will be carried out by UNESCO under a technical cooperation agreement with MMA.

An assessment of the capacity of UNESCO to implement procurement actions for FUNDESCOLA 3-A (which is a Bank-project financed by Loan 7122-BR) was carried out by Efraím Jiménez and Luciano Wuerzius on January 15 and 16, 2004 and approved by the RPA on March 2, 2004.

Most of the issues/ risks concerning the procurement component for implementation of the project have been identified and include the (i) transition from using UNESCO to using MMA's own structure and (ii) the capacity to coordinate procurement execution at the sub-project level. The corrective measures which have been agreed are (i) the Bank will assist and MMA will implement a strong internal unit to carry out the procurement under all-Bank-financed projects and (ii) the Bank will train and the MMA will keep one sub-project

coordinator who is able to overview procurement execution under Component 2. The overall project risk for procurement is high.

By the time sub-component 2.1 sub-projects should begin, after 18 months of project implementation, it is expected that the PCU would have built enough capacity to support these activities without the assistance from an external agency. Before any disbursements would occur for implementation of sub-projects, the PCU would be assessed and an action plan to improve its capacity would be agreed upon. The overall project risk will be reviewed at that time.

C. Procurement Plan

The Recipient, at appraisal, developed a Procurement Plan for project implementation which provides the basis for the procurement methods. The Recipient and the Project Team have agreed on this plan, which would be available at the PCU. It would also be available in the Project's database and in the Bank's external website. The Procurement Plan will be updated in agreement with the Project Team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

D. Frequency of Procurement Supervision

In addition to the prior review supervision to be carried out from Bank offices, the capacity assessment of the Implementing Agency has recommended annual supervision missions to visit the field to carry out post review of procurement actions. Field visits to the agencies implementing the project under Component 2 should also be carried out once a year.

The Procurement Plan will indicate those contracts which will be subject to prior review by the Bank.

Attachment 1

Details of the Procurement Arrangement involving international competition.

1. Goods and Works and non consulting services.

(a) There are no ICB packages under the project.

(b) All direct contracting will be subject to prior review by the Bank, including direct contracting under the sub-projects.

2. Consulting Services.

(a) There are no Consulting Assignments with short-list of international firms.

(b) Consultancy services estimated to cost above US$100,000 per contract, and all Single Source selection of consultants (firms), will be subject to prior review by the Bank.

(c) **Short lists composed entirely of national consultants**: Short lists of consultants for services estimated to cost less than US$500,000 equivalent per contract, may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

Annex 9: Economic and Financial Analysis

Brazil: Integrated Management of Aquatic Resources in the Amazon Region - AquaBio

Cost-effectiveness

The Project offers an excellent cost/benefit ratio, as it addresses the conservation of highly significant biodiversity under threat, but at an early enough stage where relatively modest investments in project activities would actually be able to help avoid major, irreversible damage in the medium to long term, and also avoid extremely costly ecosystem restoration activities in the future. The adoption of co-management schemes, as a way to improve the conservation status of freshwater biodiversity in the Amazon, has shown to be highly cost-effective when compared to approaches that try to achieve the same results based only on command and control initiatives. This is particularly true in the Brazilian Amazon, where command and control activities are very costly due to the sheer size of the area, the highly dispersed population pattern, and the difficulties of transportation and communication.

In the Xingu River Sub-basin (State of Mato Grosso) the project would be implemented using mostly existing institutional capacity within FEMA, with support from EMPAER, the State's rural extension agency. In the Negro and Tocantins River Basins (States of Amazonas and Pará, respectively), where existing institutional capacity in the Project target areas is not as strong as in Mato Grosso, the Project has adopted a number of measures that improve its cost-effectiveness, such as the use of the existing ProVárzea PCU for support to the implementation of some project activities – which would result in (i) reduced costs; (ii) better coordination and exchange of experiences between activities already under implementation along the mainstem of the Solimões/Amazon River and those to be implemented under the AquaBio along some of the tributaries; (iii) a faster start-up of project implementation due to the strong capacity that already exists in the unit, and leading to a greater probability that project targets and results would be achieved within the proposed timeframe. In addition, the future creation of an IBAMA CEPNOR base in Manaus, combining the teams and experiences of ProVárzea and AquaBio, would ensure the sustainability of both initiatives in the medium and long-term.

Financial sustainability

Subcomponent 1.3 would develop and implement a financial sustainability strategy to support the execution of selected activities under the APs, beyond the life of the project, with pilot financial mechanisms adopted by the end of the project. This would be achieved through the following activities: (i) initial identification of partners and stakeholders followed by the establishment of a common dialogue; (ii) identification of the outcomes and activities to be continued following the closure of the Project; (iii) assessment of the potential of the activities identified in (ii) above to attract external resources and/or generate financial returns to ensure their financial sustainability; (iv) identification and/or design of viable financial mechanisms/models to support financial sustainability (e.g., public investment programs and funds, environmentally friendly certification schemes, trust funds, etc.); and

(v) the development and implementation of an action plan to make the relevant financial mechanisms fully operational.

In relation to the local projects and programs to be supported under AquaBio, the project would seek to develop a financial strategy including (i) an overall financial sustainability model that would address funding of national institutional coordination activities and (ii) individual financial sustainability models for each of the project's sites. These financial sustainability models would take into account the respective (a) start-up costs; (b) recurrent annual operating costs; (c) expected annual funding of core outcomes and activities; and (d) existing and potential sources of funding resources. This would enable the determination of funding requirements and gaps, and facilitate the identification of appropriate financing mechanisms. The project would pursue collaborative and mutually supportive partnerships with the following stakeholders: national, provincial and local government agencies; bilateral/multilateral development agencies; and foundations. The project's financial strategy would entail a two-pronged approach: (1) "revenue-stream generation" which aims at the identification of activities and/or products (e.g. organic and/or indigenous products, handicrafts, ornamental fish) that generate income and thus create a self-sustaining economic base, while at the same time protecting aquatic biodiversity and promoting the transition to more sustainable livelihoods; and (2) identification of sources of public and private resources, with the potential to channel funds to cover the recurring costs of AquaBio activities (those that do not generate an economic return but are essential to sustaining the project's positive results);

Annex 10: Safeguard Policy Issues and Indigenous People's Strategy

Brazil: Integrated Management of Aquatic Resources in the Amazon Region - AquaBio

A) Safeguard Policy Issues

This 6-year project would promote and support strategic actions for the mainstreaming of a multi-stakeholder, integrated management approach to the conservation and sustainable use of freshwater biodiversity in public policies and programs in the Brazilian Amazon River Basin. To achieve this objective, the Project would identify constraints to the resolution of negative environmental and social impacts of currently adopted natural resource use and management practices, especially those which negatively affect aquatic biodiversity. The Project would then test and promote new tools and methodologies to support the adoption and implementation of an integrated management approach. Project activities would take place within the context of four components: (1) Planning and Public Policy; (2) Demonstration Activities; (3) Building Capacity; and (4) Management, Monitoring and Evaluation, and Information Dissemination.

The project would adopt participatory planning methodologies to develop Action Programs for integrated management of aquatic resources (abbreviated as APs) and would test "demonstrative activities" in the field that have the potential to become medium and long term public policies for the implementation of action programs for integrated management. These demonstrative activities would consist of innovative technologies and productive systems (new or adapted) that mainstream questions of freshwater biodiversity in the productive activities carried out in the Amazon, utilizing concrete examples for the development of the APs.

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP/GP 4.01)	[X]	[ ]
Natural Habitats (OP/BP 4.04)	[X]	[ ]
Pest Management (OP 4.09)	[X]	[ ]
Cultural Property (OPN 11.03, being revised as OP 4.11)	[ ]	[X]
Involuntary Resettlement (OP/BP 4.12)	[ ]	[X]
Indigenous Peoples (OD 4.20, being revised as OP 4.10)	[X]	[ ]
Forests (OP/BP 4.36)	[X]	[ ]
Safety of Dams (OP/BP 4.37)	[ ]	[X]
Projects in Disputed Areas (OP/BP/GP 7.60)*	[ ]	[X]
Projects on International Waterways (OP/BP/GP 7.50)	[ ]	[X]

Environmental Rating: **B** – Partial Assessment

Project compliance with applicable safeguard policies

* *By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas*

Environmental Assessment **–** The draft EA and EMP were submitted to the Bank on October 10, 2005. The final EA/EMP report was disseminated in Brazil through the project's website (http://www.mma.gov.br/port/sbf/chm/aquabio/aquabio.html). The document was also sent to the representatives of government and non-government organizations, civil society and indigenous organizations, and universities who participated in the various consultations during project preparation.

Overall Environmental Assessment - The Project would generate positive environmental impacts through strengthening the capacity of government institutions and civil society to participate in decision-making that supports the sustainable use and conservation of freshwater biodiversity in the Brazilian Amazon and, in the medium and long term, through fostering better management and control of the threats that lead to degradation of the Region's aquatic resources.

The Project would facilitate the adoption of strategic actions for the integrated management of aquatic biodiversity and water resources in three tributaries of the Amazon River so as to mainstream the conservation and sustainable use of aquatic biodiversity in the policies and programs of sustainable development. In addition to the states where the three tributaries are located (Amazonas, Mato Grosso and Pará), the other states of the Legal Amazon and other countries which share the Amazon basin with Brazil would also benefit from lessons learned from the Project. At the local level, AquaBio would provide opportunities for local participation in the management of aquatic resources in order to improve the quality of life and the economic wellbeing of the rural and riverine communities in the three selected sub-basins. This would be achieved by the creation and support of discussions spaces, improved organization of fishermen, farmers and rural community, and improved awareness in these communities of the importance of the sustainable use of aquatic resources. The latter would come about as a result of the Project's mobilization process and its foreseen investments and trainings. In addition, with CONABIO as the Project National Steering Committee, AquaBio would facilitate the integration of aquatic biodiversity concerns into other sectors of the economy and the government.

Direct, positive impacts stemming from Project implementation would likely include: (i) the resolution of conflicts over the use of fishery resources; (ii) better, sustainable management of aquatic resources, as a result of the mainstreaming of freshwater biodiversity concerns into public policies and actions at the sub-basin and local level; (iii) greater soil productivity in agricultural lands that presently suffer from erosion and cause sedimentation of aquatic ecosystems; (iv) improved livelihoods for families of small local fishermen and farmers, through better access to fisheries for food and income, and increased citizenship; (iv) improved quality of water resources and fisheries for indigenous groups living in the upper areas of the PIX (Xingu sub-basin), and better access to fisheries and other sources of income and nutrition for indigenous peoples along the middle Negro River; and (v) the production of environmental services associated with riparian forest recovery, and conservation of overexploited aquatic species such as *tambaqui, piramutaba, filhote* and *pirarucu*. In addition, the project would generate

benefits for the global environment through: (i) strengthening of the Government and civil society to deal with threats and barriers to the conservation of the Amazon's globally important freshwater ecosystems; (ii) greater scope and involvement of civil society and the private sector in the planning and management of the Amazon's aquatic resources; and (iii) development of sustainable aquatic management systems and generation and dissemination of lessons that could be adapted towards the conservation of freshwater biodiversity in other parts and countries of the Amazon basin.

Environmental Assessment for Component 2 – This component would finance, on a pilot basis, demonstrative activities to test tools and methodologies, and to provide inputs for the development of action programs for the integrated management of aquatic biodiversity and water resources (APs). These activities would fit into two categories: small (up to US$30,000) or medium-sized (up to US$70,000) sub-projects. The main eligibility criteria for demonstrative activities would be to have a potential positive impact on conservation and the sustainable use of aquatic biodiversity in the sub-basins/regions of interest of the Project. In this way, all of the activities financed by Component 2 would have a positive environmental impact, especially in those sub-projects whose objectives are the management of fishing and forest resources, soil and water conservation, rehabilitation of riparian forests, or the protection of water resources, for example.

Because of the intrinsic positive environmental objectives of the AquaBio project, and of the small scale of sub-projects to be supported on a pilot basis, it is extremely unlikely that sub-projects with potential negative environmental impacts would be proposed and approved. However, a few of the activities supported under Component 2 could have the potential to cause limited and localized negative environmental impacts if the related sub-projects are poorly administered. To prevent such situations, strict environmental evaluation and monitoring procedures, including environmental licensing (if needed) and mitigation measures, would be utilized. At this stage of preparation, it is not yet possible to identify the exact impacts of the sub-projects to be undertaken in the demonstrative areas of the Project since the sub-projects would be defined based on the demands made by the communities and local partners during the first year of project implementation.

The Project would promote workshops to train interested parties in the preparation of sub-project proposals. The elaboration of the environmental evaluation would be one of the topics to be addressed in the workshops and would be an integral part of all sub-project proposals. The Project would also offer, as necessary, additional technical assistance to the proponents for the elaboration of the environmental evaluation and environmental management plan of the sub-projects.

Environmental Management Plan (EMP) – The project's EMP aims to monitor the potential positive and negative environmental impacts as a whole, and in particular those of the sub-projects, in order to achieve environmental sustainability after the project ends. The EMP involves five broad lines of action: (1) capacity building for sub-project proponents on the evaluation of potential environmental impacts of sub-projects; (2) established procedures for the elaboration, evaluation, and approval of sub-projects; (3)

agreed restrictions in the case of sub-projects located within or around environmentally protected areas; (4) provision of technical assistance to sub-project proponents; and (5) monitoring and evaluation.

A Standard Form has been developed for the evaluation of the potential environmental impacts of sub-projects. The use of this Standard Form would be discussed in the training provided to sub-project proponents, and the completed Form would be an integral part of all sub-project proposals. Sub-projects would be classified as Category I or II according to their potential negative environmental impacts. Category I sub-projects would have no potential negative impacts, and would not require any mitigation measures. Category II sub-projects could have the possibility of limited and localized negative impacts, which would be mitigated through specific actions described in the sub-project proposal. Project support for a Category II sub-project would depend on its initial evaluation and approval by the project's Local Project Committee, which would involve staff from the municipal and state environmental agencies, and also on its final evaluation and approval by the project's State Project Committee and of the PCU. The Terms of Reference for the project mid-term review would include an assessment of the potential for positive or negative cumulative environmental impacts in case specific demonstration activities would be recommended for replication and scaling-up in the context of the APs.

Natural Habitats - Riparian areas and vegetation are considered to be legally protected under Brazilian legislation (Federal Law 4771/65), as "areas under permanent conservation" (APPs – á*reas de preservação permanente*). In those areas, the project would basically support activities that generate positive environmental impacts, contributing to the maintenance of ecological functions as well as promoting the rehabilitation of degraded natural riparian forests.

Forests - In the case of sub-projects that might involve the adoption of agro-forestry models, any proposed use of timber resources would need to have a management plan approved by the respective environmental institution responsible for the management of such resources (IBAMA, IPAAM, SECTAM, SEMA).

Indigenous People's Strategy - Indigenous populations are present in and/or nearby the Rio Negro and Xingu target sub-basin areas, but not in the Tocantins sub-basin area. The AquaBio is primarily an environmental project that would involve local stakeholders, including indigenous populations, primarily in training and capacity-building activities with the goal of more effective stakeholder participation in water resource commissions and committees that the project seeks to establish, as well as possibly in some selected demonstration activities. It is also expected that indigenous representatives would be involved in the project steering committee and sub-basin and Project target area advisory groups (See Section C and Annex 10). The project would not generate negative impacts on indigenous people. To the contrary, indigenous people are viewed as important stakeholders that would benefit from involvement with project activities.

Pest Management - In the case of sub-projects that involve agricultural activities, the project will adopt IPM measures whenever possible. Nevertheless, on a few very specific

situations, especially related to sub-projects involving the restoration of riparian vegetation, the temporary use of small amounts of pesticides may be necessary, where allowed by the National legislation. This local and temporary use of pesticides may be needed for the control of leaf-cutter ants during the first two years of seedling establishment into severely degraded riparian areas, or for the control of the invasive grass *Brachiaria* in riparian areas under restoration, especially areas previously converted to pastures. The project does not require a separate Pest Management Plan, given that there are no significant pest management issues, and procurement of substantial quantities of pesticides is not envisaged.

The hazards associated with the storage, handling, use and disposal of pesticides would be assessed on an individual basis for each sub-project, according to its particular characteristics, and the sub-project EA/EMP would include measures (according to Law 7802/89) to reduce these hazards to a level that can be managed by the envisaged users of such products. In addition to the adoption of IMP and compliance with the above law, the use of pesticides, whenever needed, should be limited to low toxicity products according to Class IV of Decree 98816/90, which is equivalent to WHO Class "U" (unlikely to present acute hazard in normal use) or, if appropriate "U" products are not available, use of Class III products (slightly hazardous) may take place.

Stakeholder Involvement - Key stakeholders associated with the Project may be classified in two groups: national and local stakeholders. The main national stakeholders include: (i) federal and state government institutions, including the National Environment Institute (IBAMA); (ii) national and international NGOs; (iii) national organizations from various private sector stakeholders; and (iv) universities and other research institutions. The main local stakeholders include: (i) local municipal government; (ii) municipal councils and other local associations; (iii) natural resource users, such as fishermen and small rural producers, as well as their families and associations, large commercial farming and ranching operations, and hydropower developers; (iii) indigenous groups; and (iv) local NGOs.

The involvement of these actors during project preparation took place at different times: (i) at the time of consultations during this project's initial preparation phase, which aided in the preparation of the project concept note; (ii) during the preparation of the overall diagnostic of the three sub-basins, which provided inputs to the preparation of this project proposal; and (iii) during various project preparation visits, meetings, and workshops. Special mention should be made to (a) the workshop to define priorities and strategies for the preparation of the AquaBio Project – Brasília, June 23 to 26, 2004, (b) the 15th Regular Meeting of the Management Council for the Popular Plan for Sustainable Development Downstream from the Tucuruí Hydroelectric Plant (PPDS-JUS) – Belém, August 10, 2004, (c) the Meeting on the Headwaters of the Xingu River – Canarana, October 24 to 27, 2004, (d) the AquaBio Preparation Workshop – Brasília, November 30 to December 1, 2004, focused on the participatory preparation and agreement over the project's logical framework, (e) public consultation on the AquaBio Project technical proposal – Novo Airão, Amazonas, December 5, 2004, (f) public consultation on the AquaBio project proposal – Abaetetuba, Pará, March 5-6, 2005, and (g) meeting of the

Director of Biodiversity, Mr. Paulo Kageyama, and the Project Coordinator with Mrs. Rosalia Arteaga, Director General of the ACTO, and members of her staff, to present the AquaBio and discuss possibilities for interaction during the remainder of project preparation and project implementation. Indigenous groups were represented at various events, but especially at the preparation workshop in Brasilia late in 2004. Various meeting were also held with ANA representatives responsible for the preparation of another GEF project for the Amazon Basin (more details in Section C.2), where possible points of overlap and complementarity between both GEF projects were discussed, as well as a mutual collaboration strategy.

During project implementation stakeholders would participate as follows: (i) CONABIO would act as the project's Steering Committee; (ii) the Executing Unit for each Project target area would be supported by experts who would help monitor and support project execution, with the representation of government institutions and civil society organizations, where the respective POAs would be presented and discussed together with evaluations of the project's progress and the results of regional interventions; (iii) partnerships would be established with universities, research institutions, and NGOs for the execution of project activities at the local level and for project monitoring. The participation of local stakeholders and beneficiaries would include: (i) involvement in the planning, implementation, and monitoring of demonstration activities; (ii) inclusion, in the project's annual planning, of their demands for training in sustainable management of natural resources; and (iii) active participation in environmental education and training programs for integrated management of aquatic resources.

The project preparation team maintains records of all the events mentioned and of correspondence between the coordinators of the above-mentioned projects and potential partners. During project implementation there would be ongoing participation by the actors involved and society in general, through seminars and workshops. Project documents are available on the project's website.

B) Indigenous People's Strategy for the AquaBio Project

Introduction and Background

The project development objective is to support the mainstreaming of a multistakeholder, integrated management approach to the conservation and sustainable use of freshwater biodiversity in public policies and programs in the Brazilian Amazon River Basin. The project objectives would be achieved by supporting the implementation of this integrated management approach initially in three pilot sub-basins located in the: (i) the Middle and Lower Rio Negro in the state of Amazonas; (ii) the Rio Xingu in the state of Mato Grosso, and (iii) the Rio Tocantins in the state of Tocantins..

The project is primarily an environmental project that would involve local stakeholders, including indigenous populations, primarily in training and capacity-building activities with the goal of more effective stakeholder participation in aquatic resource commissions

and committees that the project seeks to establish, as well as possibly in some selected demonstration activities. It is also expected that indigenous representatives would be involved in the project steering and advisory committees for the planning and policy level, as well as being involved in monitoring and evaluation activities. Indigenous populations are present in and/or nearby the Rio Negro and Xingu target sub-basin areas, but not in the Tocantins sub-basin area.

The project would not generate negative impacts on indigenous people. To the contrary, indigenous people are viewed as important stakeholders that would benefit from involvement with project activities.

The preparation of the project included numerous consultations with indigenous people in the Middle and Lower Rio Negro sub-basin and the Xingu sub-basin target areas, and as is detailed below, indigenous people expressed a range of concerns about threats to their aquatic and water resources, and in general expressed interest in the project as well as interest in participating in the project. Because this is a process project, not all arrangements are known up front, nonetheless this annex clarifies the strategy that the project will follow to involve and work effectively with indigenous people.

Indigenous People in the Middle and Lower Rio Negro Sub-Basin Target Area

Scholars have concluded that most of the indigenous peoples living in the middle and lower Rio Negro in the state of Amazonas migrated from the upper Rio Negro during the 19th and 20th centuries. Furthermore, the indigenous communities in the middle and lower Rio Negro maintain strong ties to the upper Rio Negro indigenous groups and organizations, particularly to the Federation of Indigenous Organizations of the Rio Negro, FOIRN.

There are 24 riverine indigenous communities located within the target area of Rio Negro sub-basin pilot. The communities are scattered along the Rio Negro and various tributaries. Most villages are comprised of mixed ethnicities with populations of 100 people or less. The total population of the 24 communities is estimated at 1300 persons. Ethnicities include predominantly the Baré , Baníwa and Tukano, as well as Arapaso, Pirá-Tapuia, Tariana, Macuxi, Dessana, Curipako, **Kuruáia** ,Tuiuku, Maku-Nadeb, and **Kuruaia**. All speak Portuguese and some also are fluent in indigenous languages as well.

These communities mainly practice subsistence swidden agriculture, some small-scale animal husbandry (chickens and pigs) and fishing (in the river, lakes and streams). There is also occasional hunting, and collecting of nontimber forest products such as Brazil nuts and thatch (from the piassaba palm). The principal crop is manioc and other products grown include sweet potatoes and fruits such as pineapples, bananas, cashew and cupuaçu. Most communities engage in extractive activities to earn income with Brazil nut collecting being more common on the southern side of the river (though decreasing due to declining prices) and thatch collection (used mainly for brooms) on the northern side of the river. Some families also earn income from the sale of manioc flour, small

amounts of fish, bananas and other fruits, and a few also catch and sell ornamental fish. Alternative income generation is a major concern for these communities.

Land Tenure. To date, none of the 24 indigenous communities in the Rio Negro target area have fully regularized lands. However, the Brazilian National Indian Foundation (FUNAI) has begun land regularization activities for six indigenous lands that would encompass the majority of these indigenous communities and which is being supported by the Pilot Program's Indigenous Lands Project (PPTAL).[9] For the lower Rio Negro, FUNAI has already received the first study needed for identification of indigenous groups (Romcy, 2003).

There are two major challenges that indigenous communities of the middle and lower Rio Negro face. The first relates to a struggle that began in the 1970s in which the communities began to reassert their indigenous identities and try to confront regional and local racial prejudices against indigenous people. The second pertains to the adverse impacts of increasing commercialization and sometimes over-exploitation of the natural resources upon which they depend, such as fish and other extracted products.

In the 1990s, two indigenous associations were established, the Association of the Indigenous Communities of the Middle Rio Negro (ACIMRN) which represents 21 riverine communities, and the Indigenous Association of Barcelos (ASIBA), both of which are affiliated with the larger Federation of Indigenous Organizations of the Rio Negro, FOIRN.

Indigenous People in the Rio Xingu Sub-Basin Target Area

In the state of Mato Grosso, there are two groups of indigenous people pertinent to the Rio Xingu Sub-Basin target pilot area, the Xinguanos, a generic term used to refer to the 14 ethnic groups inside the Xingu Indigenous Park (PIX)[10] that is largely outside the sub-basin target area, and the Xavante who live in the Indigenous Land Pimental Barbosa and part of the Indigenous Land Areões located inside the sub-basin target area.

Land Tenure. The Xingu Indigenous Park encompasses 2.8 million hectares, and was fully regularized as an Indigenous Land in 1961. Also inside the project sub-basin target area are the Indigenous Land Pimental Barbosa encompassing 329,000 hectares which was fully regularized in 1986 and part of the Indigenous Land Areoes encompassing 219,000 hectares which was fully regularized in 1996.

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[9] Although the Bank financed portion of the PPTAL will close in December 2005, the German bilateral financing of PPTAL, with approximately US5 million remaining funds, will continue for at least through 2008 and possibly longer. FUNAI is also already closely coordinating with other World Bank GEF and Pilot Program Projects that provide direct and indirect support for socioeconomic diagnostics, training and capacity building, land regularization activities, protection activities, economic and alternative livelihood subprojects for indigenous peoples, including among others, from the GEF Amazon Protected Area Project (ARPA), the Pilot Program's Indigenous Demonstration Project (PDPI).

[10] The terms park and reserve used to be more common in Brazil to refer to indigenous lands. In the last few decades the term indigenous land is preferred. However, the Indigenous Land Parque do Xingu is still commonly referred to as the Xingu Indigenous Park.

The Xingu Indigenous Park (PIX) has a population of approximately 4,700 people in 49 villages of the following 14 ethnicities: Aweti, Kalapalo, Kamaiurá, Kuikuro, Matipu, Mehinaku, Nahukwá, Trumái, Waurá , Yawalapiti, Ikpeng Kaiabi, Suiá and Yudja. For the most part (except not to the same extent for the Ikpeng Kaiabi, Suiá and Yudja who are relative newcomers to the PIX), the ethnic groups in the PIX have intermarried and intermingled to the point where they are now considered Xinguanos and share numerous cultural traits. Livelihood activities are primarily fishing (both by individual and by groups using methods such as timbó) and subsistence swidden agriculture focusing on manioc and including corn, squash, melons and papaya for consumption, urucum for dye, tobacco, and gourds and cotton for crafts. Hunting birds and small animals as well as the collection of other forest products (such as honey, wild fruits, ants, turtle eggs and firewood) are also important though secondary. Handicrafts, such as ceramics, baskets and bead jewelry, provides some cash income.

The Association for the Xingu Indigenous Land (ATIX) was established in 1994 with an objective of representing the interests all the ethnic groups in the PIX. ATIX continues to receive significant technical assistance and support from several NGOs, including the Socio-environmental Institute (ISA) which has a long-term multifaceted sustainable development and protection program with ATIX. ATIX is dominated by younger leaders and hence sometimes has friction with the older more traditional leaders. Hence, for the project to effectively work with stakeholders in PIX, it must strive to work with both types of Xinguano leaders. More recently, another indigenous association for the PIX was formed, which is the Xingu Ethno-environmental Research Institute (IPEAX). The majority of Xinguanos also speak Portuguese.

The Xavante indigenous people have inhabited the transitional regions between the forests and the semi-arid areas in eastern Mato Grosso since the mid-1800s, and the population in the state, estimated at about 9,700, is located primarily along the following rivers: Mortes, Culuene, Couto de Magalhães, Botovi, and Garças. During the 19th century they fled further inland from contact with non-Indians However, by the 1940s the expansion of the frontier put them into contact once again. In the 1970s FUNAI helped introduce a large-scale mechanized rice project that caused considerable environmental degradation and nutritional problems due to diet change, and which ultimately failed and was abandoned due to low prices, among other factors. The Xavante population inside the sub-basin target area of the Xingu headwaters in Indigenous Lands Pimental Barbosa and Indigenous Lands Areões is estimated at about 1400. Their livelihood activities have long been characterized predominantly by hunting, fishing and collecting.

The Xavante have been known in the past decades for their political activism primarily lobbying to have more of their traditional territory recognized. They form associations normally representing one village at a time. A challenge for the project will be that in order to work effectively with the Xavante, it is advisable to work with village-level leaders, and given their clan structure, it is advisable that two representatives always be included from each village. Especially given the environmental degradation the Xavante

have experienced, it is likely that they will be increasingly interested in the challenges of sustainable management of fishing resources.

Legal Issues

The Brazilian Constitution of 1988 marked a departure point from previous integrationist policies and provides a firm basis for the recognition by the nation-state of the perpetual usufruct rights of indigenous people in Brazil to lands they traditionally occupy. The Constitutional mandate also protects the indigenous customs and traditions as well as their exclusive rights to use terrestrial and aquatic natural resources in their traditional areas. Indigenous lands in Brazil, whether demarcated or not, pertain to the nation-state.

Even though indigenous lands were not explicitly included in the recent Brazilian conservation unit legislation (SNUC), the Constitutional mandate pertains in that the nation-state has the obligation to protect natural resources in indigenous lands. The nation-state also has responsibility for preserving indigenous culture and for providing access to culturally appropriate educational services.

Indigenous Participation in the Project

Participation during preparation. During 2004 there were seven consultations with civil society that included indigenous representatives in Brasilia and various locations in Amazonas and Mato Grosso, and in 2005 there was a public consultation in Mato Grosso that also included indigenous organizations, and a meeting held with representatives of ASIBA in Manaus. Indigenous community members and leaders participated in these events as did indigenous associations and organizations including, among others, the Association of the Xingu Indigenous Land (ATIX); Xingu Ethno-environmental Research Institute (IPEAX); Indigenous Association of Barcelos (ASIBA), Federation of Indigenous Organizations of the Rio Negro (FOIRN); and the Coordination of Amazonian Indigenous Organizations (COIAB). Also participating were nongovernmental organizations such as the Native Amazonia Operation (OPAN) and the Missionary Indigenous Counsel (CIMI), as well as governmental agencies such as the National Indian Foundation (FUNAI), the Mato Grosso Office on Indigenous Subjects, and the Amazonas State Foundation on Indigenous Policies (FEPI).

Indigenous Concerns. In general, indigenous representatives expressed numerous concerns with threats to water and aquatic resources, particularly highlighting the impacts of over-exploitation and contamination on the health and quality of life of their communities. In the middle and lower Rio Negro, major concerns focused mostly on negative effects of increasing commercial use of aquatic resources (commercial fishing, ornamental fish collection, sport fishing) on local indigenous communities. ASIBA expressed great interest in receiving training in monitoring the impact of commercial fishing. In the Rio Xingu area, indigenous representatives from the Xingu Park were greatly concerned about the adverse environmental and health effects of human activities in the headwaters region, which then affect the Park. In summation, the indigenous peoples consulted during project preparation agreed that the project addresses concerns

that they share and consider important. They were also positive about becoming more active stakeholders in efforts to more sustainably manage freshwater biodiversity.

Indigenous Participation in the Project. During consultations, there was consensus that for the Rio Negro and Xingu sub-basin pilots, that all riverine indigenous communities within the project target areas would be eligible for all project activities (in the case of PIX, only those indigenous lands and organizations included in the project target area of the Xingu sub-basin), . The Xinguanos have already expressed strong interest in participating actively in the monitoring and evaluation of project impacts on freshwater biodiversity.

With respect to Component 1, Planning and Public Policy, it is expected that indigenous people would be involved in both Sub-component 1, Sub-Basin Action Programs, as one set of stakeholders involved in the development of sub-basin action programs (APs) which are expected to be a result in PY5 of the multi-stakeholder dialogue promoted by the project, and Sub-component 1.2, Institutional arrangements for integrated management of aquatic resources, which would support discussions and participation needed to determine the institutional and partnership arrangements for development and some initial implementation of the APs. Types of activities under this component would include, among others, support for travel and participation in project related events, such as seminars, conflict resolution round-tables, and other project related discussion fora as well as local-level steering and sub-basin committees to be formed.

The project component where the most indigenous involvement is expected is Component 3, Building Capacity. The goal of this component is to help prepare stakeholders, especially local ones (including indigenous people, indigenous communities and indigenous organizations), to be able to actively participate and contribute more effectively (including traditional knowledge and environmental perspectives) in the formulation, implementation, and monitoring of strategies and action programs aimed at the conservation and sustainable use of freshwater biodiversity and water resources in the project areas. Activities include, among others, support for training (such as on indigenous and environmental legislation, and conflict resolution techniques), a variety of capacity building activities (such as on sustainable fisheries, and co-management approaches), environmental education and the formation of partnerships. Under this component, indigenous people, communities and organizations would be eligible for a variety of capacity building and educational activities as well as assistance to indigenous organizations such as targeted trainings and technical assistance. The underlying objective is to empower local actors, including indigenous peoples, by leveling the playing field in terms of improving: access to information (environmental, ecological, political and other types via trainings, environmental education and other means); ability to exercise citizenship rights as well as duties; and strengthening local organizations, including indigenous associations, in terms of preparation and support for more active participation in public debate and in the to be established sub-basin advisory councils and other fora.

To ensure that indigenous people are appropriately involved in capacity building, the project will undertake further detailed diagnostics of local communities on the ground, collaborate with both governmental entities (such as FUNAI) and experienced nongovernmental indigenist organizations, such as ISA and others, and with indigenous organizations such as the indigenous associations mentioned, as well as traditional leaders. Attention will be paid to questions such as if trainings should be designed exclusively for indigenous people or mixed audiences, the appropriate language (likely to be Portuguese unless specifically targeting subgroups without the necessary Portuguese skills) and level of didactic material, and other considerations to ensure a level playing field.

Indigenous people could also participate in Component 2, Demonstration Activities within the sub-basin target areas[11]. Component 2 will support a small and limited number of demonstration activities (estimated at 20-30 subprojects) to test new technologies or productive systems that incorporate freshwater biodiversity concerns into productive activities in all three sub-basic pilot areas. Possible activities could include, among others, (i) co-management of aquatic resources associated with the resolution of conflicts over access to and sustainable use of fisheries resources, (ii) management and sustainable use of ornamental fisheries resources; (iii) economic activities that offer alternatives to predatory or degrading activities (see Annex 4 for more details). Technical assistance would be provided for the development and implementation of demonstration activities. It should be clarified that this project is not an income generation project and the funding for pilot activities is quite limited. It is expected that successful demonstration activities could be scaled up by leveraging other resources and possibly a subsequent phase of the project. Selection criteria for demonstration activities – to be further developed under the project - would include the key criterion of the potential impact of the activity on conservation of aquatic resources as well as other factors such as diversity of technologies and methodologies to be used, available counterpart, and other factors that will be further detailed in the project operational manual.

It is also expected that indigenous people will participate in Component 4, Project Management, Monitoring and Evaluation, and Information Dissemination via representation on the project's Steering committee as well as on the State Project Committees and Local Project Committees. Discussions about Xinguano participation in the monitoring the impact of project activities on freshwater biodiversity within the PIX are under way.

Institutional Arrangements

[11] Additional demonstration activities to be supported under re-directed baseline from other affiliated projects, such as the Ecological Corridors Project, would probably involve indigenous peoples since the Ecological Corridors Project will support pilot activities in interstitial areas of the corridor, that is outside of indigenous areas and of conservation units, but may include indigenous communities that seek regularization of their areas as indigenous lands.

During project implementation, indigenous stakeholders would be represented on the Project Steering Committee (CONABIO), and would also participate, where relevant, in the State Project Committees and in the Local Project Committees (see Section C and Annex 6). It is also expected that the project would establish working partnerships with governmental, academic, indigenist and indigenous organizations as well as other civil society organizations. Since this is a process project, not all implementation arrangements can be detailed in advance, nonetheless the project is committed to working with indigenous people as one set of key stakeholders in the multistakeholder integrated management approach to the conservation and sustainable use of freshwater biodiversity. MMA would also sign an agreement with FUNAI to facilitate collaboration on project activities.

Monitoring and Evaluation.

The monitoring and evaluation system of the project will be developed in initial participatory seminars including local stakeholders and indigenous people to be held during the first year of the project. It is anticipated that the institutional arrangements for M&E will include federal and state governmental agencies, NGOs and local associations, including indigenous associations. Social indicators will be developed, including those specifically focused on the effectiveness of activities involving indigenous peoples, and indigenous people in the PIX have already indicated their interest to carrying out monitoring activities on water quality.

Bibliography

Romcy, R. N. 2003: Relatório do Levantamento Preliminar das Comunidades Indígenas do Baixo Rio Negro sobre a reivindicação das Áreas Indígenas Denominadas Rio Cuieras e Baixo Rio Negro (AM) – Instrução Executiva No. 94/DAF/02 de 07/08/2002. Funai, Brasília.

Annex 11: Project Preparation and Supervision
Brazil: Integrated Management of Aquatic Resources in the Amazon Region - AquaBio

	Planned	Actual
PCN review		11/15/1999
Initial PID to PIC		10/27/2005
Initial ISDS to PIC		10/27/2005
Appraisal	11/07/2005	11/07/2005
Negotiations	12/05/2005	04/27/2006
Board/RVP approval	01/31/2006	06/13/2006
Planned date of effectiveness	09/01/2006	
Planned date of mid-term review	09/01/2009	
Planned closing date	08/31/2012	

Key institutions responsible for preparation of the project:
International Bank for Reconstruction and Development (IBRD), Ministry of Environment (MMA)

Bank staff and consultants who worked on the project included:

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Random Dubois	FAO, Sr. Environmental Adviser	
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Total Bank funds expended to date on project preparation:

1. US$245,000 (GEF resources)

Estimated Approval and Supervision costs:

2. Remaining costs to approval: $15,000
3. Estimated annual supervision cost: $70,000

Annex 12: Documents in the Project File

Brazil: Integrated Management of Aquatic Resources in the Amazon Region - AquaBio

Documents available for public consultation in the Project archives at MMA or on the Project website (http://www.mma.gov.br/aquabio):

- Project Concept Note, PDF-B Project Proposal, AquaBio GEF Project Brief, and GEF Project Document;
- Environmental Assessment and Environmental Management Plan;
- Indigenous People Strategy;
- Agreement on MMA/UNESCO technical cooperation for implementation of PDF-B activities;
- AquaBio PDF-B Progress Reports;
- Document on the "Criteria for Selection of Project Sub-basins";
- TORs for consultants hired for project preparation;
- Report on Environmental Diagnostics of the Rio Negro sub-basin;
- Report on Socioeconomic Diagnostics of the Rio Negro sub-basin;
- Report on Environmental Diagnostics of the Rio Xingu sub-basin;
- Report on Socioeconomic Diagnostics of the Rio Xingu sub-basin;
- Report on Institutional Organization and Capacity;
- Report on the proposal for the Project Training and Information Dissemination Strategy;
- Report on a proposal for the Project Monitoring and Evaluation Component;
- Minutes of the First Ordinary Meeting of the AquaBio Steering Committee;
- Minutes on the meeting between AquaBio/SBF and representatives from the Environmental Institutions (OEMAs) of Amazonian States;
- Reports on field visits by Project consultants and MMA staff members;
- Report on the current status of Fisheries Resources in the Brazilian Amazon;
- Report of the Public Consultation that took place in Novo Airão, AM;
- Report of the meeting on the status of the headwaters of the Xingu River, Canarana, MT.
- Meeting on the Xingu headwaters, part of an awareness raising campaign by ISA (website of Instituto Socioambiental).

Annex 13: Statement of Loans and Credits

Brazil: Integrated Management of Aquatic Resources in the Amazon Region - AquaBio

			Original Amount in US$ Millions						Difference between expected and actual disbursements	
Project ID	FY	Purpose	IBRD	IDA	SF	GEF	Cancel.	Undisb.	Orig.	Frm. Rev'd
P082328	2005	BR-Integ.Munic.Proj.-Betim Municipality	24.07	0.00	0.00	0.00	0.00	24.08	1.55	0.00
P076924	2005	BR-(Amapa) Sustainable Communities	4.80	0.00	0.00	0.00	0.00	4.80	0.00	0.00
P083533	2005	BR TA-Sustain. & Equit Growth	12.12	0.00	0.00	0.00	0.00	12.12	0.00	0.00
P087711	2005	BR Espirito Santo Wtr & Coastal Pollu	36.00	0.00	0.00	0.00	0.00	36.00	0.90	0.00
P069934	2005	BR-PERNAMBUCO INTEG DEVT: EDUC QUAL IMPR	31.50	0.00	0.00	0.00	0.00	31.50	1.18	0.00
P060573	2004	BR Tocantins Sustainable Regional Dev	60.00	0.00	0.00	0.00	0.00	59.40	7.40	0.00
P087713	2004	BR (CRL1) Bolsa Familia 1st APL	572.20	0.00	0.00	0.00	0.00	572.20	0.00	0.00
P083013	2004	BR Disease Surveillance & Control APL 2	100.00	0.00	0.00	0.00	0.00	99.00	-0.50	0.00
P080830	2004	BR Maranhao Integrated: Rural Dev	30.00	0.00	0.00	0.00	0.00	30.00	2.30	0.00
P054119	2003	BR BAHIA DEVT (HEALTH)	30.00	0.00	0.00	0.00	0.00	28.02	7.02	0.00
P070827	2003	BR-2nd APL BAHIA DEV. EDUCATION PROJECT	60.00	0.00	0.00	0.00	0.00	40.99	21.17	0.00
P049265	2003	BR-RECIFE URBAN UPGRADING PROJECT	46.00	0.00	0.00	0.00	0.00	44.99	6.90	0.00
P058503	2003	GEF BR Amazon Region Prot Areas (ARPA)	0.00	0.00	0.00	30.00	0.00	26.31	0.00	0.00
P080400	2003	BR-AIDS & STD Control 3	100.00	0.00	0.00	0.00	0.00	91.85	20.15	0.00
P076977	2003	BR-Energy Sector TA Project	12.12	0.00	0.00	0.00	0.00	12.00	4.20	0.00
P074777	2003	BR-Municipal Pension Reform TAL	5.00	0.00	0.00	0.00	0.00	4.90	4.50	0.00
P051696	2002	BR SÃO PAULO METRO LINE 4 PROJECT	209.00	0.00	0.00	0.00	0.00	163.48	130.58	0.00
P057653	2002	BR- FUNDESCOLA IIIA	160.00	0.00	0.00	0.00	0.00	192.62	-48.68	0.00
P057665	2002	BR-FAMILY HEALTH EXTENSION PROJECT	68.00	0.00	0.00	0.00	0.00	50.81	39.61	0.00
P055954	2002	BR GOIÁS STATE HIGHWAY MANAGEMENT	65.00	0.00	0.00	0.00	0.00	30.14	30.14	0.00
P060221	2002	BR FORTALEZA METROPOLITAN TRANSPORT PROJ	85.00	0.00	0.00	0.00	0.00	111.47	59.02	0.00
P074085	2002	BR Sergipe Rural Poverty Reduction	20.80	0.00	0.00	0.00	0.00	3.13	-1.52	0.00
P043869	2002	BR SANTA CATARINA NATURAL RESOURC & POV.	62.80	0.00	0.00	0.00	0.00	59.72	19.74	0.00
P073192	2002	BR TA Financial Sector	14.50	0.00	0.00	0.00	0.00	9.30	6.98	0.00
P070552	2002	GEF BR PARANA BIODIVERSITY PROJECT	0.00	0.00	0.00	8.00	0.00	8.22	6.12	0.00
P066170	2002	BR-RGN 2ND Rural Poverty Reduction	22.50	0.00	0.00	0.00	0.00	12.99	6.39	0.00
P073294	2001	BR Fiscal & Fin. Mgmt. TAL	8.88	0.00	0.00	0.00	0.00	6.74	5.78	0.00
P059566	2001	BR- CEARA BASIC EDUCATION	90.00	0.00	0.00	0.00	0.00	67.34	-22.66	0.00
P050772	2001	BR LAND-BASED POVRTY ALLEVIATION I (SIM)	202.10	0.00	0.00	0.00	58.13	165.13	152.74	0.00
P050875	2001	BR Ceara Rural Poverty Reduction Project	37.50	0.00	0.00	0.00	0.00	6.76	2.26	0.00
P050880	2001	BR Pernambuco Rural Poverty Reduction	30.10	0.00	0.00	0.00	0.00	12.87	9.67	0.00

P050881	2001	BR PIAUI RURAL POVERTY REDUCTION PROJECT	22.50	0.00	0.00	0.00	0.00	7.61	6.61	0.00
P057649	2001	BR Bahia Rural Poverty Reduction Project	54.35	0.00	0.00	0.00	0.00	3.82	-2.01	0.00
P047309	2000	BR ENERGY EFFICIENCY (GEF)	0.00	0.00	0.00	15.00	3.29	8.12	9.82	6.79
P039199	2000	BR PROSANEAR 2	30.30	0.00	0.00	0.00	6.40	22.29	28.69	22.29
P006449	2000	BR CEARA WTR MGT PROGERIRH SIM	136.00	0.00	0.00	0.00	0.00	60.71	43.46	0.45
P050776	2000	BR NE Microfinance Development	50.00	0.00	0.00	0.00	0.00	30.08	-19.92	0.00
P035741	2000	BR NATL ENV 2	15.00	0.00	0.00	0.00	2.32	5.61	7.93	2.89
P048869	1999	BR SALVADOR URBAN TRANS	150.00	0.00	0.00	0.00	32.00	53.95	85.95	0.00
P050763	1999	BR- Fundescola 2	202.00	0.00	0.00	0.00	0.00	17.29	17.29	0.00
P035728	1998	BR BAHIA WTR RESOURCES	51.00	0.00	0.00	0.00	0.00	1.39	1.39	-1.61
P057910	1998	BR PENSION REFORM LIL	5.00	0.00	0.00	0.00	0.50	1.48	1.98	1.48
P042565	1998	BR PARAIBA R.POVERTY	60.00	0.00	0.00	0.00	0.00	8.07	8.07	0.00
P043420	1998	BR WATER S.MOD.2	150.00	0.00	0.00	0.00	125.00	19.33	144.30	4.28
P043421	1998	BR RJ M.TRANSIT PRJ.	186.00	0.00	0.00	0.00	27.78	89.71	117.49	0.00
P006474	1998	BR LAND MGT 3 (SAO PAULO)	55.00	0.00	0.00	0.00	10.00	34.73	44.73	21.04
P038895	1998	BR FED.WTR MGT	198.00	0.00	0.00	0.00	40.00	54.95	94.95	31.45
P006532	1997	BR FED HWY DECENTR	300.00	0.00	0.00	0.00	50.00	61.51	111.51	111.51
P034578	1997	BR RGS Highway MGT	70.00	0.00	0.00	0.00	0.00	27.80	27.80	27.80
P043873	1997	BR AG TECH DEV.	60.00	0.00	0.00	0.00	0.00	15.24	15.24	15.24
P043868	1997	BR RGS LAND MGT/POVERTY	100.00	0.00	0.00	0.00	0.00	7.69	7.69	7.69
P006210	1996	GEF BR-NAT'L BIODIVERSITY	0.00	0.00	0.00	10.00	0.00	2.64	2.59	1.50
P037828	1996	BR (PR)R.POVERTY	175.00	0.00	0.00	0.00	10.00	36.99	46.99	46.99
		Total:	4,270.14	0.00	0.00	63.00	365.42	2,589.89	1,275.49	299.79

BRAZIL
STATEMENT OF IFC's
Held and Disbursed Portfolio
In Millions of US Dollars

		Committed				**Disbursed**			
		IFC				**IFC**			
FY Approval	Company	Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
2001	AG Concession	0.00	15.00	15.00	0.00	0.00	14.07	0.00	0.00
2002/05	Amaggi	30.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	Andrade G. SA	27.50	0.00	10.00	16.67	27.50	0.00	10.00	16.67
2001	Apolo	7.61	0.00	0.00	0.00	5.11	0.00	0.00	0.00
1998	Arteb	20.00	7.00	0.00	18.33	20.00	7.00	0.00	18.33
1999	AutoBAn	22.73	0.00	0.00	17.25	22.73	0.00	0.00	17.25
1998	BSC	1.54	0.00	0.00	0.66	1.46	0.00	0.00	0.66
1996	Banco Bradesco	1.19	0.00	0.00	1.75	1.19	0.00	0.00	1.75
2001	Brazil CGFund	0.00	20.00	0.00	0.00	0.00	1.60	0.00	0.00
1994/96	CHAPECO	1.78	0.00	0.00	5.26	1.78	0.00	0.00	5.26
2002/04	CN Odebrecht	25.00	0.00	0.00	0.00	25.00	0.00	0.00	0.00
2003	CPFL Energia	0.00	0.00	40.00	0.00	0.00	0.00	40.00	0.00

1992	CRP-Caderi	0.00	0.32	0.00	0.00	0.00	0.32	0.00	0.00
1996/97	CTBC Telecom	0.00	8.17	0.00	0.00	0.00	8.17	0.00	0.00
2004	Comgas	45.00	0.00	0.00	45.00	12.50	0.00	0.00	12.50
1997/00	Coteminas	0.00	0.29	0.00	0.00	0.00	0.29	0.00	0.00
1980/92	DENPASA	0.00	0.12	0.00	0.00	0.00	0.12	0.00	0.00
1998	Dixie Toga	0.00	15.00	0.00	0.00	0.00	15.00	0.00	0.00
1997	Duratex	6.76	0.00	0.00	3.95	6.76	0.00	0.00	3.95
1999	Eliane	21.33	0.00	13.00	0.00	21.33	0.00	13.00	0.00
1998	Empesca	5.00	0.00	10.00	0.00	5.00	0.00	10.00	0.00
2001/02	Escola	0.00	0.25	0.00	0.00	0.00	0.25	0.00	0.00
2000/04	Fleury	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	Fosfertil	5.30	0.00	0.00	21.36	5.30	0.00	0.00	21.36
1998	Fras-le	6.00	0.00	10.00	0.00	6.00	0.00	6.70	0.00
1994	GAVEA	0.94	0.00	5.50	0.00	0.94	0.00	5.50	0.00
	GP Cptl Rstrctd	0.00	8.70	0.00	0.00	0.00	8.62	0.00	0.00
2001	GPC	9.00	0.00	0.00	0.00	9.00	0.00	0.00	0.00
1997	Guilman-Amorim	21.88	0.00	0.00	33.53	21.88	0.00	0.00	33.53
1998	Icatu Equity	0.00	14.00	0.00	0.00	0.00	12.61	0.00	0.00
1999	Innova SA	13.75	5.00	0.00	35.00	13.75	5.00	0.00	35.00
1980/87/97	Ipiranga	23.62	0.00	0.00	39.75	23.62	0.00	0.00	39.75
1999	Itaberaba	0.00	5.34	0.00	0.00	0.00	5.34	0.00	0.00
2000/02	Itau-BBA	103.63	0.00	0.00	0.00	64.08	0.00	0.00	0.00
1999	JOSAPAR	7.57	0.00	7.00	0.00	2.57	0.00	7.00	0.00
1995	Lojas Americana	2.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00
1992/99	MBR	12.50	0.00	0.00	0.00	12.50	0.00	0.00	0.00
2002	Macae	45.25	0.00	10.00	37.50	45.25	0.00	10.00	37.50
2002	Microinvest	0.00	1.25	0.00	0.00	0.00	0.42	0.00	0.00
2002	Net Servicos	0.00	31.74	0.00	0.00	0.00	31.74	0.00	0.00
1994	Para Pigmentos	8.60	0.00	9.00	0.00	8.60	0.00	9.00	0.00
1996	Perdigao	4.38	0.00	0.00	0.00	4.38	0.00	0.00	0.00
1994/00/02	Portobello	0.00	1.15	0.00	0.00	0.00	1.15	0.00	0.00
2000	Puras	2.67	0.00	0.00	0.00	2.67	0.00	0.00	0.00
2003/04	Queiroz Galvao	0.60	0.00	0.00	0.00	0.08	0.00	0.00	0.00
	Randon Impl Part	3.73	0.00	3.00	0.00	3.73	0.00	3.00	0.00
1997/03	SP Alpargatas	30.00	0.00	0.00	0.00	15.00	0.00	0.00	0.00
1994/97	Sadia	6.37	0.00	4.00	40.43	6.37	0.00	4.00	40.43
2002/04	Salutia	0.00	0.08	0.00	0.00	0.00	0.08	0.00	0.00
1997	Samarco	6.30	0.00	0.00	0.00	6.30	0.00	0.00	0.00
1998	Saraiva	4.62	3.00	0.00	0.00	4.62	3.00	0.00	0.00
2003	Satipel	13.93	0.00	10.00	0.00	13.93	0.00	10.00	0.00
2000	Sepetiba	26.85	0.00	5.00	0.00	11.85	0.00	5.00	0.00
1999	Sudamerica	0.00	15.00	0.00	0.00	0.00	15.00	0.00	0.00
1990/91	Suzano Bahia Sul	0.00	0.53	0.00	0.00	0.00	0.53	0.00	0.00
2001	Synteko	16.71	0.00	0.00	0.00	16.71	0.00	0.00	0.00
1996	TIGRE	1.92	0.00	0.00	0.00	1.92	0.00	0.00	0.00
1998/04	Tecon Rio Grande	8.10	0.00	0.00	8.10	0.00	0.00	0.00	0.00
2001/03	Tecon Salvador	0.00	0.56	0.00	0.00	0.00	0.55	0.00	0.00
2002	UP Offshore	11.60	10.00	0.00	30.00	0.00	3.00	0.00	0.00
2002/04	Unibanco	20.00	0.00	0.00	0.00	14.80	0.00	0.00	0.00

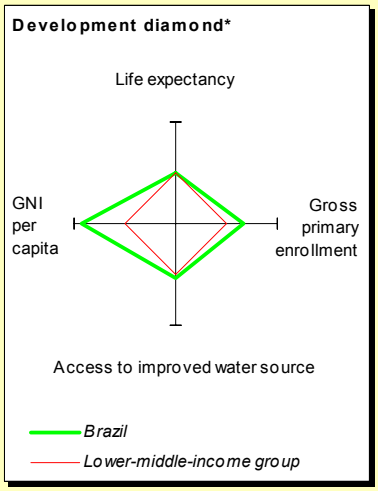
1999	Vulcabras	8.33	0.00	0.00	0.00	8.33	0.00	0.00	0.00
	Total portfilio:	661.59	162.50	151.50	354.54	476.54	133.86	133.20	283.94

		Approvals Pending Commitment			
FY Approval	Company	Loan	Equity	Quasi	Partic.
2005	ABN AMRO REAL	0.05	0.00	0.00	0.00
2000	BBA	0.01	0.00	0.00	0.00
2002	Banco Itau-BBA	0.00	0.00	0.00	0.10
1999	Cibrasec	0.00	0.01	0.00	0.00
2002	Net Servicos 2	0.05	0.00	0.00	0.00
2002	Suape ICT	0.01	0.00	0.00	0.00
2004	TermoFortaleza	0.06	0.00	0.01	0.11
2004	TriBanco Brazil	0.01	0.00	0.00	0.00
	Total pending committment:	0.19	0.01	0.01	0.21

Annex 14: Country at a Glance

Brazil: Integrated Management of Aquatic Resources in the Amazon Region - AquaBio

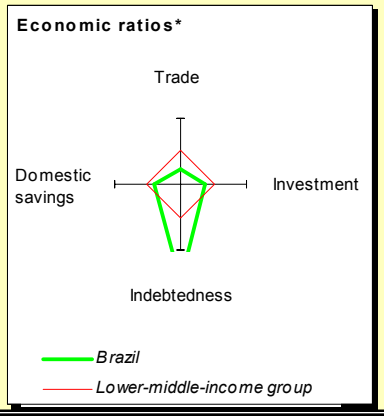
POVERTY and SOCIAL	Brazil	Latin America & Carib.	Lower-middle-income
2003			
Population, mid-year *(millions)*	176.6	534	2,655
GNI per capita *(Atlas method, US$)*	2,720	3,260	1,480
GNI *(Atlas method, US$ billions)*	479.5	1,741	3,934
Average annual growth, 1997-03			
Population *(%)*	1.3	1.5	0.9
Labor force *(%)*	1.6	2.1	1.2
Most recent estimate (latest year available, 1997-03)			
Poverty *(% of population below national poverty line)*	22	..	..
Urban population *(% of total population)*	83	77	50
Life expectancy at birth *(years)*	69	71	69
Infant mortality *(per 1,000 live births)*	33	28	32
Child malnutrition *(% of children under 5)*	6	..	11
Access to an improved water source *(% of population)*	87	86	81
Illiteracy *(% of population age 15+)*	14	11	10
Gross primary enrollment *(% of school-age population)*	148	129	112
Male	153	131	113
Female	144	126	111



KEY ECONOMIC RATIOS and LONG-TERM TRENDS

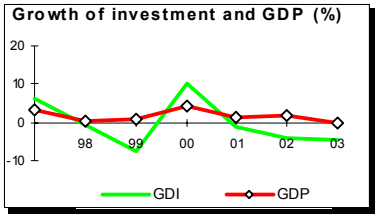
	1983	1993	2002	2003
GDP *(US$ billions)*	203.3	438.3	460.8	492.3
Gross domestic investment/GDP	16.7	20.8	19.8	20.1
Exports of goods and services/GDP	11.4	10.5	15.5	16.9
Gross domestic savings/GDP	19.1	22.3	21.8	23.8
Gross national savings/GDP	..	20.2	18.5	20.7
Current account balance/GDP	-3.4	-0.1	-1.6	0.8
Interest payments/GDP	3.9	0.6	2.9	2.7
Total debt/GDP	48.5	32.9	49.6	48.0
Total debt service/exports	54.7	24.4	70.3	65.1
Present value of debt/GDP	..	..	52.6	..
Present value of debt/exports	..	..	329.6	..

	1983-93	1993-03	2002	2003	2003-07
(average annual growth)					
GDP	2.4	2.3	1.9	-0.2	3.6
GDP per capita	0.6	1.0	0.7	-1.4	2.9



STRUCTURE of the ECONOMY

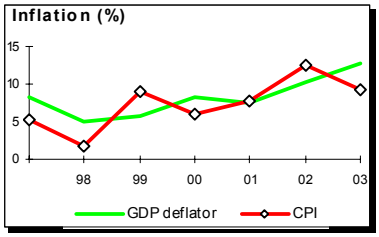
	1983	1993	2002	2003
(% of GDP)				
Agriculture	10.9	7.6	5.8	5.8
Industry	44.0	41.6	20.6	19.1
Manufacturing	33.2	25.0	12.4	11.4
Services	45.1	50.8	73.5	75.1
Private consumption	71.2	60.1	58.1	56.9
General government consumption	9.7	17.7	20.1	19.3
Imports of goods and services	9.0	9.1	13.4	13.1



	1983-93	1993-03	2002	2003
(average annual growth)				
Agriculture	2.4	3.9	5.0	5.5
Industry	1.2	1.8	2.6	-1.0
Manufacturing	0.0	1.4	1.4	2.7
Services	3.0	2.5	1.6	-0.2
Private consumption	0.8	1.9	-0.4	-3.3
General government consumption	6.4	2.0	1.0	11.6
Gross domestic investment	4.9	1.2	-4.3	-4.5
Imports of goods and services	5.9	4.0	-12.3	-1.9

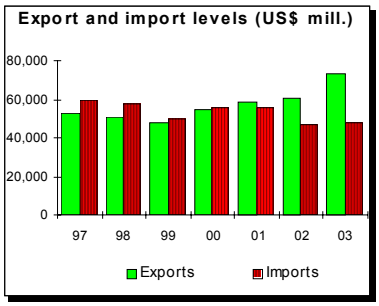
PRICES and GOVERNMENT FINANCE

	1983	1993	2002	2003
Domestic prices				
(% change)				
Consumer prices	135.0	1,928.0	12.5	9.3
Implicit GDP deflator	140.2	1,996.6	10.2	12.8
Government finance				
(% of GDP, includes current grants)				
Current revenue	..	..	23.9	23.7
Current budget balance	..	..	2.8	3.0
Overall surplus/deficit	..	..	..	..



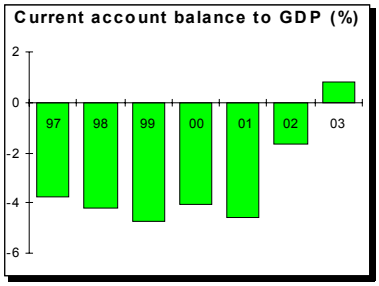
TRADE

	1983	1993	2002	2003
(US$ millions)				
Total exports (fob)	..	38,563	60,362	73,084
Coffee	..	2,466	3,049	3,456
Soybeans	..	3,074	3,032	4,290
Manufactures	..	25,935	33,000	39,653
Total imports (cif)	..	25,256	47,237	48,260
Food	..	1,089	1,085	924
Fuel and energy	..	2,139	6,240	6,577
Capital goods	..	8,369	11,643	10,348
Export price index *(1995=100)*	80	91	88	95
Import price index *(1995=100)*	57	67	91	90
Terms of trade *(1995=100)*	140	136	97	105



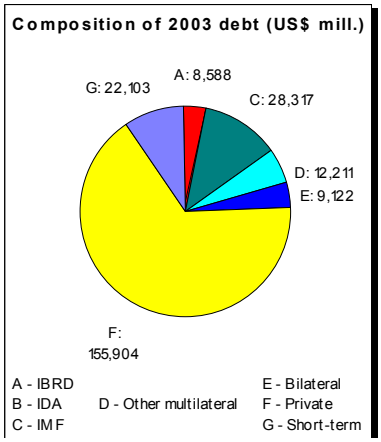
BALANCE of PAYMENTS

	1983	1993	2002	2003
(US$ millions)				
Exports of goods and services	23,611	41,616	69,913	83,567
Imports of goods and services	19,534	31,795	61,709	63,819
Resource balance	4,077	9,821	8,204	19,748
Net income	-11,022	-12,099	-18,191	-18,552
Net current transfers	108	1,686	2,390	2,867
Current account balance	-6,837	-592	-7,597	4,063
Financing items (net)	4,946	9,805	-6,003	-963
Changes in net reserves	1,891	-9,213	13,600	-3,100
Memo:				
Reserves including gold *(US$ millions)*	4,563	32,211	37,823	49,296
Conversion rate *(DEC, local/US$)*	2.10E-10	3.22E-2	2.9	3.1



EXTERNAL DEBT and RESOURCE FLOWS

	1983	1993	2002	2003
(US$ millions)				
Total debt outstanding and disbursed	98,525	144,104	228,662	236,245
IBRD	3,628	6,575	8,585	8,588
IDA	0	0	0	0
Total debt service	13,304	10,883	51,636	56,793
IBRD	507	1,858	1,518	2,010
IDA	0	0	0	0
Composition of net resource flows				
Official grants	16	59	0	..
Official creditors	1,576	-1,033	916	..
Private creditors	2,659	10,073	-9,541	233
Foreign direct investment	1,609	1,292	0	..
Portfolio equity	0	6,570	0	..
World Bank program				
Commitments	2,067	636	1,276	1,217
Disbursements	1,204	471	1,384	1,291
Principal repayments	270	1,279	1,063	1,633



Annex 15: Incremental Cost Analysis

Brazil: Integrated Management of Aquatic Resources in the Amazon Region - AquaBio

PROJECT OVERVIEW

The Project's development objective (DO) is to support the mainstreaming of a multi-stakeholder, integrated management approach to the conservation and sustainable use of freshwater biodiversity in public policies and programs in the Brazilian Amazon River Basin.

The project's global environmental objective (GEO) is to reduce threats to the integrity of freshwater ecosystems in the Brazilian Amazon, and assure the conservation and sustainable use of its freshwater biodiversity of global importance, especially through the generation and dissemination of experiences that promote the expansion and replication of integrated management of aquatic resources in the Amazon Basin over the long term.

The principal project outcomes and results would be: (i) institutional arrangements and processes established in three sub-basins of the Brazilian Amazon leading to the adoption of a new integrated management approach applied to priority issues and problems that affect the aquatic biodiversity, water resources, and living conditions of local communities; (ii) sectoral demonstration activities in support of integrated management of aquatic resources developed and tested in three sub-basins of the Brazilian Amazon, with positive impacts on aquatic biodiversity, on the reduction of conflicts among natural resources users, and on the improvement of living communities in local communities; (iii) greater operational and decision making capacity by institutions and civil society at the local, State, and Federal levels to support and implement integrated management; and (iv) institutional capacity strengthened to administer and coordinate actions in sub-basins, monitor impacts, and disseminate the experiences generated by the project.

To achieve those objectives and outcomes, the project would develop the following major activities:

- Development of participatory diagnostic analysis of aquatic resources issues in three demonstrative sub-basins (including two sub-basins characterized by clear water rivers/ecosystems – Xingu and Tocantins rivers, and one by black water rivers/ecosystems – Negro river), followed by the formulation of Action Programs for integrated management of aquatic resources (APs) in these sub-basins;
- Implementation of demonstration activities providing inputs for the development of the Action Programs;
- Support actions that lead to the implementation of institutional arrangements and processes for integrated management of aquatic resources, with key users of aquatic resources in target areas within the three project sub-basins (involving three states within the Brazilian Amazon);
- Development of a strategy leading to the financial sustainability of APs, with pilot financial mechanisms adopted by the end of the project;
- Systematization of experiences of integrated management of aquatic resources, and formulation of a proposal for institutional arrangements and processes for implementation of

integrated management at the level of the Brazilian Amazon, followed by discussions (PY5) with interested parties in the nine states (with inputs from experiences generated in the sub-basins);
- Training of multipliers and animators (leaders and technicians) in principles and practices of integrated management of aquatic resources;
- Development and implementation of an environmental education strategy, targeting aquatic resources users and decision makers at local, state and sub-national (i.e. Brazilian Amazon) levels;
- Support to community organizations and to the formation of partnerships with organizations dealing with the use of aquatic biodiversity and water resources in the project area;
- Strengthening of existing and/or creation of new fora (e.g. local committees, state councils) that facilitate social actors participation and provide continuity to the implementation of integrated management of aquatic resources;
- Training of local stakeholders (fishermen, rural producers, local politicians and local government staff, local NGOs, etc.);
- Project Management;
- Project Monitoring and Evaluation; and
- Project Information Dissemination.

The GEF Alternative would achieve these objectives at a total incremental cost of US$ 15.76 million excluding contingencies (US$ 17.13 million with contingencies), with a proposed GEF contribution of US$ 7.18 M (excluding Block B resources of US$ 0.218 million) and co-financing of US$ 9.95 million from the following sources: (i) the Brazilian Federal Government's own resources (US$ 6.98 million; US$ 2.25 million in-kind/salaries[12] and US$ 4.73 million in cash, with the latter corresponding to resources "earmarked" in the country's approved Multi-Year Plan – PPA); (ii) the World Bank (US$ 559,000) – from the existing National Environmental NEP II Project (WB loan BR-35741); (iii) State governments' own resources from the Governments of the States of Mato Grosso (US$ 397,200 - US$ 141,300 in cash and US$ 256,000 in salaries) and Amazonas (US$ 467,900 - US$ 354,500 in salaries/in-kind and US$ 113,000 in cash); (iv) Rain Forest Trust Fund – RFT/G-8 countries (US$ 1,46 million) – from the existing Ecological Corridors Project (Central Amazon corridor's component); and (v) resources from beneficiaries (US$ 79,000).

AQUATIC BIODIVERSITY ISSUES AND UNDERLYING CAUSES

The rivers of the Amazon Basin and their associated ecosystems are characterized by a rich diversity of freshwater fauna and flora of global importance, representing approximately 30% of the world's freshwater ichthyofauna, most of which is endemic. Although smaller, the numbers of amphibians, reptiles, and aquatic birds occurring in the Amazon Region are also highly significant in global terms. It is estimated that there are nearly 30,000 species of animals and plants, but the true number remains unknown due to the difficulty in completing inventories associated with problems of access and other logistical considerations.
Despite this wealth, the Amazon's aquatic ecosystems and their natural resources are suffering increasingly from a number of threats. These include:

[12] Staff salaries from the Ministry of Environment (MMA) and IBAMA (Headquarters and staff form Amazon and Pará states)

- direct use of aquatic resources at unsustainable levels through hunting (turtles, manatees) and fishing (commercial, aquarium trade, sport fisheries), leading to the over-exploitation of some species such as *tambaqui, piramutaba, filhote, tucunaré,* and *pirarucu*;
- deforestation for direct use of timber and implementation of agricultural and livestock activities;
- use of modern, mechanized agricultural techniques in soybean and cotton crops, leading to erosion/sedimentation from unsustainable land use and aquatic pollution from pesticides;
- extensive cattle raising on dry land (leading to soil erosion and sedimentation of water bodies), and use of floodplains (*várzeas*) for water buffalo raising (leading to destruction of important aquatic habitats);
- growing urbanization, with increased dumping of organic and solid waste (garbage) into waters, and increased demand for timber, fish, and other aquatic resources;
- changes in flood regimes and system connectivity through construction of infrastructures such as hydropower dams and navigation channels (waterways), which may lead to reduced biological productivity by altering floodplain inundation regimes and curtailing longitudinal and lateral connectivity in the system; construction of other infrastructure such as transmission lines, roads, gas pipelines and irrigation projects; and
- mining activities such as gold mining and extraction of sand and pebbles (leading to potential contamination of fish and increased sedimentation of water courses).

The traditional land/water use systems, adopted in the region some 2,000 years ago, utilizing the practice of rotating slash-and-burn and subsistence fishing, are considered environmentally sustainable when the population density is very low, as in the case of vast indigenous areas and other hard to reach areas, which allows the natural ecosystem to fully recover in the interval between the use of its resources. However, these traditional forms of using natural resources have been shown to be inadequate when the use of resources intensifies as a consequence of population growth.

The increase in the recorded number of local and regional conflicts over the use of aquatic resources (particularly fisheries) in the Amazon Basin is a clear indication that the intensive use of these resources has exceeded their levels of sustainability in some sub-basins, such as in the lower and middle Negro River, the lower Tocantins, and floodplain “lakes” in the Solimões/Amazon River channel.

Another difficulty to be faced is the extent and diversity of Amazon ecosystems, which limits the implementability of plans and policies if they are not adjusted reflect the local features of ecology, culture, and social organization. The aquatic ecosystems of nutrient-rich muddy water rivers (such as the main channel of the Amazon), and those of clear and black water rivers, characterized by the oligotrophic environments (nutrient-poor waters), need specific approaches to ensure the conservation and sustainable use of their aquatic resources.

At this time, the adoption of effective measures to resolve the above issues is jeopardized by a series of difficulties/barriers to the resolution of these problems. The principal barriers to the resolution of problems and conflicts over the use and management of aquatic biodiversity in the Amazon may be summarized in four major groups:

- lack of organization and institutional capacity at the basin, federal, state, and local levels to deal with these issues in a participatory and integrated manner, taking into account local environmental, cultural, and socioeconomic characteristics;
- barriers - particularly the lack of accessible systems for sharing existing information with resource users and other stakeholders - to the adoption of more sustainable harvesting practices of aquatic resources, and of appropriate land use practices that result in fewer negative impacts on freshwater ecosystems, while also generating economic benefits for local communities;
- absence of continuous monitoring and information systems that (a) track policy and institutional failures that may result in further degradation of freshwater biodiversity, and (b) improve the knowledge base about freshwater biodiversity and its ecology in the Brazilian Amazon, and about ecosystem responses to the intensification of natural resource use and other changes to the natural environment; and
- few or no opportunities and fora for discussion and decision-making related to the issues above, to educate stakeholders about user needs and reach consensus on implementable policies.

At the present time, any attempt to address the difficulties and barriers that affect both aquatic biodiversity and the living conditions of riverine communities along clear and blackwater tributaries, is at risk of being ineffective due to the absence of resources and management instruments that specifically support the implementation of such integrated water and aquatic resources management approaches.

BASELINE SCENARIO

Government Response to Biodiversity Threats

To address threats to biodiversity in the Amazon and particularly those associated with terrestrial ecosystems, the Brazilian Federal Government (GoB), in collaboration with State Governments and civil society and with support from the international community (particularly the G-8 countries), is implementing a number of initiatives. These interventions are focused mainly on conservation and sustainable use of the Amazon forest resources. The main program is the Pilot Program for the Conservation of the Brazilian Rainforest (hereafter called the Pilot Program), covering about 15 projects. One of these projects, the ProVárzea is the only initiative focused on aquatic resources. It covers the main channel of the Amazon/Solimões river (muddy water ecosystems) and includes concrete initiatives in support of conflict resolution over fishery resources and co-management. Many of the experiences and lessons gained from ProVárzea are also relevant to the other two types of aquatic ecosystems of the Amazon (i.e. clear and black water ecosystems). However, they are limited to fisheries resources and do not cover other components of aquatic biodiversity (e.g., turtles, manatees, etc). In addition, the geographic focus of ProVárzea is limited to nutrient-rich white water ecosystems, hence do not generate key experiences which are much needed for the oligotrophic/nutrient-poor “clear” and “black” waters.

For this reason, the GoB requested World Bank assistance to prepare the proposed Project, aiming at the reduction of the above-mentioned barriers which are impeding the resolution of problems and conflicts over the use and management of aquatic biodiversity in the Amazon, particularly in the "clear" and "black" water rivers. The proposed Project would capitalize on these and other baseline programs mentioned below, and support the achievement of incremental benefits related to these and other relevant programs which comprise the baseline scenario.

Methodology

The baseline estimate was based on the selection of ongoing and future programs based on their relevance to the objectives of the proposed Project and ability to play a catalytic role, facilitating stakeholder involvement, and internalizing aquatic biodiversity considerations into economic sectors, development models, policies and programs. Once identified, the baseline programs were evaluated in relation to AquaBio's components (see Table 1 below). Only those components of the previously identified baseline programs relevant to AquaBio's components were assessed and included as part of the baseline. All projects/programs identified are or would be implemented by public institutions and/or national NGOs with experience in environmental management and/or sustainable development. The identified sources of financing include public resources and bi- and multi-lateral financing.

The relevant baseline projects listed by component are:

Component 1. Planning and Public Policies: Under the baseline scenario, the Ecological Corridors, ProManejo, PDA, SPRN, AMA, BRAMAB II, and ARPA projects (see Table 1 below) involve planning and public policy actions that generate significant benefits for the protection of the Amazon's natural resources, including forestry management, environmental enforcement, and expansion and strengthening of conservation units. Specifically, the Ecological Corridors Project in the Central Amazon adopts an important territorial approach to coordinate actions aimed at conserving the Amazon biome. ProVárzea supports white-water rivers but does not include activities in clear or black water ecosystems. It works with an emphasis on fishery resources but does not encompass other components of aquatic biodiversity.

Component 2. Demonstration Activities: Various baseline programs (especially PROECOTUR, PD/A, and ProManejo) support investments in the productive sectors of tourism and forests, and ProVárzea supports promising initiatives for sustainable fishing in the floodplains of the Solimões and Amazon Rivers. However, as previously mentioned, they focus on conservation of forest/terrestrial ecosystems and white-water river floodplains.

Component 3. Building Capacity: Under the baseline scenario, most of the above-mentioned programs carry out training and environmental education activities on the subjects of forestry management, environmental enforcement, and conservation units. However, they do not include training that strengthens or develops technical and institutional knowledge and integrated participatory management in the area of sustainable use and management of aquatic biodiversity.

Component 4. Project Management, M&E, and Information Dissemination: Under the baseline scenario, the Brazilian Government finances the implementation of a project Physical and Financial Monitoring System (SIGMA) which ensures the availability of information on

physical and financial execution. The National Water Agency (ANA) maintains a water monitoring network in all sub-basins of the Amazon, including the project's three sub-basins, with measurements of water quality in part of the collection stations. The Brazilian Environmental Management Institute (IBAMA) and the State Governments operate their programs for environmental enforcement and control of activities that may potentially degrade the basin's natural resources. Through the ProVárzea project, IBAMA monitors fishing (unloading of fish) and operates a pilot environmental information system (two municipalities), including soil and water use in the Solimões/Amazon Rivers. However, with the exception of some studies and research carried out on an ad hoc basis, there are no standardized methodologies for aquatic monitoring nor basic information on the status and trends of aquatic biodiversity in the Brazilian Amazon, in order to make environmental management decisions based on solid results of environmental monitoring.

Table 1. Baseline Activities by Project Component

Baseline Projects	Source of Funding	Proposed Project Components			
		Plans and Public Policies	Demonstration Activities	Capacity Building and Environmental Education	Project Mgmt, M&E, Info Dissemination
Floodplain Res. Mgmt Project (ProVárzea – Rain Forest Program	RTF(1), DFID, KfW	X	X	X	X
Ecological Corridors Project	RTF(1)	X	-	X	X
Amazon Region Protected Areas Project - ARPA (2)	GEF (2), KfW	X	-	X	-
Sustainable Fishery Resources Program	GOB treasury	-	-	-	X
Fisheries Licencing Program	GOB treas.	X	-	-	-
Water Monitoring Program	GOB treasury	-	-	-	X
Program for the Development of Ecotourism in the Amazon – PROECOTUR	IDB, GOB treasury	-	X	X	-
Demonstration Projects	KfW, GOB treas.	-	X	X	-
National Environmental Education Program – PNEA	GOB treas.	-	-	X	-
Consolidation of Brazilian Biosphere Reserves - BRAMAB II	GOB treas.	X	-	-	-
Consolidation of Natural Heritage sites in Brazil	UNFIP, GOB treas.	X	-	-	-
Natural Res. Policy Project - SPRN	RFT, KfW, EU	X	-	-	X
Apoio ao Monitoramento e Análise - AMA/PPG7	RFT, UNFIP, GOB treas.	X	-	-	-
Forest Res. Mgmt. Project – ProManejo	DFID, KfW, GOB treas.	X	X	-	-
Support to Extrativist Reserves RESEX II	GOB treasury	-	X	X	-
Environmental Management and Sust. Develp. in the Amazon	Dutch Gov, GOB treasury	X	-	-	-

(1) RFT: *Rain Forest Trust Fund* (financed by Governments of Germany, UK, USA, France, Italy, Japan and Canada, and European Union).

(2) Activities financed by the Global Environmental Facility are mentioned in this analysis to indicate the full extent of activities underway in the region; nonetheless, they are not considered as part of financing of the Baseline Scenario. It is the case of the ARPA Project (GEF-funded) which was considered as baseline but was not considered for baseline cost estimation.
(3) UNFIP: *United Nations Fund for International Partnerships.*

Baseline Costs

In the absence of additional GEF financing, the implementation of the above-mentioned programs/projects would make a small contribution towards achieving the project's objectives. The estimated costs of baseline activities listed in Table 1 above total US$33.8 million (see Incremental Cost Matrix at the end of this Annex). Sources of financing vary and include government resources as well as funds from bi- and multi-lateral organizations, especially those that finance the Pilot Program for the Protection of the Brazilian Rainforest. The Government/public contribution to the baseline is utilized principally to cover staff salaries (licensing, monitoring, environmental enforcement activities), training of technicians, operational costs, and activities to raise public awareness. The remainder is financed by external sources (World Bank, IDB, KfW, RFT, EU, and the private sector).

Baseline Benefits and Incremental Reasoning

The activities foreseen in the baseline scenario would mostly produce national benefits in the form of sustainable development and adequate use of natural resources. Its implementation would provide: (i) greater representation of Amazonian ecosystems in the National Conservation Unit System (SNUC); (ii) better monitoring and environmental enforcement of the Amazon Rainforest (iii) greater (albeit limited) awareness by the population of the importance of the Amazon's natural resources, especially its land resources; and (iv) economic alternatives for the sustainable use of the Solimões/Amazon River floodplains and of the Amazon's forest resources. The training provided by baseline initiatives is focused on improving the environmental conditions, management, and conservation of forest areas, but it does not contribute to a better understanding of threats to aquatic biodiversity and of the origin of aquatic resource degradation problems as a national and global environmental issue. The baseline includes some introductory measures aimed at the restoration and conservation of floodplains of the Solimões/Amazon Rivers (nutrient-rich white waters), but it does not call for actions that work specifically with critical situations in oligotrophic environments (black and clear water rivers), where the challenge of the sustainable use of biodiversity is even greater. These environments require different alternatives and proposals for the conservation and sustainable use of their aquatic resources. Of equal significance, the baseline does not include the inter-sectoral coordination of planning and implementation needed to ensure that aquatic biodiversity objectives are incorporated in sectoral plans and programs including contributing toward maintaining the functions and services of the Amazon's aquatic ecosystems. Finally, it should also be mentioned that the baseline does not ensure access to and sharing of information, both inside and outside the project area, particularly in the other South American countries of the larger Amazon basin.

In summary, the baseline scenario's contribution to addressing threats to aquatic biodiversity is limited to fisheries resources and does not cover other components of aquatic biodiversity under pressure (e.g. turtles, manatees). As previously mentioned, although important for improving fishery resource management in muddy water rivers, the baseline does not support actions in clear (e.g., Xingu and Tocantins) and black (Negro River) water rivers, characterized by the

oligotrophy of the aquatic environment. It is therefore necessary and urgent to generate different alternatives and proposals for the conservation and sustainable use of these oligotrophic aquatic resources which are threatened by hunting and fishing and by land use activities unsuited to the maintenance of their integrity and structure.

Moreover, there is a need to develop demonstration activities and guidelines that could lead to permanent public policies in support of the conservation and sustainable use of aquatic biodiversity. To be effective, such policies and their respective action programs should encompass an adequate spatial scale, preferably considering water boundaries (such as sub-basins or parts thereof) and the municipalities included in them, and should have well defined political, institutional, and financial arrangements that may be effectively assumed by different actors of society – state, mayors' offices, private enterprises, rural landowners, and non-governmental organizations. Thus, the proposed Project represents a fundamental step, designed to complement initiatives already developed in the Amazon, especially the ProVárzea and Ecological Corridors Projects, mainly through facilitating the development of integrated management models that reduce threats to the Amazon's globally important aquatic biodiversity and, at the same time, are replicable in other areas or sub-basins of the region.

GEF ALTERNATIVE

The GEF Alternative would provide support to the long-term restoration of important Amazonian aquatic ecosystems, clear and black water, through the removal of barriers that impede the resolution of problems and conflicts over the use and management of aquatic biodiversity and water resources in the Amazon. The financing of incremental costs associated with the protection of these ecosystems would expand the baseline scenario by: (i) developing the necessary conditions to support the implementation of integrated actions for the management and sustainable use of the Amazon's aquatic resources, removing barriers and generating public policies so that the objectives of aquatic biodiversity are incorporated in the various productive/economic sectors; (ii) testing and implementing practices to demonstrate the management and sustainable use of aquatic resources and soil use practices compatible with the functioning and integrity of aquatic resources; (iii) strengthening institutional and community capacity to address land degradation issues and increasing public awareness of the importance of aquatic biodiversity and its sustainable use; and (iv) improving institutional capacity to coordinate inter-sectoral interventions and monitor project impacts and results, and disseminate them throughout the Amazon basin, within and outside Brazil.

Costs

The total cost of the GEF Alternative, including the cost of the baseline scenario (US$33.8 M), is estimated at US$50.93 M (*GEF financing: US$7.18 M*), detailed as follows: (a) US$15.71 M (*GEF financing: US$1.06 M*) for the development of policies and plans for the integrated management of aquatic resources (Component 1); (b) US$12.71 M (*GEF financing: US$1.78 M*) to support the implementation of demonstration activities in support of integrated management of aquatic resources (Component 2); (c) US$7.9 M (*GEF financing: US$2.56 M*) for environmental education, mobilization of society, and training (Component 3); and (d) US$14.61 M (*GEF financing: US$1.77 M*) to support project management (*GEF: US$0.87 M*), monitoring and

evaluation (*GEF: US$0.65 M*), and dissemination of information (*GEF: US$0.25 M*) - Component 4.

Benefits

With the GEF Alternative, the GOB would be able to facilitate the adoption of the strategic actions necessary to implement integrated management of aquatic resources, whose goal is to internalize conservation and sustainable use of aquatic biodiversity into sustainable development policies and programs in three sub-basins. At the same time, the GEF Alternative would provide additional opportunities to improve the life and economic well-being of rural and riparian communities in these three sub-basins as a result of better community organization and understanding of the importance and sustainable use of aquatic resources. The benefits generated by this alternative approach involve both national and global benefits. National benefits would include sustainable development (and improved livelihoods) through: (i) the resolution of conflicts over the use of fishery resources; (ii) better, sustainable management of aquatic resources; (iii) greater soil productivity in agricultural lands that presently suffer from erosion and cause sedimentation of aquatic ecosystems; (iv) new opportunities for income generation that reduce pressure on aquatic resources; and (v) the production of environmental services associated with riparian forest recovery and conservation of overexploited aquatic species such as *tambaqui, piramutaba, filhote* and *pirarucu* (see complete list of national benefits in the Incremental Cost Matrix at the end of this Annex). Global benefits include: (i) strengthening of the Government to deal with threats and barriers to the protection of the Amazon's aquatic resources as a global environmental and sustainable development issue, and to comply with obligations stemming from the country's international commitments for the conservation and sustainable use of these resources; (ii) conservation and sustainable use of aquatic biodiversity in globally important ecosystems; (iii) greater scope and involvement of civil society and the private sector in the planning and management of the Amazon's aquatic resources; (iv) closer linking of aquatic resource conditions with development priority considerations; (v) improved understanding and appreciation for aquatic biodiversity and role of livelihood opportunities in ensuring its conservation and sustainable use; and (vi) development of sustainable aquatic management systems and generation and dissemination of lessons that could be adapted towards the conservation of freshwater biodiversity in other parts of the basin, including those occurring outside of Brazil. For more details on national and global benefits, see the IC matrix below.

Incremental Costs

The difference between the costs of the baseline scenario (US$33.8 M) and the GEF Alternative (US$50.93 M) is estimated at US$17.13 M. The Incremental Cost Matrix summarizes the baseline and incremental expenses during the project's six-year period. The co-financing of US$9.95 M of the incremental costs was mobilized as follows: (i) US$6.78 M from the Brazilian Government; (ii) US$0.56 M from the World Bank-financed NEP II Project (Loan BR-35741); (iii) US$1.46 M from the "Corridor Interstice" component of the Ecological Corridors Project, financed by the Rain Forest Trust; (iv) US$482,500 from the Government of the State of Mato Grosso; (v) US$586,000 from the Government of the State of Amazonas; and (vi) US$78,900 from AquaBio beneficiaries.

The total contribution requested from the GEF is US$7.18 M, detailed as follows: (i) US$1.23 M (*GEF financing: US$1.06 M*) for policies and plans for the integrated management of aquatic resources (Component 1); (ii) US$6.43 M (*GEF financing: US$1.78 M*) to support the implementation of demonstration activities in support of integrated management of aquatic resources (Component 2); (iii) US$3.67 M (*GEF financing: US$2.56 M*) for environmental education, mobilization of society, and training (Component 3); and (iv) US$5.90 M (*GEF financing: US$1.77 M*) to support project management (*GEF: US$0.87 M*), monitoring and evaluation (*GEF: US$0.65 M*), and dissemination of information (*GEF: US$0.25 M*) (Component 4). The above-mentioned GEF support would cover the incremental costs of technical assistance, consultancies, and services (US$3.0 M), environmental education, training, and workshops (US$1.54 M), grants to promote the adoption of demonstration activities (US$1.34 M), equipment and vehicles (US$0.21 M), and provisions for travel, monitoring, and field work (US$1.06 M).

Matrix 1. Incremental Cost Matrix

Component	Cost Category	US$ Million	Domestic Benefit	Global Benefit
Component 1 Planning and Public Policy	Baseline	14.47	Adoption of planning and public policies, though limited to a) terrestrial ecosystems; b) environmental licensing and enforcement; and c) to the expansion and strengthening of Protected Areas	Improved natural resource management of terrestrial ecosystems and, to a certain degree, floodplains; however, to date, attention has been limited to floodplains located in white-water rivers/ecosystems (i.e. the main channel of the Amazon river) and particularly to fishery resources management in those floodplains, not including other components of aquatic biodiversity.
	With GEF Alternative	15.71	Improved planning, institutional arrangements and processes for the establishment of Aquatic Resources Management, leading to the adoption of sustainable development and income generation opportunities.	Increased opportunities to conserve and sustainably use the Amazon's aquatic biodiversity resources through the development and the adoption of inter-sectoral policies and programmes, hence reducing threats to these aquatic resources
	Incremental	1.24	*Note: Consists of: GEF (US$ 1,06 M) and GOB (US$ 0,18 M) contributions*	
Component 2 Demonstration Activities	Baseline	6.28	Development of demonstration activities and investments to develop and adopt in forest management plans Conflict resolution over the use of fishery resources in white-water rivers	Limited global benefits, associated mainly to the conservation of forest/terrestrial biodiversity and white-water rivers floodplains
	With GEF Alternative	12.71	Same as above, though with inclusion local communities and NGOs developing experience in the sustainable use of aquatic resources for economic revenues Closer linking of aquatic resource conditions with development priority considerations Resolution of conflicts over the use of fishery resources in clear- and black-water rivers; greater soil productivity in agricultural lands that presently suffer from erosion and cause sedimentation of aquatic ecosystems; new opportunities for income generation that reduce pressure on aquatic resources; the production of environmental services associated with riparian forest recovery and conservation of overexploited aquatic species	Conservation and sustainable use of both terrestrial and aquatic biodiversity (including white-, clear- and black-water rivers), facilitating the adoption of appropriate practices for maintaining and restoring aquatic ecosystems Transition to more sustainable livelihoods by supporting opportunities for generating income while at the same time protecting aquatic biodiversity Broader participatory approach for sustainable aquatic resources management, including the adoption of best practices of land and/or water use for agricultural, fisheries and ecotourism.
	Incremental	6.43	*Note: Consists of: GEF (US$ 1.78 M);); GOB (US$ 1.47 M) and World Bank/RFT/GovMT/GovAM (US$ 3.08 M) contributions*	
Component 3 Building Capacity	Baseline	4.23	Increased awareness of environmental issues, concentrated on terrestrial ecosystems of the Amazon.	Awareness on the importance of forest protection and on terrestrial biodiversity conservation

Component	Cost Category	US$ Million	Domestic Benefit	Global Benefit
	With GEF Alternative	7.90	Improved knowledge of stakeholders (fishermen, rural producers, community persons, entrepreneurs, youngsters, women, decision-makers) on threats to aquatic biodiversity of the Amazon, mainstreaming conservation and sustainable use of aquatic biodiversity in their daily sectoral activities. Increased awareness of the ecological importance, and the economic and the socio-cultural aspects of the aquatic resources of the Amazon	Better understanding and appreciation for both terrestrial and aquatic biodiversity and role of livelihood opportunities in ensuring its conservation and sustainable use; improved understanding of questions and constraints associated to degradation and over-exploitation of aquatic resources as a global environmental issue.
	Incremental	3.67	*Note: Consists of: GEF (US$ 2.56 M);) and GOB (US$ 1.10 M) contributions.*	
Component 4 Project Management, M&E, and Information Dissemination	Baseline	8.10	Improved institutional capacity to implement the legislation on natural resources. Limited water quality and quantity monitoring undertaken at the regional (i.e. Brazilian Amazon) and national levels	
	With GEF Alternative	14.61	Improved capacity to project management at local, regional and national level. Improved institutional capacity to implement the legislation on natural resources and, in particular, on aquatic resources. Monitoring and evaluation system in place and operational Development and dissemination of minimum information on aquatic biodiversity needed to improve the knowledge base on the Amazon biome's aquatic resources	Increased capacity to implement intersectoral and integrated approaches to aquatic resources management Monitoring and evaluation system incorporates global concerns into the existing M&E systems in place under baseline programmes Increased outreach and involvement of civil society and private sector in the planning and management of aquatic resources
	Incremental	5.80	*Note: Consists of: GEF (US$ 1.77 M) and GOB (US$ 4.03 M)*	
Total	Baseline	33.80		
	GEF Alternative	50.93		
	Incremental	17.3	*Note: Consists of: GEF de US$ 7.18 M; GOB US$ 6.78M; World Bank/PNMA US$ 0.56 M; RFT US$ 1.46 M; GoAM 0.586; GoMT US$ 0.482 M; and Beneficiaries US$ 0.079 M contributions*	

(*) Kindly note minor differences in totals are due to rounding error and the amounts include in contingencies.

Annex 16: STAP Roster Review

Brazil: Integrated Management of Aquatic Resources in the Amazon Region - AquaBio

STAP Expert Review and Project Team Response

STAP Reviewer: Thomas Lovejoy

Comments by STAP Reviewer

(a) Key Issues
The freshwater biodiversity of the Amazon basin (an estimated 3000 species of fish alone) is certainly of global importance and a project, which addresses the conservation, and sustainable management of this biodiversity is more than appropriate.

There is sufficient scientific and socio-economic as well as political (e.g. agencies) information for this to be a reliable and solid project. The three sub-basins chosen for the project offer a variety of different situations and have good information available.

Almost all the threats to the ecosystem are taken into account. The major exception is the threat of deforestation to the integrity of the overall hydrological cycle of the Amazon. This continues to be largely ignored, but I anticipate with the permanent and now strengthened Amazon Treaty (OTCA) Secretariat that this will be addressed separately. Major hydroelectric projects could threaten the project but the sub-basins chosen either have already (years ago in fact) had such projects (e.g. Tucurui), or are unlikely to have one built (i.e., the Rio Negro area energy supplies will come largely from natural gas in the foreseeable future). The involvement of Eletronorte in the project should ward off any possible conflicts.

***Team Response*:** Assessing and improving the readiness to address threats to the overall hydrological cycle of the Amazon basin as a whole is the focus of the UNEP/ACTO/OAS GEF Project, currently under preparation. The proposed AquaBio Project will also contribute to this objective through collaboration and coordination between the proposed AquaBio Project and that project (as presented in Table 2 of the Project Brief) and through project actions at the sub-basin level.

One possible threat is that of exotic and invasive species. It would be useful to have an analysis made of the topic including threats from aquaculture as well as from ballast water?

***Team Response*:** We agree that these are important points. Those two issues, especially the introduction of exotic species through aquaculture activities, will be addressed by the project through environmental education, training, and technical extension activities, for the various stakeholders. In addition, project support for the development and implementation a Freshwater Biodiversity Information System (SIBA) will allow for earlier detection of any problems related to exotic aquatic species in a timely manner. The fact that CONABIO will act as the project's Steering Committee will probably offer additional opportunities to address such issues on a national level, as well as other relevant ones that may surface during the project implementation period.

The aquarium fish trade is included as it should be? I believe it is a problem on the Rio Negro but if managed properly could be a source of sustainable development.

***Team Response*:** The aquarium fish trade is identified in the project proposal as an important issue to be addressed, and will be a central point in project activities in the Rio Negro basin. The management of access and sustainable use of ornamental fishing resources was identified as a priority theme for the Rio Negro basin in a project preparation workshop that took place in Brasilia, Nov 30-Dec 01, and reference is made to the issue in Annex 1 (socio-environmental Diagnostic) and Annex 4 (description of Component 2) to the Project Brief.

While the Amazon freshwater ecosystem as a whole can be threatened by inappropriate activities in any of the Amazon nations, some of the sub-basins are actually immune to those kind of threats. The Rio Negro is not, however, and as the document acknowledges there have been some fish kills attributed to fish poison use in Colombia. The issues of the larger basin will be addressed separately by a GEF/OTCA project.

***Team Response*:** Nevertheless, the dissemination of information component of the AquaBio will foster the exchange of information between stakeholders in the upper headwaters of the Rio Negro (outside Brazil) and those in the middle and lower Rio Negro basin.

Monitoring and indicators are well planned and chosen. No additional research is needed to carry out the objectives; any additional research could be supported by the science element of the Pilot Program for the Brazilian Rainforests.

While there already are some strictly protected areas in the sub-basins (e.g. Jau National Park), there could be the possibility that some additional ones should be gazetted incidental to this effort. Private protected areas may also contribute, as could community-managed areas. The latter could include areas which focus on sport-fishing/tourism. It is now well demonstrated that marine protected areas contribute importantly to healthy fisheries in adjacent waters; presumably the same should be the case for freshwaters.

Team Response: The *Amazon Region Protected Areas Project* (ARPA), currently under implementation, is supporting the creation of new protected areas, including the collection of biological, social, and economic data on the Brazilian Amazon for use in selecting the protected areas to be created. The Freshwater Biodiversity Information System (SIBA) to be developed and implemented under the AquaBio project will provide an additional source of information to allow for possible identification of currently unknown "hot spots" of freshwater biodiversity in the project area. In addition, the AquaBio will disseminate information to the various stakeholders on the importance and possible advantages of private protected areas and/or community-managed areas for the long term sustainability of aquatic resources in the Amazon, and such areas could be identified and supported by the stakeholders as part of project activities that support the development of Action Programs for integrated management of aquatic resources in the three sub-basins (see Project Brief, Annex 4, Component 1).

This project squarely addresses the major problem affecting freshwater biodiversity, namely the activities of local communities. Without that all other kinds of efforts (with the exception of protected areas sensu stricto) are likely to fail. The Amazonas State Sustainable Development Reserve at Mamiraua demonstrates quite clearly the potential for success in transforming local communities into stewards of the aquatic resources. Consequently the approach taken is essential for the long-term situation.

(b) Global Environmental Benefits/GEF goals

The freshwater biodiversity of the Amazon basin ranks without question as a high global conservation priority. Freshwater biodiversity tends to be neglected in conservation efforts even though it is affected by the entire array of human activities in a watershed. This is a classic GEF type of project.

(c) Regional Context

This project is complementary to the ProVarzea project of the Pilot Program on the main Solimões/Amazonas (muddy water) river.

(d) Replicability

There is every reason to anticipate that success in the three sub-basins will lead to replication in other parts of the Amazon drainage in Brazil and elsewhere. This project is well designed to lead to replication throughout the basin.

(e) Sustainability

As at Mamiraua, the success of the project will automatically lead to its sustainability through the obvious flow of benefits to the local community/stakeholders, so that global and local benefits continue. Nonetheless, it might be worthwhile to add a small element which would provide teaching materials on the aquatic biodiversity, the ecosystem and sustainable management for the local schools.

(f) Additional issues

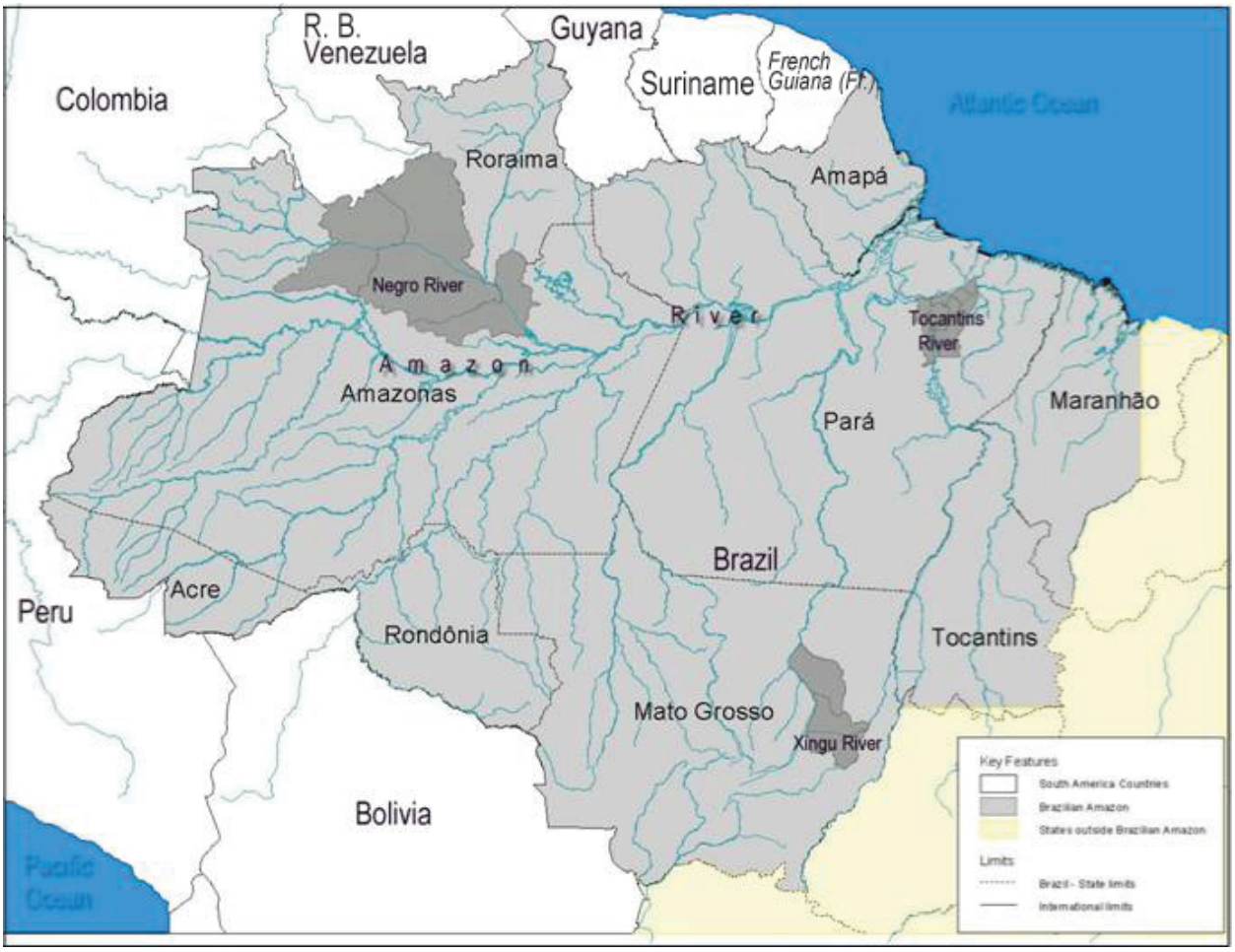
One important aspect of this project is that it will bring together a variety of agencies and stakeholders that do not normally work closely together. While this is a challenge, they all have agreed to be part of the project. If successful this should produce benefits far beyond the project itself.

Conclusion

This is a very solid project and very worthy of GEF support.

Annex 17: Map of the Project Area

Brazil: Integrated Management of Aquatic Resources in the Amazon Region - AquaBio



Obs: The darker areas in the map represent each of the three Project target areas, one in each Project sub-basin.