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GEF PROJECT BRIEF
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 BRAZILIAN AMAZON PROJECT (AQUABIO)

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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
APA	Environmental Protection Area
APNA	Novo Airão Fishers Association
APPs	Permanent Preservation Areas
ARPA	Amazon Region Protected Areas Project
AquaBio	Integrated Management of Aquatic Resources in the Brazilian Amazon Project
BRAMAB II	Brazilian Biosphere Reserves Consolidation II 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
CNPM	National Center of Satellite Monitoring Research – EMBRAPA
DCBIO	National of Biodiversity Conservation Program Directorate– MMA
DIFLOR	Forestry Directorate – MMA
ELETRONORTE	Northern Brazil Electric Energy Utility Company
EMPAER	Rural Extension and Research Company of Mato Grosso
FAO	UN Food and Agriculture Organization
FASE	Association of Organizations for Social and Educational Assistance
FEMA	State Environmental Foundation of Mato Grosso
FVA	<i>Vitória Amazônica</i> Foundation
GEF BA	Integrated and Sustainable Management of Transboundary Water Resources in the Amazon River Basin Project (GEF/UNEP ACTO Amazon project)
GIBRAH	Integrated Management Approach to the Conservation and Sustainable Use of Freshwater Biodiversity
GOB	Government of Brazil
GTA	Amazon Work 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
M&E	Monitoring and Evaluation System
MT	State of Mato Grosso
MOU	Memorandum of Understanding
NEP II	Brazil Second National Environmental Project (WB Loan 4524-BR)
NGO	Non-Governmental Organizations
NBP	National Biodiversity Policy
NFP	National Forest Program
OAS	Organization of American States
OEMA	State Environmental Agencies
ONGARA	Environmental Organization for the “Roncador Araguaia” Area
PA	State of Pará
PAG	Action Programs for GIBRAH
PD/A	Type A Demonstration Projects (under the Rain Forest Program)
PDO	Project Development Objective
PEPE	State Program of Strategic Preservation of Riparian Forests in the State of Mato Grosso
PIX	Xingu Indigenous Park
PMU	Project Management Unit
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 (or Rain Forest Program)	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
RFT	Rain Forest Trust Fund
SBF	MMA's Secretariat of Biodiversity and Forests – MMA
SCA	Coordinating Secretariat for the Amazon – MMA
SDS	Amazon State Secretariat of the Environment and Sustainable Development
SEAIN	Secretariat for International Affairs - MP
SIBA	Freshwater Biodiversity Information System
SIG	Geographic Information System
SIGMA	Environmental Administration Information System (MIS used by MMA)
SIPAM	Amazon Protection System
SIVAM	Amazon Surveillance System
SNUC	National System of Conservation Units
SPRN	Natural Resources Policy Project (under the Rain Forest Program)
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
UNFIP	The United Nations Fund for International Partnerships

Vice President:	Pamela Cox
Country Manager/Director:	Vinod Thomas
Sector Manager:	Abel Mejia
Task Team Leader:	Maria Isabel Junqueira Braga

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

Sector issues

The Amazon basin covers an area of approximately 7,000,000 km², of which about 58% (4,100,000 km²) 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.

There are three very distinct river types in 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 the river types, flood regimes, and a range of distinct riparian ecosystems and characteristics are responsible for a complex mosaic of aquatic habitats in the Brazilian Amazon. While some aquatic species may spend their whole life in only one aquatic habitat, most species use different parts of the basin during their life cycle, with the extreme being some species of catfish that migrate between the estuary and the basin's headwaters.

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 economic activities in the Basin. The unchecked development of such activities along the tributaries of the Amazon River affects water quality, biodiversity, and the availability of fish resources, and as a consequence threatens the quality of life of local populations, including riverine communities and indigenous groups, who depend on aquatic resources for food and/or income.

The Amazon's aquatic ecosystems, linked 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 from increased dumping of organic and solid waste into rivers from expanding urban areas and from activities such as mining; (iii) changes in land use in upland areas (deforestation, expanding cattle ranching, urbanization) resulting indirectly in greater sediment loads and contaminants such as fertilizers and pesticide from run-off; (iv) direct habitat conversion of riparian communities, again through agriculture and urbanization, and from expansion of water buffalo grazing in floodplains (*várzeas*); and (v) changes in flood and hydrological regimes through construction of infrastructure such as dams and navigation channels.

In addition to negative impacts on freshwater biodiversity, the consequences of such threats are the source of a growing number of conflicts among resource users, such as: fewer income generation opportunities available to riverine dwellers (*ribeirinhos*); reduced availability of jobs

in the boating industry due to overexploitation of timber used by the industry in the region; and impacts on the health and quality of life of local communities, especially indigenous groups, from water contamination from household and agricultural effluents or poorer nutrition (less protein) due to reduced availability of fish.

The Federal government, especially the Ministry of Environment (MMA), the Brazilian Institute for the Environment and Natural Resources (IBAMA), and some NGOs, have supported initiatives to address the issues above, mostly through isolated projects and activities focused on: (i) environmental education, (ii) improvement and strengthening of monitoring and law enforcement systems, (iii) capacity building for sustainable use of resources, and (iv) on-the-ground testing of co-management¹ of fisheries resources at the local level. Some successful experiences with co-management initiatives along the Solimões/Amazonas River have been supported by the ProVárzea and by the Mamirauá Sustainable Development Reserve, and initial data indicates positive results for the conservation of aquatic resources, especially fish.

Such projects have shown that threats can be countered locally and even threats originating from large-scale processes, such as land conversion and urbanization, can be mitigated through better policies, laws, and inter-institutional coordination. However, a series of **constraints** have made it difficult to effectively address the threats to the Amazon Basin. Firstly, public policies are not sufficiently developed and articulated across sectors to effectively address threats. Secondly, there is a lack of organizational and institutional capacity at the basin, state, and local levels to deal with these issues in a participatory and integrated manner. Thirdly, there is a lack of useful information that policy makers and resource managers need to make good decisions.

Brazilian authorities have developed an integrated management approach referred to as **GIBRAH** (from the Portuguese acronym for *Gestão Integrada da Biodiversidade Aquática e dos Recursos Hídricos*). GIBRAH recognizes that to overcome the constraints noted above, and effectively tackle or at least mitigate the principal threats to the aquatic biodiversity of the Amazon, a new long-term approach is needed that covers policies, capacity-building, information management, participatory and coordinated decision-making, and new options at the local level for more sustainable resource use.

The proposed GEF-financed project, called AquaBio, assists the Government of Brazil to put GIBRAH in place and would help to make it effective and sustainable. By bringing together diverse stakeholders, who all benefit from freshwater biodiversity resources while simultaneously impacting them, this new paradigm of integrated management in Brazil would slow threats to the Amazon, reverse them where possible in local areas, and prepare a new generation of decision-makers for the complex management needs of the next 50 years. It is still possible to ensure the survival of the most diverse complex of freshwater ecosystems in the world, but this cannot be realized only through isolated projects; it requires the integrated approach that would be supported by AquaBio.

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.

Country eligibility

Brazil ratified the Convention on Biological Diversity (CBD) on June 13, 1994.

Country drivenness

In Brazil, the National Biodiversity Policy or NBP (Federal Decree N° 4.339, dated 8/22/2002) establishes national principles embodied in the CBD, the Rio Declaration, and in the Federal Constitution. The Project is fully consistent with NBP guidelines as it (i) supports a decentralized, inter-sectoral approach to the management of aquatic ecosystems, and (ii) incorporates economic, social, cultural (traditional knowledge), and environmental dimensions in the formulation, and eventual implementation, of project supported action programs designed to address threats to biodiversity and resolution of conflicts over the use of aquatic resources.

The project would also contribute to implementation of the National Water Resources Policy (Law N° 9.433, dated 1/08/1997), which establishes the decentralization of water resources management by means of River Basin Committees, which have not yet been implemented in the Amazon. The proposed project has been designed to allow the Government of Brazil (GoB) to test such a decentralized approach to aquatic and water resources management in the context of the Amazon reality.

In addition, the project would work closely with the National Forests Program (created by Decree N° 3.420 on 4/ 20/2000, and modified by Decree N° 4.864 on 10/24/2003), particularly with regard to the restoration of degraded areas, with emphasis on those areas under permanent conservation or APPs (*áreas de preservação permanente*), in proximity to water springs and in riparian zones, essential for the maintenance of aquatic and terrestrial biodiversity, and of water quantity and quality.

2. Rationale for Bank involvement

The mainstreaming of environmental considerations in sector policies is a key element in the Bank's Environmental Strategy for the Latin America and the Caribbean Region (LAC). As a result, the Bank has considerable experience in: (i) facilitating dialogue for public policy discussion; (ii) facilitating coordination among various donors for parallel financing or co-financing of complementary activities; (iii) 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; and (iv) at country level, promoting dialogue and influencing sectoral adjustments and the preparation of policies in the medium and long terms.

As examples, mainstreaming of environment into sector policies is being supported in Brazil by a large new Programmatic Reform Loan for Environmental Sustainability with an associated Technical Assistance Loan. The process that resulted in the approval of the National Water Law and the preparation of the National Water Resources Policy (NWRP) also had Bank support. The World Bank-supported Pilot Program for the Brazilian Rain Forest has supported sector reforms and policy instruments for the Amazon through a wide variety of projects, investments, and policy dialogue. 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. 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.

With regards to specific projects of conservation and sustainable use of aquatic biodiversity, the Bank has financed a large number of relevant projects. In the Brazilian Amazon, the Bank supports projects aimed at the conservation and sustainable use of natural resources in the region, such as the ProVárzea, ProManejo, Ecological Corridors, and ARPA Projects, the latter with GEF financing. Outside Brazil, pertinent ongoing projects include the GEF-financed Conservation and Sustainable Use of the Mesoamerican Barrier Reef System (Caribbean and Central America), and the Aquatic Conservation Project (Bangladesh).

3. Higher level objectives to which the project contributes

The project implements a major pillar of the Bank's Regional Environment Strategy and is also consistent with the Bank's and Brazil's Country Assistance Strategy (CAS), and would contribute 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.

Fit to GEF Operational Programs and Priority Strategies

The project is consistent with GEF's Biodiversity Focal Area as it supports the conservation and sustainable use of biodiversity in the long term. Specifically, it is consistent with the Operational Program for Coastal, Marine, and Freshwater Ecosystems (OP2), because it promotes and supports the conservation and sustainable use of the Amazon's freshwater biodiversity.

The project is fully consistent with GEF Strategic Priority #2 for the Biodiversity Focal Area (Mainstreaming Biodiversity in Production Landscapes and Sectors) and the GEF strategic approach for the Biodiversity Focal Area in FY04-06, since 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.

The project is also relevant to the Operational Program for Integrated Land and Water Multiple Focal Area (OP9), since one of its objectives is the promotion of more sustainable land practices (with emphasis on riparian zones) in support of long-term conservation of water and aquatic resources in the Amazon, especially in the upper Xingu River Basin and the lower Tocantins River floodplains.

B. PROJECT DESCRIPTION

1. Lending instrument

The project would be partially financed by a full-size GEF grant, with co-financing resources from the following sources (see also the detailed table in Annex 5): (i) GoB (salaries and resources as programmed in the Government's multi-annual budget plan - PPA); (ii) resources already committed to the National Environment Program II (phase 1), with Bank financing; (iii) resources from two State Governments (Gov. of Mato Grosso - counterpart salaries and cash, the latter associated with the implementation of the PEPE/MT; Gov. of Amazonas - counterpart salaries and cash, the latter associated with the Tarumã Project); (iv) resources already committed to the Ecological Corridors Project (re-directed baseline), with financing from the Rain Forest Trust Fund (RFT/donors), Gov. of Amazonas, and local partners (NGOs); and (v) resources from beneficiaries.

2. Project development objective and key indicators

The **Project Development Objective (PDO)** is to support the mainstreaming of a multi-stakeholder, integrated management approach to the conservation and sustainable use of freshwater biodiversity (GIBRAH) 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 implementation of GIBRAH in the whole Amazon 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.

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

- A proposal regarding institutional arrangements and processes for GIBRAH developed, tested, and agreed on in participating States (3), and discussed with the other States (6) of the Brazilian Amazon by PY06;
- Action programs for GIBRAH (PAGs) under implementation in three Project Impact Areas, covering an area of about 290,845 km² within three river basins (1,950,000 km²), with participation of natural resource user sectors at local, state, and federal levels by PY06;
- 32,941 km² of freshwater productive landscapes, including associated floodplains and riparian areas, under improved management, with positive impacts on freshwater biodiversity.

3. Project components

The project objectives would be achieved by supporting the implementation of GIBRAH, at first in three pilot areas, but eventually in all of the Brazilian Amazon. Four components have been

identified. Note that more detailed descriptions, including sub-components, outcomes, and target groups, are in Annex 4.

Component 1: Planning and Public Policy (Total: US\$1.24 million, GEF US\$1.06 million).

Under this component, the project would first implement GIBRAH in three sub-basins, tackling the institutional, planning, and public policy constraints to effective programs of freshwater biodiversity conservation and ecosystem management. These three pilot programs would be called PAGs, from the Portuguese acronym for *Programa de Ação para GIBRAH*. These would be used as a platform to expand GIBRAH through the other states of the Brazilian Amazon and finally, the component would develop and implement long-term strategies for sustaining the momentum of GIBRAH after the GEF project ends.

Component 2: Demonstration Activities (Total: US\$6.43 million, GEF US\$1.78 million).

The aim of this component is to pilot new technologies or production systems incorporating freshwater biodiversity concerns into productive activities, providing concrete examples and inputs for the development of the PAGs. The component would support adaptive productive systems and technologies that eliminate or reduce negative impacts on freshwater ecosystems. The component would contribute to 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 adopted more sustainable production systems and technologies.

Component 3: Building Capacity (Total: US\$3.67 million, GEF US\$2.56 million)

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 includes environmental education activities and formation of partnerships crucial to the long-term success of GIBRAH.

Component 4: Project Management, Monitoring and Evaluation (M&E), and Information Dissemination (Total: US\$5.80 million, GEF US\$1.77 million).

The objectives of this last component are to coordinate, manage, and monitor actions developed under the scope of the project, and to foster integration among the various components, as well as with other related projects and programs, to indicate the possible need for changes in project development, and to disseminate results at local, state, regional (Brazilian Amazon), national and international levels. Notably it includes the development of project physical-financial monitoring system and an information system on aquatic biodiversity (SIBA). The development of the latter would benefit from the GEF-financed Inter-American Biodiversity Information Network (IABIN) initiative which helps the countries of the Americas develop inter-operable information systems consistent with emerging hemispheric and global information standards.

4. Lessons learned and reflected in the 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, and NRPP). Moreover, the 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:

- 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;
- 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;
- 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
- 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.

In this situation, experience from other 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).

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 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 main coordination aspects between AquaBio and this transboundary project are presented on Section C.2.

The option of including a specific component to support research in the project area was also considered. This option was rejected since the second phase of the Pilot Program's Science and Technology Sub-Program, in the amount of US\$5.8 million, is currently being negotiated. That project will finance scientific and technological research in any part of the Brazilian Amazon, with a special focus on: (i) integrated management of terrestrial ecosystems and restoration of degraded lands (forest theme), and (ii) integrated management of watersheds and their aquatic ecosystems (water theme).

Another alternative considered would have been 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 GIBRAH to increase knowledge and institutional capacity 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. Partnership arrangements

The project's design and implementation strategy is based on the establishment of several informal and formal partnerships, the latter reflected in letters from respective authorities such as the Brazilian Institute for the Environment and Natural Resources – IBAMA, the Government of the State of Amazonas, represented by the Secretariat of Sustainable Development (SDS), and the Government of the State of Mato Grosso, represented by the State Environmental Foundation – FEMA. It should be noted that, during the implementation of project activities, other partnerships would be formed at the federal, state, and municipal levels.

In addition, project resources provided through IBAMA co-financing would provide for the direct involvement of ProVárzea's technical and managerial staff, whose accumulated experience in the fields of administration, finance, and conflict resolution among users of fish resources would facilitate a more streamlined and efficient approach to project execution.

Partnerships with other projects under execution in AquaBio's areas of intervention, such as Ecological Corridors (MMA), PEPE (Government of Mato Grosso), PROAMBIENTE (MMA), PPG7 Science and Technology Sub-Program (MCT), and PPDS-JUS (Eletronorte), would be discussed and agreed to prior to CEO Endorsement.

Non-governmental organizations and academic and scientific institutions identified in project preparation may, through agreements or contracts with executing organizations, develop or support actions related to demonstration activities, training, and monitoring of the status and quality of aquatic biodiversity and water resources. Users of natural resources and their organizations have been, and will continue to be essential partners throughout the project cycle, especially with regard to actions related to demonstration activities, training, and participatory monitoring of the status and quality of aquatic biodiversity and water resources.

The collaboration with the Brazilian National Water Agency (ANA) merits special attention. Its final terms and scope would be established by the time of project appraisal and would include,

among others, participation in activities aimed at the establishment of Resource Management Committees to monitor the status and quality of water resources and to formulate environmentally friendly policies for water resources use, developed to reduce impacts on aquatic biodiversity.

2. Institutional and implementation arrangements

During the final stages of project preparation and appraisal, the implementation arrangements are subject to change as new stakeholders become interested in project activities and implementation of GIBRAH. As an example, one result of the public consultation held March 5-6 in Abaetetuba, Pará, was the decision by the Secretaries of Environment of nine municipalities in the project impact area, to constitute a Forum to start discussing environmental issues as a group, focusing on the area as a whole as opposed to the current situation where each municipality is working in an isolated way. The project's institutional structure at the federal level would be mirrored at the lower levels of project implementation. In each sub-basin (state level), and at each project target area (municipal level), there would be an advisory body and an executive unit.

Project management structure

The project would be coordinated by the Ministry of Environment (MMA), through the Secretariat of Biodiversity and Forests (SBF). The National Biodiversity Commission (CONABIO²) 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 impact areas are located. In relation to project implementation, CONABIO would: (i) analyze and approve the Annual Operational Plans (POAs); (ii) participate in project evaluation; (iii) support the identification and monitor the implementation of measures to correct problems identified during project implementation; and (iv) foster the incorporation of experiences and lessons learned generated by the project into national public policy, especially sectoral ones. Specific Terms of Reference and a Memorandum of Understanding (MOU) describing CONABIO's role in the Project would be completed by the time of appraisal. Details about CONABIO's national mandate can be found in Annex 6.

There would be an Advisory Body for each sub-basin, with duties related to: (a) evaluating sub-basin Annual Operating Plans (POAs), monitoring project execution, and suggesting necessary adjustments; (b) supporting project implementation through inter-institutional coordination; and (c) mediating possible conflicts between or among groups of stakeholders. Each sub-basin Advisory Body would have a maximum of 10 members, selected to represent state agencies with attributes related to the objectives of the proposed project, representatives of academia and research institutions, and one representative of the project target area Advisory Body. When

² 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.

necessary, the sub-basin Advisory Bodies would have the support of consultants hired by the project, to advise on specific issues requiring expert opinion.

At the local level, the Advisory Body would be constituted by representatives of existing local institutions and organizations and, whenever possible, this function would be performed in the context of existing municipal development committees or other similar institutional structures. The local level Advisory Body would follow and monitor the implementation of project activities, and would serve as a vehicle for mainstreaming project experiences and lessons into municipal planning and public policy.

Project execution structure

Executing Units would utilize existing managerial, technical, and administrative structures, and would assign specific technical staff to take on the responsibility for implementation of project activities.

The Project Management Unit (PMU) would be housed in SBF, within the National Biodiversity Conservation Program – DCBIO, with the following responsibilities: managing project execution; executing components 1 and 4; managing financial resources; reporting on the application of resources and results achieved; preparing management reports for the Secretary of Biodiversity and Forests, CONABIO, and other lead agencies; promoting institutional linkages; and monitoring, evaluating, and disseminating project results.

IBAMA was selected as the sub-basin project executing unit for the Negro (State of Amazonas) and Tocantins (State of Pará) sub-basins, in order to take advantage of the existing structure and institutional capacity, acquired through years of implementation of the ProVárzea. In Mato Grosso, where the ProVárzea does not operate, FEMA would act as the sub-basin project executing unit, with the support of State Rural Extension Unit (EMPAER) for implementation of demonstrative activities. These institutional arrangements, building on existing institutional and technical expertise, would foster a more efficient, less expensive, and faster implementation of AquaBio, with project management teams knowledgeable and experienced in issues related to the management of floodplain resources, including fish.

As needed, convenient, and timely, project executing agencies would make agreements with NGOs, universities, and research institutes operating locally for the execution of all or part of the planned actions under their responsibility. Some potential partners identified to date are, in the Negro River sub-basin – FVA, INPA, IPÊ; in the Xingu sub-basin – ISA, ONGARA, UNEMAT; and in the Tocantins sub-basin – FASE, IPAM, UFPA.

For details on project implementation arrangements, including the proposed organizational chart, see Annex 6.

3. 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 PMU; (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 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 PMU 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.

4. Sustainability and Replicability

AquaBio is intended to promote a new way of doing business in the Amazon: new approaches to policies, partnerships, training, institutions, and collaboration. GIBRAH 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. The AquaBio project is therefore focused on the long-term institutional sustainability of GIBRAH. Financial sustainability is a concern for the specific local projects and initiatives that AquaBio would support.

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. 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.

The Project's main interventions that contribute 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.

It is important to note that IBAMA is already planning to establish a field office in Manaus (in the lower Rio Negro) of the Fisheries Research and Management Center of the Northern Region – CEPNOR, currently headquartered in the coastal city of Belém. This new unit in Manaus would focus exclusively on inland fisheries in the Amazon Basin, integrating the efforts and experiences of both the ProVárzea and AquaBio Projects, and would be the first step towards the formation of a new Fisheries Resource Management Center for the Amazon Basin.

Financial sustainability: Subcomponent 1.3 would develop and implement a financial sustainability strategy to support the execution of selected activities under the PAGs, 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);

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.

5. Critical risks and possible controversial aspects

Risks	Risk Mitigation Measures	Risk with Mitigation
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Important actors at federal level (ANA, Ministry of National Integration, etc.) and state governments do not become actively involved in GIBRAH's local and regional activities.	Ongoing awareness, mobilization, and training of these actors throughout project implementation.	S
Difficulty for local communities and indigenous groups 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
Project implementation takes place in a heterogeneous and independent manner in the three sub-basins, making it difficult to systematize GIBRAH proposals that are relevant to other areas of the basin.	MMA's National Coordination Unit monitors project implementation and offers support needed to resolve specific local issues.	S
MMA/IBAMA and state/municipal governments with insufficient institutional capacity to manage the project.	In the three sub-basins, project implementation would be coordinated by existing structures with proven administrative capacity for projects such as AquaBio (ProVárzea in AM and PA; FEMA's Special Project Advisory Bureau in MT).	M
Riverine and indigenous communities are not fully included in discussions regarding GIBRAH.	The project's strategy calls for specific actions for this target population, aimed at strengthening their local organizations and their capacity for participatory management.	M
Cofinanced activities are not carried out at the expected pace.	The project would work with co-financiers to identify and disseminate the benefits of synergy among activities, and support them in seeking solutions to specific problems.	M
Financial sustainability strategy for project activities does not show expected results.	Emphasis on: (i) seeking financial alternatives that reflect the reality of demonstration areas; (ii) making operational the potential sources of financing for project actions in these areas; and (iii) ensuring the continuity of political and financial support commitments assumed during the project, including continuity of key project staff.	M

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

The project has no aspects that may be controversial or result in any risk to the Bank.

6. Loan/credit conditions and covenants

No unusual contractual clauses or conditions are foreseen for project negotiations, effectiveness, or implementation.

D. APPRAISAL SUMMARY³

1. Economic and financial analyses

Project 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 Impact 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 PMU 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 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.

Summary of incremental cost analysis

See the full Incremental Cost Analysis in Annex 10. In the absence of additional GEF financing, the implementation of the on-going and planned programs/projects of the Brazilian Amazon would somewhat contribute to the project's development and global objectives. The activities foreseen in the baseline scenario would mostly produce national benefits in the form of sustainable development and adequate use of natural resources. The proposed project would support the attainment of the project's development and global objectives through integrated planning and management of aquatic resources in three demonstrative sub-basins of the Brazilian Amazon, in order to address threats and barriers to the sustainable management of aquatic resources. With the proposed project, the Brazilian Government would be able to facilitate, in three sub-basins, the adoption of strategic actions to implement the Integrated Management of Aquatic Resources (GIBRAH), by which the objectives of conservation and sustainable use of aquatic biodiversity are internalized in sustainable development policies and programs for these sub-basins. Simultaneously, the project would provide additional opportunities to improve the

³ By agreement, all World Bank submissions for Work Program entry are pre-appraisal documents.

life and economic well-being of rural and riparian communities in these three sub-basins, as a result of strengthening of the local organizations of fishermen and rural communities and improved understanding by these communities of the importance of sustainable use of aquatic resources. The benefits generated by this alternative approach involve both national and global benefits.

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 (Annex 10) summarizes the baseline and incremental expenses during the project's six-year period. A grant of US\$7.18 M is requested from the GEF. The co-financing of US\$9.95 M of the incremental costs was mobilized as follows: (a) US\$6.78 M from the Brazilian Government; (b) US\$0.56 M from the World Bank-financed NEP II Project (Loan BR-35741); (c) US\$1.46 M from the "Corridor Interstice" component of the Ecological Corridors Project, financed by the Rain Forest Trust; (d) US\$482,500 from the Government of the State of Mato Grosso; (e) US\$586,000 from the Government of the State of Amazonas; and (f) US\$78,900 from AquaBio beneficiaries.

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 (GIBRAH), 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

Not applicable at GEF Work Program Inclusion.

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, and in a demand from government and civil society to establish participatory processes for decision-making related to (i) the resolution of such conflicts, and (ii) 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.

The main conflicts that have so far been identified in the project area are:

- 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.
- In the upper Xingu sub-basin, (i) conflicts between riverine dwellers/small farmers and large mechanized farming and ranching operations; (ii) conflicts over environmental quality and health between populations outside the Xingu Indigenous Park and the indigenous groups that live within the Park.
- In the lower Tocantins, (i) conflicts among fishermen of all types over the use of reduced fish stocks after construction of the Tucuruí Dam; (ii) conflicts among local communities and Dam administrators over implementation of adequate measures to compensate for negative impacts of past construction and current operation.

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 (GIBRAH). The Project Monitoring and Evaluation System provides for the monitoring of indicators that track the evolution and success in developing action programs for GIBRAH 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 is at least one indigenous territory (Waimiri-Atroari), although numerous other indigenous groups live in the upper Negro River (outside the project impact area). There is also a strong presence of *caboclos*, peasant peoples of mixed origins, including indigenous descent. The Xingu target area likely includes several indigenous communities, and the project would collaborate actively with the 19 indigenous groups in the nearby Xingu Indigenous Park (PIX), especially those in the southern part of the PIX that are most impacted by land use changes upstream. 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.

The Recipient is preparing an Indigenous Peoples Development Plan (IPDP). The IPDP will be prepared, consulted, and approved before project Appraisal, and will define the ways and means by which indigenous groups would participate and benefit from project activities.

Initial consultations with representatives from the Xingu and Negro areas have come to the following initial agreements: (i) in the Negro sub-basin, all indigenous peoples living in the

Project area would have access to all project activities; (ii) in the Xingu sub-basin, the PIX would not be included in the Project target area for Component 2 (demonstration activities), but indigenous peoples in the PIX would participate actively in the monitoring and evaluation of project impacts on freshwater biodiversity, and also in the training and environmental education activities. The rationale for this decision is that the PIX would already be a beneficiary of project demonstration activities since it is directly downstream from the project target area, and thus a recipient of the negative impacts resulting from environmental degradation in the upstream areas of the sub-basin. Indigenous communities outside the PIX but inside the project target area would have access to all project activities.

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 (details in Annex 9). 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 DCBIO 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 impact 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 GIBRAH.

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 (see Annex 9). 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: <http://www.mma.gov.br/port/sbf/chm/aquabio/aquabio.html>

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 impacts stemming from Project implementation would likely include: (i) an increase in the average size of certain commercial fish species captured in the project target areas (especially in the Negro and Tocantins sub-basins); (ii) increased biodiversity in riparian zones, including freshwater organisms that depend on riparian vegetation for food, shade, and shelter, as a result of the rehabilitation of riparian forests, especially in the Xingu and Tocantins sub-basins; (iii) improved livelihoods for families of small local fishermen and farmers, through better access to fisheries for food and income, and increased citizenship; and (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.

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)	[]	[]
Pest Management (OP 4.09)	[X]	[]
Cultural Property (OPN 11.03 , being revised as OP 4.11)	[]	[]
Involuntary Resettlement (OP/BP 4.12)	[]	[]
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)	[]	[]
Projects in Disputed Areas (OP/BP/GP 7.60)*	[]	[]
Projects on International Waterways (OP/BP/GP 7.50)	[]	[]

A stand-alone Environmental Assessment (EA) is under preparation by the Recipient as is an IPDP.

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 Background

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

BACKGROUND

The Amazon Basin (7 million km², 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 km², 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 km². 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 N° 9.985/00, Decree N° 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; 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 catfish Pirara (*Phractocephalus hemioliopus*). 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) lack of 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;
- (ii) 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;
- (iii) 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
- (iv) 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.

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.

The principal sub-basins considered for project intervention were: Javari, Içá, Juruá/Jutaí/Japurá, Purus, Negro, Madeira, Trombetas, Tapajós, Xingu, Jari, 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.⁴

⁴ 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.

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 – ProVárzea/PPG7	Ongoing	S	2000-2007	3.40
Natural Resources Management	Forest Resources Management Project – ProManejo/PPG7	Ongoing	S	1998-2006	6.09
Environmental Management	Second National Environment Program – Phase I (PNMA II)	Ongoing	S	2000-2006	2.35
Protected Area Management	Ecological Corridors Project/PPG7 (State of Amazonas)	Ongoing	S	2001-2006	2.59
Protected Areas	Amazon Region Protected Areas Project – ARPA/GEF	Ongoing	S	1996-2007	10.40
Natural Resources Management	Third Demonstration Projects – PDA (PADEC)	Ongoing	S	2003-2006	10.30
Biodiversity	National Biodiversity Project – PROBIO/GEF	Ongoing	S	2001-2005	--
Environmental Management	Natural Resources Policy Project – SPRN/PPG7	Ongoing	S	1995-2006	1.89
Environmental Management and Monitoring	Monitoring and Analysis Project – AMA/PPG7	Ongoing	S	1999-2006	1.39
Scientific Research	Sub-program of Science and Technology Phase II/PPG7	In Preparation			
Water Pollution	Igarapé 40 GEF Project	In Preparation			
Biological Information Systems	Inter-American Biodiversity Information Network (IABIN) (GEF)	Ongoing	S	2004-2009	5.5

*Many of these projects are likely to be extended, and there is already a PROBIO II under preparation.

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
<p>PDO</p> <p>To support the mainstreaming of a multi-stakeholder, integrated management approach to the conservation and sustainable use of freshwater biodiversity (GIBRAH) in public policies and programs in the Brazilian Amazon River Basin.</p>	<p>By PY06, a proposal regarding institutional arrangements and processes for GIBRAH developed, tested, and agreed on in participating States (3), and discussed with the other States (6) of the Brazilian Amazon.</p> <p>By PY04, action programs for GIBRAH (PAGs) under implementation in three Project Impact Areas, covering an area of about 290,845 km² within three river basins (1,950,000 km²), with participation of natural resource user sectors at local, state, and federal levels.</p> <p>By PY06, strengthened institutional capacity to implement GIBRAH 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).</p>	<p>PY03 reevaluate the project implementation strategy if fewer than 6 States are participating in discussions of GIBRAH proposals, or if less than two of the three sub-basins have PAGs under development.</p> <p>PY03 reevaluate the capacity building strategy if the achieved target for any stakeholder group is less than 50%.</p>
<p>Project Global Environmental Objective</p>		
<p>GEO</p> <p>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.</p>	<p>By PY06, project results providing a basis for future expansion of GIBRAH 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).</p> <p>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.</p> <p>By PY06, 39,941 km² of productive freshwater landscapes, including associated floodplains and riparian areas, under improved management in 3 sub-basins, with positive impacts on freshwater biodiversity.</p>	<p>PY03 intensify capacity building and dissemination efforts if fewer than 6 States are actively participating in discussion about GIBRAH, 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.</p>
<p>Intermediate results (one per component)</p>	<p>Indicators of the Result for each Component</p>	<p>Use of the Indicators in Monitoring</p>
<p>Component 1</p> <p>Title: Planning and Public Policy</p> <p>Result: Institutional arrangements and</p>	<p>Component 1</p> <p>In each of the three Project Impact Areas, a detailed participatory diagnostics completed, and strategic demonstration activities identified by the end of PY01.</p> <p>A GIBRAH Action Program (PAG) developed for each of</p>	<p>PY01 adjust efforts if less than two diagnostic activities are underway.</p> <p>PY02 reevaluate</p>

<p>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.</p>	<p>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).</p> <p>By PY05, eight PAG-related studies completed, aimed at mainstreaming GIBRAH experiences into public policies.</p> <p>By PY06, a developed and negotiated strategy for financial support to the implementation of the 3 PAGs, with pilot financial mechanisms adopted beginning in PY05.</p> <p>By PY06, a proposal for institutional arrangements and processes for GIBRAH 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.</p>	<p>capacity building and dissemination strategy if fewer than two PAG proposals are in discussion, or if less than 50% of the target public is involved.</p> <p>PY03 reevaluate the real need for more studies if fewer than 50% are contracted.</p> <p>PY04 intensify dissemination efforts if fewer than two proposals of financial mechanisms are under discussion.</p> <p>PY03 reevaluate the strategy for awareness raising if fewer than six States are participating in discussions of proposals for GIBRAH.</p>
<p>Component 2</p> <p>Title: Demonstration Activities to Support Mainstreaming of Freshwater Biodiversity.</p> <p>Result: Demonstration activities in various sectors to support GIBRAH 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 conditions of local communities.</p>	<p>Component 2</p> <p>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.</p> <p>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.</p>	<p>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.</p> <p>PY03 intensify efforts to systematize experiences if fewer than three communication products have been developed.</p>
<p>Component 3</p> <p>Title: Building Capacity for GIBRAH</p> <p>Result: Greater operational and decision-making capacity of</p>	<p>Component 3</p> <p>By PY06, strengthened institutional capacity to implement GIBRAH 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).</p>	<p>PY03 reevaluate the capacity building strategy if the achieved target for any stakeholder group is less than 50%.</p>

<p>institutions and civil society organizations at local, state, and federal levels in the Brazilian Amazon, to support implementation of GIBRAH.</p>	<p>By PY06, 10 proposals for projects that contribute to the implementation of GIBRAH developed by indigenous groups, women’s associations, or youth groups, and submitted to other funding entities (such as PRONAF).</p> <p>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 GIBRAH.</p> <p>By PY06, awareness raising events for effective participation in GIBRAH held in local communities (45), schools (45), and NGOs (15).</p> <p>By PY05, 50% of those beneficiaries that received training are adopting technologies promoted by the project.</p> <p>Appropriate training materials designed and produced/published for at least 6 stakeholder groups by PY04 (may include videos, manuals, field trips, etc).</p>	<p>PY04 increase technical assistance and capacity building efforts if fewer than nine proposals are developed.</p> <p>PY02 reevaluate the component strategy if fewer than 72 events are offered, or if there is no significant increase in participation of main stakeholders.</p> <p>PY02 increase awareness raising efforts if less than 80% of the target indicators are achieved.</p> <p>PY03 increase capacity building and technical support if less than 30% of beneficiaries have adopted technologies promoted. .</p> <p>PY02 evaluate strategy if training materials produced for fewer than 3 stakeholder groups.</p>
<p>Component 4</p> <p>Title: Project Management, Monitoring and Evaluation (M&E), and Information Dissemination.</p> <p>Result: Increased institutional capacity to effectively manage and coordinate project actions in the three sub-basins, monitor project impacts, and disseminate experiences generated by the project.</p>	<p>Component 4</p> <p>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).</p> <p>System to monitor project impacts fully operational in PY02, with participation of local stakeholders.</p> <p>Project Implementation Monitoring System (SIGMA) operational and providing information for continued improvement of project implementation from early PY01.</p> <p>An information system on aquatic biodiversity and fishery statistics (SIBA) implemented in PY02, making information available to the general public.</p>	<p>PY01 evaluate the participation of key stakeholders regarding project execution; adjust awareness raising efforts if less than 50% of target indicator is achieved.</p> <p>PY01 increase efforts if the project impact monitoring system is still not defined or sufficiently detailed.</p> <p>PY01 SIGMA fully functional.</p> <p>PY01 intensify efforts if SIBA is still not being developed.</p>

	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.
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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 Impact 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 Impact 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 km² 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 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 prioritize 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; institutional agreements for the M&E sub-component would be finalized during *project appraisal* phase. 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.	Aquatic Biodiversity Information System implanted.		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

GENERAL ASPECTS

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 (GIBRAH) 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 GIBRAH in the Amazon Basin over the long term.

The Project would include the nine states of the Brazilian Amazon (Amazon Region) but field activities would be limited to three pilot sub-basins (Project Impact Area) 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 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 km²), project activities would be limited to only portions of the three sub-basins (Project Target Areas), covering an area of about 290,845 km².

To achieve its objectives, this 6 year Project would be implemented through the following four components and sub-components:

Component 1 – Planning and Public Policy

- Sub-component 1.1.- Sub-basin Action Programs
- Sub-component 1.2.- Institutional Arrangements for GIBRAH
- Sub-component 1.3.- Financial Sustainability

Component 2 – Demonstration Activities

- Sub-component 2.1.- Demonstration activities targeting the mainstreaming of freshwater biodiversity into the production sector
- Sub-component 2.2.- Demonstration activities under the re-directed baseline in support of mainstreaming of freshwater biodiversity

Component 3 –Building Capacity

- Sub-component 3.1.- Training
- Sub-component 3.2.- Environmental Education
- Sub-component 3.3.- Institutional Strengthening
- Sub-component 3.4.- Sustainable Public Fora for Integrated Aquatic Resources Management

Component 4 – Project Management, Monitoring and Evaluation (M&E), and Information Dissemination

Sub-component 4.1.- Management and Coordination
Sub-component 4.2.- Monitoring and Evaluation
Sub-component 4.3.- Information Dissemination

The total cost (with contingencies) 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), State of Mato Grosso (US \$ 0.48 M), State of Amazonas (US \$ 0.59 M); Project Beneficiaries (US \$ 0.08 M). Funds would be allocated among the components as follows: 14.8 % for Planning and Public Policy; 24.8 % for Demonstration Activities; 35.7 % for Building Capacity; and 24.7 % for Project Management, Monitoring and Evaluation (M&E), and Information Dissemination.

The expected main project outcomes are:

- Institutional arrangements and processes established in three sub-basins of the Brazilian Amazon, to support the adoption of a GIBRAH-based approach 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 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 GIBRAH; 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 GIBRAH discussed with the nine States of the Brazilian Amazon by project year 6 (PY06);
- Action programs (PAGs) for GIBRAH operating in three sub-basins and covering an area of about 290,845 km², with about 32,941 km² of freshwater ecosystems benefiting from the sustainable management of its natural resources, including biodiversity;
- Demonstration activities (at least five for each of the three sub-basins) selected on the basis of participatory diagnostics by the end of PY01 and implemented from the first trimester of PY02;
- Capacity strengthened to support GIBRAH 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 PY06;
- Area of riparian forests recovered or under sustainable management by PY06;
- Increase in the average size of three of the main fish species captured in the project area by PY06;

- 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 PY06;
- 150 training and environmental education events offered to natural resources users, technicians, and decision-makers in the three participating sub-basins by PY06;
- Mobilization and raising of awareness in 45 local communities, 45 schools, and 15 non-governmental organizations for effective participation in GIBRAH by PY06;
- Public fora in support of GIBRAH stakeholders strengthened and/or created in sub-basins (three local and state forums or councils strengthened by PY06);
- An Information System on Aquatic Biodiversity (SIBA) created and made available to the general public, beginning in PY02; and
- Objectives and results of the Project disseminated (at least three seminars and three diagnostic documents by PY02, two international seminars, six regional seminars, two external evaluation reports, 15 progress reports, and two media campaigns by PY06).

Project outcomes would be widely disseminated to contribute to the facilitation of the development and implementation of GIBRAH action programs in other areas of the Amazon.

PDF-B resources have allowed the Government of Brazil to carry out a number of activities to improve the quality of project preparation, including elaboration of a series of diagnostic reports (such as the overall diagnostics of three sub-basins, as inputs to the preparation of this project proposal) and organization of a number of dissemination and consultation events with various stakeholders at the Federal and local level (see Annex 9 of Project Brief). The process for carrying-out meaningful consultations in the Amazon region is usually rather expensive, and PDF-B resources have greatly enhanced the input provided by local stakeholders, including indigenous people, during project preparation, especially through the following activities: (i) workshop to define priorities and strategies for the preparation of the AquaBio Project – Brasília, June 23 to 26, 2004; (ii) the AquaBio Preparation Workshop – Brasília, November 30 to December 1, 2004, focused on the participatory preparation and agreement over the project's logical framework; (iii) public consultation on the AquaBio Project technical proposal – Novo Airão, December 5, 2004, and (viii) public consultation on the AquaBio project proposal – Abaetetuba, Pará, March 5-6, 2005. Various meetings 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.

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.

A detailed description of each project component follows.

DETAILED DESCRIPTION OF COMPONENTS

Component 1: Planning and Public Policy (US\$ 1.24M, GEF US\$ 1.06M)

Objectives: The main objective of this component is to develop, and partially implement, Action Programs for GIBRAH (PAGs) 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 should be of an adequate scale (for example, portions of sub-basins), with well-defined political, institutional, and financial arrangements, that can be effectively implemented by the various stakeholders – States, local municipal governments, private companies, rural landowners, community associations and non-governmental organizations. In addition, the project would develop mechanisms to ensure its institutional and financial sustainability 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 (PAG), for implementation of GIBRAH, developed for each of the three sub-basins, 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 PAG-related studies completed, aimed at mainstreaming GIBRAH experiences into public policies; (iii) a developed and negotiated strategy for financial support to the implementation of the 3 PAGs, with pilot financial mechanisms adopted; (iv) a proposal for institutional arrangements and processes for GIBRAH 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 group: State and municipal governments, producer and civil society associations in the nine states of the Brazilian Amazon, with special emphasis on the states of Amazonas, Mato Grosso, and Pará.

Geographic scope: The component's activities would be concentrated in the following 9 municipalities in the 3 sub-basins: the municipalities of Água Boa, Canarana, and Querência (in the Upper Xingu River, State of Mato Grosso); Abaetetuba, Igarapé Miri, Cametá, and Baião (in the Lower Tocantins River, State of Pará); and Novo Airão, Barcelos, and Santa Isabel (in the Lower and Middle Negro River, State of Amazonas).

Sub-component 1.1: Sub-basin Action Programs

This subcomponent would prepare and partially implement, in a participatory manner, Action Programs for implementation of GIBRAH (PAGs) for the three project impact areas, with institutional arrangements formulated and negotiated with users of natural resources. The implementation period of the PAGs would likely extend beyond AquaBio's Life of Project (LOP), 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 impact areas, to facilitate better understanding of the problems related to aquatic biodiversity and water resources management; (ii) identification and agreement on the respective strategic actions for GIBRAH in those three sub-basins; (iii) conducting sectoral and environmental studies, (iv) formulation of the PAGs; (v) monitoring and evaluation of the institutional arrangements adopted during the formulation of the PAGs; (v) participatory processes and events leading to the endorsement of the PAGs; and (vi) implementation of the PAGs.

Sub-component 1.2: Institutional Arrangements for GIBRAH.

This subcomponent would formulate and discuss, with inputs from experiences generated in three sub-basins, a proposal for institutional arrangements and processes to foster the implementation of GIBRAH in the whole 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 PAGs in the three sub-basins; (ii) development of a menu of alternatives for the development and implementation of PAGs (including proposals for activities, policies, and financial and institutional arrangements) that could serve as examples for replication in other Amazonian sub-basins; and (iii) seminars and meetings with interested parties representing Brazil's Amazonian States to present and discuss (and eventually obtain endorsement of) the PAG approach, and of one or more of the relevant potential models of operation.

Subcomponent 1.3: Financial Sustainability

This subcomponent would develop and implement a financial sustainability strategy to support the execution of selected activities under the PAGs, 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.

Component 2: Demonstration Activities (US\$ 6.43 M, GEF US\$ 1.78M)

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 Action Programs for

GIBRAH. Each demonstration activity would have its own objectives, expected results, and a monitoring plan. The demonstration activities financed by GEF and the Brazilian government would be defined based on detailed diagnostics and public consultations in the three sub-basins, which would be executed as part of Component 1 (see sub-component 1.1). During the initial consultations and diagnostics undertaken as a part of project preparation (Block B phase), some priority themes were identified (see Attachment 1 to this Annex). Moreover, a number of activities are expected to be co-financed through other relevant programs or institutions (see Attachment 2 to this Annex). However, additional themes are likely to be identified during the diagnostics and consultations that would be undertaken in project year one (PY01), as well as during the formulation of the PAGs to be developed during PY02 and PY03.

Main outcomes: Demonstration activities in various productive sectors, to support implementation of GIBRAH, 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 adopted more sustainable production systems and technologies

Main outputs: Implementation of at least 15 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 interested public.

Target group: Demonstration activities likely to be supported under this component would benefit a number of stakeholder groups in the production and public sectors, including fishermen, riverine dwellers, farmer families, ranchers, artisans who utilize natural resources, rural and urban leaders, decision-makers, rural extensionists and other technical professionals dealing with issues of natural resource use, and others.

Sub-component 2.1: Demonstration activities targeting the mainstreaming of freshwater biodiversity into the production sector

This sub-component would support the development and implementation of new demonstration activities that target the mainstreaming of 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. Possible activities were identified during project preparation (Appendix 1 to this Annex), such as: (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; (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 PPDS-JUS.

Sub-component 2.2: Demonstration activities under the re-directed baseline in support of mainstreaming of freshwater biodiversity

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 impact 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.

Component 3: Building Capacity (US\$ 3.67 M, GEF US\$2.56 M)

Objectives: 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 plans aimed at the conservation and sustainable use of freshwater biodiversity and water resources in the Project areas.

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 support implementation of GIBRAH.

Main outputs: (i) strengthened institutional capacity to implement GIBRAH in three sub-basins, in Federal Government institutions, State governments, municipal governments, NGOs, trainer of trainers and local leaders, special interest groups, schools, and local communities; (ii) at least 10 proposals for projects that contribute to the implementation of GIBRAH 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 GIBRAH; (iv) awareness raising events for effective participation in GIBRAH held in local communities, schools, and NGOs.

Geographic scope: Environmental education, training and other capacity building activities would occur mainly in the three project impact areas, but some training would be offered to technical people and trainer of trainers in the nine States of the 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

This sub-component would: (i) train environmental agents and facilitators (multipliers), so they can obtain a clear understanding of the concept and principles of integrated management of

aquatic biodiversity, to promote the incorporation of these concepts into water resources management processes; and (ii) provide 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

Target group: 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. Technical government staff and their supervisors, who work on relevant projects in the States of Mato Grosso, Amazonas, and Pará, would also be trained, with the goal of disseminating the positive results of AquaBio. The second group of people, comprised of especially fishermen, riverine dwellers, farmer/ranchers, 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 demonstration 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.

Expected outcomes: Leaders and technical specialists, such as rural extensionists, would be trained to actively promote and disseminate technologies for the sustainable use of natural resources and of the GIBRAH approach among local communities and among institutions and other interested parties working in the Amazon.

Sub-component 3.2: Environmental Education

This sub-component aims 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 would be accomplished through the following activities: (i) increased awareness among local people 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, execution of specific tasks, field days 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, 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.

Main outcomes: Natural resource users and decision makers at local, state, and federal levels would be more aware of the priority issues and problems that affect the long term sustainability and conservation of freshwater ecosystems and of the services they provide, as well as their importance for the livelihoods of local communities in the Amazon.

Target group: Users of natural resources, including women, young, and other special interest groups, and decision-makers at the local, state, and federal levels

Subcomponent 3.3.: Institutional Strengthening

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 and youth.

Main outcomes: Improved conservation and sustainable use of freshwater ecosystems as a result of better organization of stakeholders to achieve this objective

Target group: Local groups, organizations and associations that foster and support the conservation and sustainable use of freshwater ecosystems and associated biodiversity, as well as and non-organized stakeholders who wish to belong to such groups.

Subcomponent 3.4: Sustainable Public Fora for Integrated Aquatic Resources Management.

This sub-component would develop or strengthen, and partially implement, 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 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 demonstration areas.

Main outcomes: Improved long-term sustainability and conservation of freshwater ecosystems and their biodiversity, as a result of the continuation of the activities supported under the Institutional Framework for GIBRAH, developed and implemented during the life of the Project.

Target Group: Stakeholders in the three project impact areas.

Component 4: Project Management, Monitoring and Evaluation (M&E), and Information Dissemination (US\$ 5.80 M, GEF US\$ 1.77 M)

Objectives: This component would coordinate, manage, and monitor project actions to facilitate an integrated approach to the implementation of the Project's diverse components, as well as to coordinate and collaborate where possible, with other related projects and programs, in addition to determining the occasional need to modify project implementation, and to disseminate project outcomes at the state, regional, national, and international levels.

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 sub-basins 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

This sub-component would manage and coordinate project implementation activities for efficient and integrated performance of the diverse components.

Main outcomes: Effective participation of government and civil society institutions in project activities.

Sub-component 4.2. Monitoring and Evaluation

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 impact 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 other Advisory Bodies, 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.

Main outcomes: (i) a system to monitor project impacts fully implemented with participation of local stakeholders; (ii) a physical and financial monitoring system (SIGMA) implemented and providing information for continued improvement of project implementation; and (iii) an Aquatic Biodiversity Information System developed and generating information available to the general public.

Target group: In addition to Project partners, stakeholders, and beneficiaries, 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.

Sub-component 4.3. Information Dissemination

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.

Main outcomes: Disseminated project results through events and media campaigns that lead to the adoption of GIBRAH practices by institutions and civil society in general.

Target group: The principal beneficiaries of the dissemination sub-component would be natural resource users in the demonstration areas, where the objective is to achieve behavioral changes. Technicians and institutions in other Amazonian states would also benefit with the aim of initiating a similar process in other regions, as well as in ACTO member countries.

Attachment 1: Illustrative Demonstration Activities Listed by Sub-basin

The following priority themes have been identified during project preparation activities in 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 2: Illustrative Demonstration Activities to be Co-financed under Component 2

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 Subcomponent II 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, 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

Project Costs by Component and Subcomponent	(US\$ '000) Total	% of Total	GEF financing	% of GEF financing
1. Planning and Public Policy	1,238.9	7.0	1,063.5	14.8
1.1. Sub-basin Action Programs	923.6	5.4	787.5	11.0
1.2. Institutional Arrangements for GIBRAH	100.0	0.6	91.1	1.3
1.3. Financial Sustainability	215.2	1.2	184.9	2.5
2. Demonstration Activities	6,426.7	38.0	1,781.7	24.8
2.1. Demonstration activities targeting the mainstreaming of freshwater biodiversity into the production sector	4,402.7	25.7	1,781.7	24.8
2.2. Demonstration activities under the re-directed baseline in support of mainstreaming of freshwater biodiversity	2,024.0	11.8	0,00	0.0
3. Building Capacity	3,666.4	21.4	2,562.5	35.7
3.1. Training	2,552.5	14.9	1,586.4	22.1
3.2. Environmental Education	618.3	3.6	536.1	7.5
3.3. Institutional Strengthening	263.1	1.5	230.5	3.2
3.4. Sustainable Public Fora for Integrated Aquatic Resources Management	232.5	1.4	209.4	2.9
4. Management, M&E and Info Dissemination	5,801.3	33.9	1,774.2	24.7
4.1. Management and Coordination	3,101.9	18.0	877.4	12.2
4.2. Monitoring and Evaluation	2,249.0	12.9	648.6	9.0
4.3. Dissemination of Information	450.4	2.7	248.2	3.5
Total PROJECT COSTS (with contingencies)	17,133.3	108.7	7,181.9	100

Project Costs by Expenditure Accounts

Project Costs by Category	(US\$ '000) Total	% of Total Cost
I. Investment Costs		
A. Investment Categories		
1. Goods		
a. Vehicles	104.7	0.66
b. Equipment	130.5	0.83
Subtotal Goods	235.2	1.49
2. Consulting Services and Studies	2,033.8	12.91
3. Sub-projects (grants)	4,787.0	30.38
4. Training and Workshops	2,063.0	13.09
5. Technical Assistance	691.9	4.39

6. Services	596.3	3.78
Total Investment Costs	10,407.1	66.05
II. Recurrent Costs		
A. Categories		
3. Salaries	2,607.5	16.55
4. Subsistence Allowance	1,266.1	8.04
5. O&M	1,475.5	9.36
Total Recurrent Costs	5,349.0	33.95
Total PROJECT COSTS	15,756.2	100.00
Physical Contingencies	113.5	0.72
Financial Contingencies	1,263.7	8.02
Total PROJECT COSTS WITH CONTINGENCIES	17,133.3	108.74

Financial Summary

Fiscal Year	2006	2007	2008	2009	2010	2011	Total	%
Total Project Costs w/Contingencies	3,193.6	3,647.8	3,841.4	2,540.8	2,053.5	1,856.3	17,133.3	100.0
Total Investments	2,557.4	2,747.6	2,480.0	1,593.2	1,068.1	820.9	11,267.1	65.8
Total Recurrent Costs	636.2	900.2	1,361.3	947.6	985.4	1,035.4	5,866.2	34.2
Financing Sources								
Federal Government	1,126.2	1,539.5	1,495.6	892.7	862.6	863.2	6,779.8	39.6
GEF	1,320.0	1,153.4	1,729.6	1,111.3	1,032.1	835.4	7,181.9	41.9
World Bank/PNMA II	153.8	326.2	79.1				559.1	3.3
RFT	350.2	360.7	371.5	382.6			1,465.0	8.6
State Government of Mato Grosso	112.9	119.6	71.8	57.7	59.4	61.2	482.5	2.8
State Government of Amazonas*	128.9	132.8	77.5	79.9	82.3	84.7	586.0	3.4
Beneficiaries	1.5	15.7	16.2	16.6	17.1	11.8	78.9	0.5

Co-financing Table

Sources of Co-financing				
Name of Co-financier (source)	Classification	Type	Amount (US\$)	Status (*)
Government of the Federative Republic of Brazil	National Executing Agency	Counterpart in kind (salaries) and financial contribution included in PPA	US\$6,779,800 (US\$1,392,200 in kind) (**)	Confirmed (letters from MMA Executive Secretary and IBAMA President in Annex 9)
World Bank (National Environmental Program – NEP II)	Implementing Agency	Financial support (part of US\$14 million loan for NEP II)	US\$559,100 (financial resources)	Confirmed (NEP II – Phase I ongoing and NEP II – Phase II under negotiation – Letter from MMA Executive Secretary in Annex 9)

Government of the State of Mato Grosso	Partner (co-executing agency)	Counterpart in kind (salaries) for execution of AquaBio and financial contribution to PEPE	US\$482,500 US\$256,000 in kind)	Confirmed (Letter from Secretary of State in Annex 9)
Government of the State of Amazonas	Partner (co-executing agency)	Counterpart in kind (salaries) for AquaBio execution	US\$586,000 (US\$354,500 in kind)	To be confirmed in final stage of project preparation (under negotiation)
Fishermen, agricultural producers, and riparian and rural communities	Beneficiaries	Counterpart foreseen in execution of AquaBio Demonstration Activities	US\$78,900	Confirmed (counterpart funds would be one of the requirements for approval of Demonstration Activities)
RFT (resources from the European Commission)	Partner (Pilot Program for Protection of Brazilian Rainforest donor)	Financial support (part of grant for Ecological Corridors Project)	US\$1,465,000	Confirmed (ongoing Ecological Corridors Project – letter from MMA Executive Secretary in Annex 9)
Co-financing Subtotal			\$9,951,300	

(*) Reflects status of understanding with co-financiers.

(**) US\$6.78 million from Federal Government, divided into: (i) US\$2.02 M in salaries for MMA and IBAMA staff (headquarters and States of AM and MT); and (ii) US\$4.76 M from various PPA projects executed by MMA and IBAMA⁵.

⁵ PPA projects to provide cash co-financing: (i) Sustainable Fisheries Resources Program – MMA/IBAMA (US\$2.976 million) which includes the following actions: a) AquaBio/DCBIO/SBF, b) Prospecting, Monitoring and Evaluation of Fishery Stocks/IBAMA, c) Fishery Licensing/IBAMA, and d) ProVárzea/IBAMA; ii) National Environmental Education Program/MMA (US\$1 million); iii) National Forestry Program, Rehabilitation of Gallery Forests and Promotion of Forestry Extension Projects, Project for Recovery of Springs and Banks of Bodies of Water – two subprojects in Xingu and one in Tocantins – DIFLOR/SBF (US\$787,100).

Annex 6: Implementation Arrangements

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

Project Management Structure

Federal Level

The project would be coordinated by the Ministry of Environment (MMA), under the responsibility of the Secretary of Biodiversity and Forests. A Ministerial decree would assign to the National Biodiversity Conservation Program – DCBIO – the function of Project Management Unit – PMU, with the roles of project administration and technical coordination. Specifically, the PMU would be responsible for:

- Elaborating the project’s Annual Operational Plan (POA) in collaboration with the Sub-basin Executing Units;
- Conducting political and technical coordination at the federal level, including integration with other projects;
- Implementing Components 1 (Planning and Public Policy) and 4 (Project Management, Monitoring and Evaluation, and Dissemination);
- Guiding and overseeing the implementation of Components 2 and 3;
- Transferring funds to the Sub-basin executing units;
- Promoting the incorporation of lessons learned from other projects, particularly from those funded by GEF, into the activities supported by AquaBio.

The project foresees strong inter-institutional linkages involving public policy, government actions, and users of aquatic and water resources, since any action to address the impacts of human activities on aquatic biodiversity and water resources require an integrated management of such resources, involving the various levels of public authority and users. This calls for designing, signing, and implementing protocols, agreements, and contracts among parties, with the National Biodiversity Commission–CONABIO⁶ serving as Steering Committee for guidance, integration, and conflict resolution of project activities at the federal level. The choice of CONABIO as project Steering Committee is based on its mandate and composition, defined in Art. 6 of Decree No. 4.339 dated August 22, 2002, which includes key ministers, representatives of civil society, and representatives of sectors that use biodiversity resources.

With regard to the National Biodiversity Policy – PNB, CONABIO is responsible for:

- Coordinating its preparation based on guidelines stipulated in Decree No. 4.339, of 2002;
- Proposing measures for its implementation, 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 its execution within the country, so that its principles, guidelines, and objectives are complied with;

⁶ 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). ANA will participate as an invited member in all meetings where AquaBio-related issues are discussed.

- Promoting linkage among programs, projects, and activities with regard to the implementation of its 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 its implementation;
- Promoting inter-institutional and international for the implementation of its principles and guidelines;
- Promoting debates and public consultations on issues related to the formulation of proposals regarding 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 PNB's principles and guidelines;
- Monitoring and evaluating the execution of thematic components for the implementation of 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 PNB's implementation;
- Proposing PRONABIO's overall guidelines in support of the execution of planned actions for the implementation of 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; and distribution of benefits derived from use of biodiversity resources; (ii) promoting the implementation of commitments made by the GoB in relation to the CBD; (iii) encouraging inter-institutional and international cooperation for the implementation of the principles and guidelines of the Convention on Biological Diversity in the country.

In relation to the proposed AquaBio Project, CONABIO would be responsible for:

- Analyzing and approving the Annual Operational Plans (POAs);
- Following and evaluating project results;
- Proposing measures to correct problems identified during project implementation;
- Incorporating the lessons learned from this project into national public policies.

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.

Sub-Basin Level (States)

The institutional arrangements described below reflect the diversity of institutional capacity and interest in freshwater biodiversity issues demonstrated by various potential partners during project preparation. As such, during the final stages of project preparation and Appraisal, these arrangements are subject to change as new stakeholders become interested in project activities and implementation of GIBRAH.

The project's institutional structure at the federal level would be mirrored at the lower levels of project implementation. In each sub-basin/state, and at each Project Target Area for demonstration activities (municipal level), there would be an advisory body and an executive unit.

IBAMA was selected as the local project administrative and executing unit for the Negro (State of Amazonas) and Tocantins (State of Pará) Sub-basins, in order to take advantage of the existing structure and institutional capacity acquired by implementation of international cooperation projects through ProVárzea. In Mato Grosso, where the ProVárzea does not operate, FEMA would be the Sub-basin project executing unit. This institutional arrangement would foster a more efficient, less expensive, and faster implementation of AquaBio, and would also provide the AquaBio with the support of a project management team knowledgeable and experienced in issues related to the management of fisheries resources in the States of Amazonas and Pará. In Mato Grosso, FEMA would be the sub-basin executing unit, and would provide the AquaBio with existing institutional and technical experience acquired through the implementation of projects focused on the restoration and conservation of riparian areas (APPs).

The ProVárzea/IBAMA, the Sustainable Development Secretariat-AM, and FEMA-MT, constitute Executing Units that could promote agreements/contracts with other government or non-government organizations, and would also be responsible for executing the activities in Components 2 and 3, as well as for elaborating the sub-basin POAs.

The SDS in Amazonas, the FEMA in Mato Grosso and the IBAMA/ProVárzea in Pará would also be responsible for the coordination of the state steering committees. These committees would select projects to be implemented in the Project Target Areas, under the demonstration activities component; analyze and discuss the monitoring reports and evaluations of the project activities in each state; analyze and discuss the sub-basin POA before sending it to the PMU, and promote the integration of project actions aiming at mainstreaming GIBRAH into state public policies.

The state steering committees would be constituted by 10 representatives of state agencies with attributions similar to the objectives in AquaBio, representatives of academia and research institutions, and representatives of the demonstration areas in each state. When necessary, the state committees can hire consultants through the project, to advise on specific issues requiring expert opinion.

Local Level

The local executing agents (NGO's, cooperatives, associations) would implement the activities in Components 2 and 3. The consultations and diagnostics conducted to date identified several organizations which already develop activities similar to the project objectives, and which can be supported by AquaBio. The detailed inventory of such activities would be conducted during the first year of AquaBio, and may also identify gaps and promote, through specific requests for proposals, the presentation of sub-projects aiming at broadening project actions in the demonstration areas.

At the local level, the project would also mobilize and train existing GIBRAH municipal committees, as well as support the creating of such committees where they are still lacking. These committees would also follow the implementation of project activities and mainstream them into municipal public policies.

Project Executive Structure

Sub-basin Steering Committees, each in its own capacity, would have duties related to: (a) evaluating Annual Operating Plans – POAs, monitoring project execution, and suggesting necessary adjustments; (b) supporting project coordination in inter-institutional integration; and (c) mediating possible conflicts between or among groups of stakeholders.

The Project Management Unit would consist of one manager, four component coordinators, two administrative assistants with duties in the areas of bidding, contracts, and finance, as well as three administrative support staff. The PMU's duties include: managing project execution; executing components 1 and 4; managing financial and budget resources; preparing statements on the application of resources and results achieved; preparing management reports for the Secretary of Biodiversity and lead agencies; promoting institutional linkage; monitoring, evaluating, and disseminating project results.

Executing Units would utilize their existing managerial, technical, and administrative structures, and would assign the technical staff responsible for implementation of planned actions. IBAMA would utilize the managerial, technical, and administrative structure of ProVárzea, the technical structures of the Executive Management Offices of Amazonas and Santarém, as well as the Fisheries Research and Management Center of the Northern Region – CEPNOR. IBAMA's intention is to create a CEPNOR unit in Manaus which, based on the combined efforts of ProVárzea and AquaBio, would be the seed for the formation of a Fisheries Resource Management Center for the Amazon Basin. FEMA and SDS would allocate managerial, technical, and administrative structures, defining the staff responsible for the execution of activities, and FEMA would have the support of EMPAER. As needed, convenient, and timely, executors would make agreements or contracts with NGOs, universities, and research institutes operating locally for the execution of all or part of the planned actions and under their responsibility. Some of such potential partners identified to date are: in the Negro River sub-basin – FVA, IPÊ, INPA; in the Xingu sub-basin – ISA, ONGARA, UNEMAT; and in the Tocantins sub-basin – FASE, IPAM, UFPA.

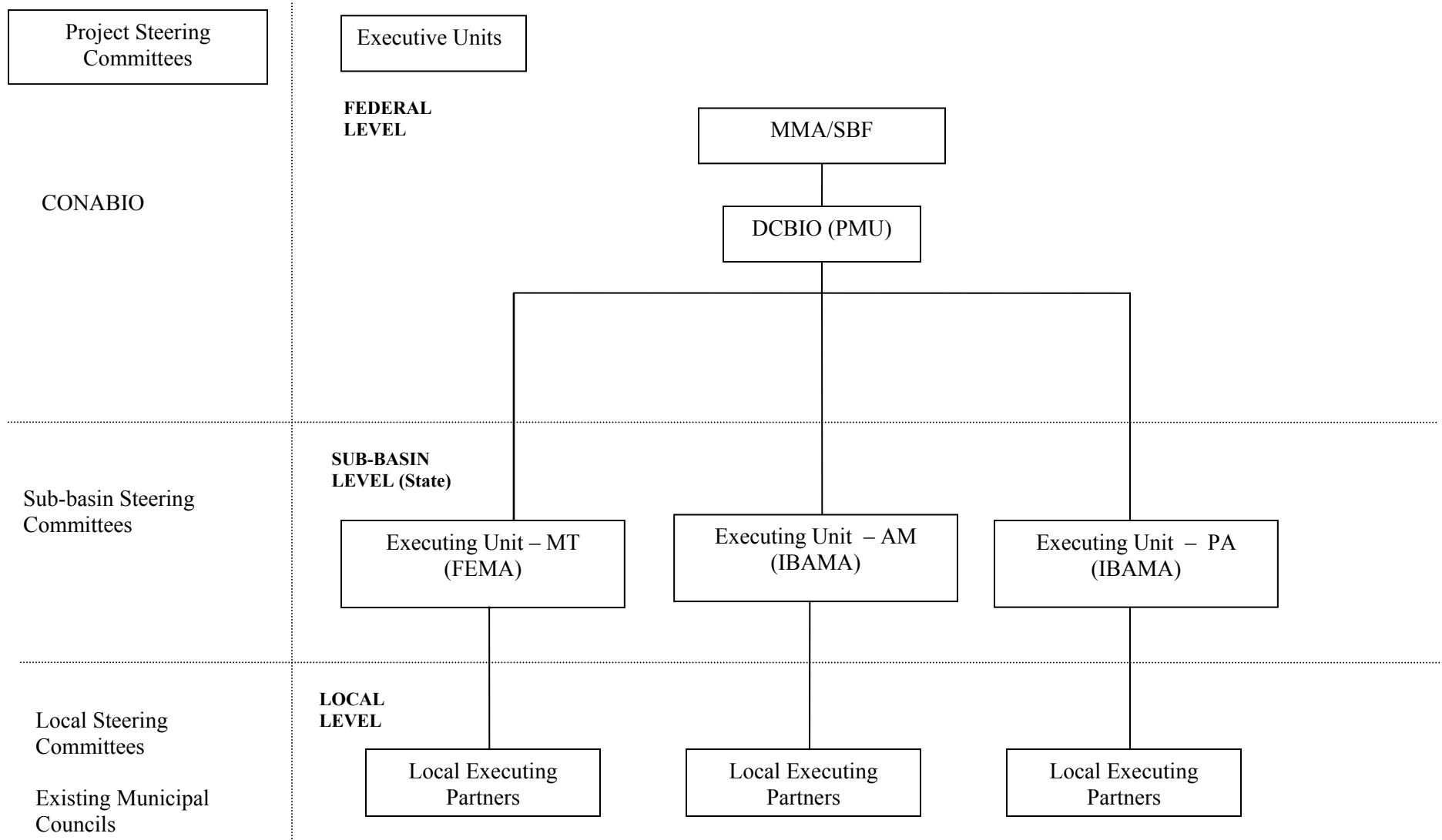
The GEF project, *Integrated and Sustainable Management of Transboundary Water Resources in the Amazon River Basin*, proposed by ACTO member countries (Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Surinam, and Venezuela), is under preparation, with UNEP as implementing agency and ANA as Brazil's focal point for the project. Several meetings have taken place between AquaBio and ANA staff responsible for the preparation of the respective projects, where possible points of overlap or complementarity between them and a joint collaboration strategy were discussed. Table 1 (below) is one product of those meetings, and shows the main points of complementarity between these two proposed GEF projects for the Amazon Basin.

Like AquaBio, the GEF ACTO Amazon Basin project (GEF BA) has characteristics that encompass different scales at the national level. However, in the case of GEF BA there is an emphasis on governments of ACTO member countries and on the Organization itself. Furthermore, the focus of GEF BA is on water resources monitoring, dissemination of information, and water resources management. The entire Amazon Basin is under its scope, but special attention would be paid to transboundary rivers. On the other hand, AquaBio is focused on aquatic biodiversity and operates in demonstration sub-basins. There is a common understanding among the parties that AquaBio's experiences in demonstration areas may be useful to GEF BA in terms of allowing a greater level of detailing of problems and solutions related to the integrated management of aquatic resources. It is also understood that GEF BA may be very useful for the scaling-up of the experiences and lessons learned from AquaBio to other countries of the Amazon Region. MMA and ANA would continue to improve the coordination of actions and activities during the next stages of preparation for both projects.

Table 1: Collaboration between the WB/MMA AquaBio and UNEP/ACTO/OAS Amazon Basin GEF Projects

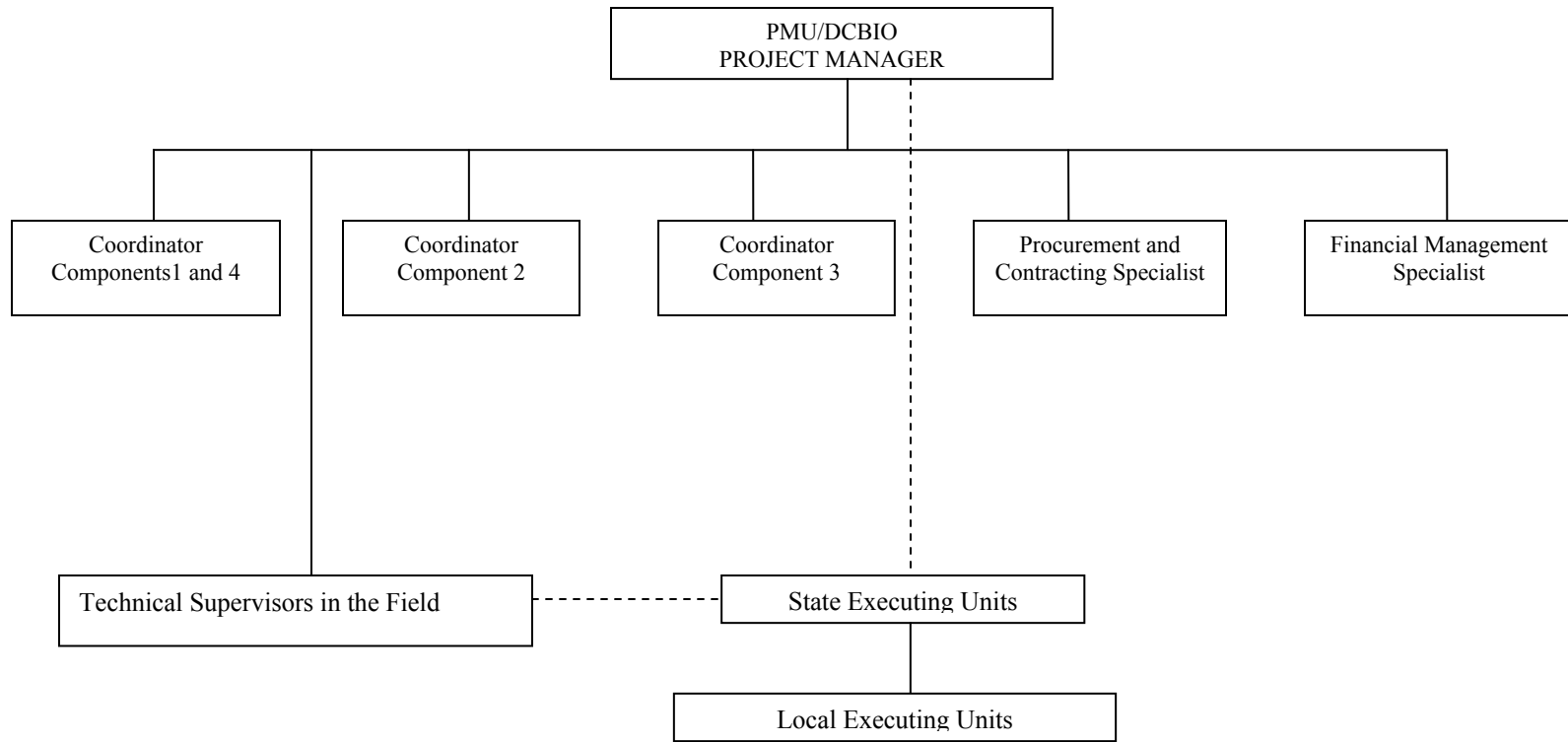
Possible areas of overlap between the two projects	Emphasis of the AquaBio GEF/WB/MMA Project	Emphasis of the Amazon Basin GEF/UNEP/ACTO/OAS Project	Proposal for synergy and collaboration
Target Area	Brazilian portion of the Amazon Basin, primarily the Upper Xingu, Lower Tocantins, and Lower and Middle Rio Negro basins. Particular focus on riparian populations (fishermen and farmers), on local councils, and on a smaller scale, state and federal government technical staff.	The Amazon Basin in its totality (Panamazonia) with emphasis on the water resource monitoring structures of ACTO's member countries, including the support of ACTO to groups located in priority areas for the project.	Information exchange events should occur during implementation of the two projects, to inform the local public of the results of the actions being carried out at the basin-level and to disseminate the local experiences of AquaBio to the governments of Panamazonia.
Public Policies	The results of project activities would contribute to improving Brazilian public policies related to aquatic biodiversity and water resources in the Amazon, generating lessons that can be adopted throughout Brazil as well as in other countries that share the Amazon Basin.	The results of project activities would contribute to strengthening the institutional structure of ACTO's member countries, focusing on the sustainable integrated management of water resources, especially in regard to the use of transboundary sub-basins, looking to evaluate eventual impacts of human activities and climate change on the Amazon Basin.	Bearing in mind the complementary character of the two projects, a high degree of collaboration between them would be sought throughout the implementation phase. Because implementation of AquaBio should start before the Amazon Basin UNEP/ActO/OAS project, it has the potential to generate information that may be especially useful in the implementation phase of the latter project.
Monitoring	Establishment of an Aquatic Biodiversity Information System (SIBA) and of fishery landings information system in three sub-basins, integrating available information from the hydrologic and pluviometric monitoring network of the National Water Agency (ANA), as well as expanding this system where necessary.	Establishment of an environmental and hydrological information system, to support the decisions of ACTO's member countries, aimed at dealing with problems related to the consequences of human activities and possible climactic changes on water resources. An information system for exchange of data and experiences among Amazon countries in the area of water resources management.	Information obtained by the two projects would be extremely useful and complementary. AquaBio's data, obtained on a local scale, could offer the UNEP/ACTO/OAS project a more detailed vision of possible questions of interest and/or parameters for the Amazon as a whole; the Panamazonia vision embraced by that project could be of great value to AquaBio for the integration of local experiences in regional political proposals related to specific topics.
Capacity Building	Training activities would occur primarily at the municipal level in the demonstrative areas of the three Brazilian sub-basins, with some actions occurring at the state level in those states that share the Amazon Basin, focusing in particular on the sustainable use of the various elements of aquatic biodiversity in the Amazon.	Training would occur at different decision making levels (local, state/provincial, national, and/or regional), but with greater emphasis on the government structures of ACTO's member countries as the principal constructors of a homogeneous structure, aimed at institutional strengthening for integrated management of water resources.	During the implementation phase, both projects would exchange information and experiences related to the training procedures and methodologies to be adopted.
Dissemination of Information	The objectives and results of the project with regard to the integrated management of aquatic biodiversity and water resources would be disseminated in events, media publications and campaigns, various regional seminars, and two international seminars.	The media for dissemination would be very similar to those of AquaBio, but with the proviso that international events would occupy a more important space given the transboundary nature of the project. Dissemination activities to be defined as elaboration of the project continue.	Great potential for complementarity of dissemination activities. For example, depending on the topics and geographic scope of the media campaigns, joint campaigns could be undertaken, exchanging campaign materials.

PROJECT MANAGEMENT STRUCTURE



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

PROJECT EXECUTIVE STRUCTURE



Annex 7: Economic and Financial Analysis

See the Incremental Costs analysis in Annex 10 and a cost-effectiveness analysis in Section D-1.

Annex 8: Safeguard Policy Issues

This information is required at the time of CEO endorsement. The Environmental Assessment (EA) and Indigenous Peoples Development Plan (IPDP) are under preparation and would be included in the appraised version of the PAD.

Annex 9: Documents in the Project File

1. Documents available on the web for public consultation.

- AquaBio documents on the MMA website:
<http://www.mma.gov.br/port/sbf/chm/aquabio/aquabio.html>
- Meeting on the Xingu headwaters, part of an awareness raising campaign by ISA (website of Instituto Socioambiental): http://www.socioambiental.org/inst/camp/xingu/pgn/index_html

2. Documents in Project archives at MMA.

- Project Concept Note and PDF-B Project Proposal;
- 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 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 Public Consultation that took place in Abaetetutba, PA;
- Report of the meeting on the status of the headwaters of the Xingu River, Canarana, MT.

3. Document in World Bank project file.

- Commitment letter from the MMA to SEAIN;
- Commitment letter from IBAMA to MMA;
- Commitment letter from FEMA/MT to MMA;
- List of AquaBio-related events that have taken place so far during project (also in Appendix 1 to this Annex)

Annex 9 – Appendix 1

AQUABIO-RELATED EVENTS

Date	Event	Location	Objective	Participants (in addition to MMA)
Mar. 08, 2005	Technical Meeting.	Brasília (DF)	Discuss opportunities for cooperation and integration between the AquaBio GEF/WB/MMA and the GEF Amazon Basin/UNEP/ACTO projects.	ACTO (Amazon Cooperation Treaty Organization)
Mar. 05-06, 2005	Consultation on the AquaBio Technical Proposal with civil society organizations of Rio Tocantins.	Abaetetuba (PA)	Meet with civil society groups to discuss their input on the elaboration of the project.	Prefectures (Abaetetuba, Baião, Barcarena, Cametá, Igarapé-Miri, Limoeiro do Ajuru, Mocajuba, Moju, Oeiras do Pará), City Council (Limoeiro do Ajuru), Rural Worker Unions (Abaetetuba, Limoeiro do Ajuru, Mocajuba, Moju), Fishermen Colonies (Abaetetuba, Baião, Cametá, Igarapé-Miri, Limoeiro do Ajuru), AMBAT (Association of Municipalities of the Lower Tocantins), AMUCAN (Association of Municipalities of Calha Norte), CODESEI (Inter Municipal Consortium for Social and Economic Development), CONJUS (Management Council of PPDS-JUS) GEREX/IBAMA/PA, UNESCO, SECTAM/PA, Agriculture Secretariat/PA, ADA, UFPA, Goeldi Museum, SEAP/PA, EMBRAPA, ELN, FASE, IPAM, FEMA/MT, GTA, Comissão Pastoral da Terra/Abaetetuba, Women Associations (Barcarena and Igarapé-Miri), Nautical Association (Abaetetuba), APACC (Associação Paraense de Apoio às Comunidades Carentes), Centro Tipiti, Agriculture Cooperatives (COFRUTA of Abaetetuba, COMAPBAL of Baião, CART of Cametá, Associação Mutirão of Igarapé-Miri).
Feb. 02, 2005	Technical Meeting.	Manaus (AM)	Negotiate Amazonas State participation in the Project.	Amazonas State Secretariat of the Environment and Sustainable Development (SDS/AM) and related agencies (IPAAM, FEPI), IBAMA.

Jan. 06, 2005	Technical Meeting.	Brasília (DF)	Identify opportunities for cooperation and integration between the AquaBio GEF/WB/MMA and the GEF Amazon Basin/UNEP/ACTO projects.	ANA (National Water Agency)
Dec. 24, 2004	Technical Meeting.	Brasília (DF)	Identify opportunities for cooperation and integration between AquaBio and the projects and programs of PPG7.	PPG7
Dec. 21, 2004	Technical Meeting.	Brasília (DF)	Identify opportunities for cooperation and integration between AquaBio and Indigenous Peoples Demonstrative Projects of Indigenous Peoples.	PDPI/PPG7
Dec. 15, 2004	Technical Meeting.	Brasília (DF)	Identify opportunities for cooperation and integration between the AquaBio GEF/WB/MMA and the GEF Amazon Basin/PNUMA/ACTO projects.	ANA (National Water Agency)
Dec. 06, 2004	Technical Meeting.	Manaus (AM)	Discussion about the fisheries statistics system; geographic information system and database; and monitoring of promising initiatives.	ProVárzea/IBAMA.
Dec. 06, 2004	Technical Meeting.	Manaus (AM)	Present the results of the AquaBio Public Consultation in Novo Airão.	Amazonas State Secretariat of the Environment and Sustainable Development (SDS/AM).
Dec. 06, 2004	Technical Meeting.	Manaus (AM)	Discussions about the SIPAM/SIVAM information systems in the areas of AquaBio, and possibilities for collaboration.	SIPAM/SIVAM.
Dec. 05, 2004	Consultation on the AquaBio Technical Proposal with civil society organizations of Rio Negro, State Gov. and IBAMA representatives.	Novo Airão/AM	Meet with civil society groups to discuss their input on the elaboration of the project.	Ecological Corridors Project/MMA, FAO, World Bank, UNESCO, Prefecture of Novo Airão, IBAMA/headquarters, ProVárzea, Secretary of the Environment of Barcelos/AM, GEREX/IBAMA/AM, Jaú National Park/IBAMA, Prefecture of Barcelos/AM, ESEC Anavilhanas/IBAMA, SRH/AM, Oswaldo Cruz Foundation/AM, 13 Communities of Rio Negro, Novarte Cooperative, STRNA, Association of Artisans of Novo Airão, APNA, FVA, IPE, Almerinda Malaquias Foundation, Ágape

				Foundation, Maquira-Rona Network, AMBA, CONUS, local employers, and Town Council of Novo Airão/AM.
Dec. 04, 2004	Technical Meeting.	Novo Airão/AM	Link actions between the Ecological Corridors, ARPA, and AquaBio projects.	Project teams of AquaBio/MMA, Ecological Corridors/MMA and ARPA/MMA.
Dec. 03, 2004	Focus Groups.	Novo Airão/AM	Disseminate information on the project and Public Consultation for project elaboration.	Almerinda Malaquias Foundation; STRNA; Association of Artisans of Novo Airão. IPE; Ágape Foundation.
Dec. 02, 2004	Technical Meeting.	Cuiabá/MT	Gather institutional and legal information.	FEMA/MT.
Nov. 30 - Dec. 01, 2004	AquaBio Preparation Workshop.	Brasília/DF	Discuss and finalize the project's <i>Logical Framework</i> and define the strategy of action for the demonstrative areas.	SBF/MMA, SCA/MMA, CI/MMA, FAO, UNESCO, ACT Brazil, ATIX, Secretary of the Environment of Amazonas, General Coordination of Environmental Education/IBAMA, CGREP/IBAMA, UFPA, ANA, World Bank, FEMA/MT, INPA, GTA, ISA, FASE/Amazon, Baião Mixed Agriculture Cooperative Ltd./PA, a fishing community/PA, UNEMAT, ONGARA, STR Água Boa/MT, FVA, Maquira-Rona Network, IPE, Association of Indigenous Communities of the Middle Rio Negro.
Nov. 23 & 25, 2004	Technical Meetings & Focus Groups.	Cuiabá/MT	Gather institutional and legal information.	FEMA/MT; UNEMAT; FORMAT (<i>focus groups</i>).
Nov. 19, 2004	Technical Meetings & Focus Groups.	Água Boa/MT	Gather information on the upper Rio Xingu region.	INCRA, Secretary of Health of Água Boa/MT; ONGARA; IPAM (<i>focus groups</i>).
Nov. 18 & 20, 2004	Technical Meetings.	Nova Xavantina/ MT	Gather information on the upper Rio Xingu region and on institutional capacity of UNEMAT.	UNEMAT.
Nov. 18, 2004	Technical Meetings.	Belém/PA	Gather institutional and legal information.	State Secretary of Production for Pará; Executive Secretary of Science, Technology and Environment for Pará.
Nov. 18, 2004	Focus Group.	Belém/PA	Learn about FASE's training activities in <i>açaí</i> management.	FASE.
Nov. 17,	Focus Group.	Igarapé-Miri/PA	Discuss local disputes with emphasis on	Fishermen Colony and Association of Rural

2004			fishing, pisciculture, and <i>açaí</i> extracting agreements.	Producers of Igarapé-Miri/PA.
Nov. 16, 2004	Technical Meetings.	Cuiabá/MT	Gather information on the upper Rio Xingu region.	FEMA/MT; INCRA/MT; Land Institute of Mato Grosso – INTERMAT; State Secretary of Planning and Coordination – SEPLAN/MT; State Secretary of Rural Development
Nov. 16, 2004	Focus Group.	Baião/PA	Discuss the effects of the UHE Tucuruí dam on the region's rural activities, mostly black pepper and fish.	Fishermen Colony and Association of Rural Producers of Baião/PA.
Nov. 15, 2004	Focus Group.	Cametá/PA	Discuss agreements on fishing, pisciculture, and management of <i>açaí</i> , as well as extension projects that are being developed in the municipality.	Fishing Colony and Association of Rural Producers of Cametá/PA.
Nov. 13, 2004	Focus Groups.	Novo Airão/AM	Gather information on the possibility of the participation of these institutions in the formulation and implementation of AquaBio.	Almerinda Malaquias Foundation; Fishermen Colony of Novo Airão/AM; APNA; Novarte Crafts Cooperative; Association of Craftspeople of Novo Airão – AANA; STR de Novo Airão/AM; Maquira-Rona Foundation Network; Jurisdiction of Novo Airão/AM.
Nov. 12, 2004	1 st State Conference on Traditional Populations.	Manaus/AM	Gather information on the possibility of the participation of these institutions in the formulation of AquaBio.	National Council of Rubber tappers, women leaders, indigenous peoples of Santa Isabel of Rio Negro (AM), and community leaders.
Nov. 12, 2004	Focus Group.	Abaetetuba/PA	Discuss fishing activities, and <i>açaí</i> extraction, management, and processing in the region as well as where AquaBio could be useful in the local context.	Fishermen Colony and Agricultural Cooperative of Rural Producers of <i>Açaí</i> of Abaetetuba/PA.
Nov. 11 & 12, 2004	Technical Meetings & Focus Groups.	Manaus/AM	Gather information on the possibility of the participation of these institutions in the formulation of AquaBio.	Nucleus of Environmental Education – NEA/IBAMA/AM; National Center of Traditional Populations – CNPT/IBAMA; Work Cooperative of Technicians and Assistants of Development in the Amazon; Amazonas Secretary of Rural Production; Institute of Amazonian Research and Development– IPDA; FVA; IPE; Association of Fishers of Amazonas and Federation of Fishing Associations; Federation of Fishers of Amazonas

				– FEPA; Pastoral Land Commission - CPT/Manaus/AM; Coordination of Indigenous Organizations in the Brazilian Amazon – COIAB; Indigenous Association of Barcelos – ASIBA; GTA; Association of Fishermen of Novo Airão – APNA; Assistant Executive Secretary for Extraction Activities/AM; SEAP/AM; Executive Secretary for Water Resources/SDS/AM; ProVárzea/IBAMA; State Foundation for Indigenous Policies – FEPI.
Nov. 11, 2004	Technical Meeting.	Belém/PA	Collect information on research and extension activities carried out by these institutions in the lower Tocantins.	Nucleus of Advanced Amazonian Studies/UFPA, Program on Poverty and the Environment in the Amazon/UFPA.
Nov. 10, 2004	Technical Meeting.	Belém/PA	Discuss the ongoing elaboration of development Plans for the municipalities downstream from the UHE Tucuruí dam.	UFPA/PA.
Nov. 01, 2004	Contact.	Manaus/AM	Obtain data on Rio Negro fisheries.	SEAP/AM.
Nov. 01, 2004	Visit to FVA.	Manaus/AM	Acquire copies of documents pertaining to the fishing agreements in the region.	FVA.
Nov. 01, 2004	Technical Meeting.	Manaus/AM	Discuss research on fish and turtles in the Rio Negro basin and possibility of involving researchers in the AquaBio.	INPA.
Oct. 30 & 31, 2004	3 rd Workshop on Appropriate Use of Natural Resources – 1 st Intercommunity Assembly on Fishing Agreements of Novo Airão.	Novo Airão/AM	Attend the event as observers and present the AquaBio project in a brief meeting after the close of the event.	Maquira-Rona Network, FVA, IPE, Viva Amazônia, SEAP/RR/AM, Fishing Association of Novo Airão – APNA, Fishing colony of Roraima e Manaus, IBAMA/Novo Airão/ESEC Anavilhanas, STR, IPAAM, Brazilian Support Service to Small and Medium-Sized Enterprises/RR, Port Authority of Manaus and representatives of communities along the Jauaperi river, tributary of the river Branco, Aracari, Bacaba and Igarapé of Matias.
Oct 29, 2004	Technical Meeting.	Manaus/AM	Present the AquaBio project and gather information on the region.	ProVárzea/IBAMA, the Piaba project and the Secretary of Environment of the Municipality of Barcelos/AM.

Oct 29, 2004	Technical Meeting.	Manaus/AM	Gather information on research, projects and specific requests in the region of the Rio Negro.	IBAMA, UFAM e INPA, Secretary of Environment of Barcelos/AM.
Oct 29, 2004	Technical Meeting.	Manaus/AM	Obtain non-published information on the situation of fishing in Amazonas.	Amazonas State Research Support Foundation.
Oct 28, 2004	Conference Call.	Manaus/AM	Obtain information (documentation) on the situation of fishing in Amazonas.	University of Amazonas.
Oct 28, 2004	Technical Meetings.	Manaus/AM	Introduce the AquaBio Project.	SIPAM/SIVAM; Superintendence of the Free Zone of Manaus -- SUFRAMA.
Oct 28, 2004	Focus Group.	Manaus/AM	Gather information on the role of FVA in the Rio Negro basin in scientific research, public policy, education, social organization, and economic alternatives.	FVA.
Oct 28, 2004	Technical Meeting.	Manaus/AM	Gather information on research undertaken by INPA on vegetation and fish/mercury in the Rio Negro basin.	INPA.
Oct 27, 2004	Technical Meeting.	Manaus/AM	Discuss the Ecological Corridors project, the Program of Integrated Environmental Management (PGAI) and the Amazonian Protected Areas project (ARPA).	SDS /AM and Secretary of Forest Development – SDF/AM.
Oct 27, 2004	Technical Meeting.	Manaus/AM	Gather information on the role of SDS in the Rio Negro basin, as well as on the possibilities of partnerships for shared or complementary actions with the AquaBio project.	SDS/AM.
Oct 24 - 27, 2004	Meeting on the situation of the headwaters of the Xingu river.	Canarana/MT	Introduce and Disseminate information on AquaBio.	Association of the Registry Project of Jaraguá, ONGARA, Andre Maggi Group and IPAM, Land Alliance, UNEMAT, ACT/Canarana/MT, FEMA/MT, FMNA, PNF, ISA.
Oct 19, 2004	Technical Meeting.	Brasília/DF	Gather information on the physical-financial monitoring system (SIGMA) of the projects of MMA.	Project team and SECEX/MMA.
Oct 18, 2004	Technical Meeting.	Brasília/DF	Establish general guidelines for the elaboration of the diagnostic studies to be carried out by the consultants.	Project coordination team and contracted consultants.
Sep. 23,	Technical Meeting.	Canarana/MT	Discuss the projects developed in the	Federal University of São Paulo.

2004			Xingu Indigenous Park.	
Sep. 23, 2004	Focus Group.	Canarana/MT	Discuss the human activities that threaten the buffer zone around the Indigenous Park of Xingu.	ATIX.
Sep. 21, 2004	Focus Group.	Água Boa/MT	Introduce AquaBio and discuss the regional aspects of the headwater areas of the Xingu river.	ONG ONGARA, STR of Água Boa/MT, Prefecture of Água Boa/MT, UNEMAT, and Jaraguá Registry.
Sep. 20, 2004	Technical Meeting.	Nova Xavantina /MT	Introduce AquaBio and establish contacts with UNEMAT's projects underway in the Araguaia and Xingu basins. Visit to campus facilities.	UNEMAT.
Aug. 11, 2004	Focus Group.	Belém/PA	Evaluate the level of social organization in the region and identify the projects currently underway.	Executive Secretary of the GTA of Marajó, Fishing Community of Igarapé-Miri/PA.
Aug. 10, 2004	15th Regular Meeting of the Management Counsel of the Popular Plan for the Sustainable Development for the Area Downstream from the UHE Tucuruí Dam (CONJUS).	Belém/PA	Introduce AquaBio and discuss a proposal of cooperation along with the Popular Plan for the Sustainable Development for the Area Downstream from the UHE Tucuruí Dam (PPDSJUS).	ELETRONORTE, Tocantins Movement, SAGRI, ENGEVIX, Amazonian Institute, Municipal Counsel of the PDJUS of Abaetetuba/PA, UFPA/PA, SEAP/PA, Parliamentary Cabinet.
Aug. 08, 2004	Technical Meeting with representatives from Amazonian States' OEMAs.	Brasília/DF	Present and discuss the selection criteria for the sub-basins where AquaBio's demonstrative activities will occur.	SBF/MMA, SRH/MMA, ANA, CGREP/IBAMA, UNESCO, World Bank, FAO and OEMAs of Amazonas, Acre, Rondônia, Roraima, Amapá, Pará, Tocantins, Maranhão and Mato Grosso.
July 26, 2004	Technical Meeting of the AquaBio Advisory Committee for Preparatory Assistance.	Brasília/DF	Present and discuss the selection criteria for the sub-basins where AquaBio's demonstrative activities will occur.	SBF/MMA, SCA/MMA, SRH/MMA, ANA, CGREP/IBAMA, UNESCO and IBRD.

June 29, 2004	Technical Meeting.	Brasília/DF	Disseminate information on project and articulate partnerships.	SBF/MMA, Superintendency of Water and Soil Conservation/ANA, Superintendency of Hydrologic Information/ANA and UNESCO.
June 23 – 26, 2004	Technical Meeting.	Brasília/DF	Define the strategy for the elaboration for the Full-Sized AquaBio project.	SBF/MMA, SRH/MMA, SCA/MMA, SECEX/MMA, DPG/MMA, COIN/MMA, PROBIO/MMA, Ecological Corridors Project/MMA, PROAMBIENTE/MMA, World Bank, FAO, UNESCO, IBAMA, SEAIN/MP, University of Guelph (Canada), FEMA/MT.
May 11 – 14, 2004	Workshop on Support to the Institutional Development of the GTA Network in northern MT.	Lucas do Rio Verde/MT	Disseminate information on the AquaBio project and collect information for the structuring of the project.	GTA, IBAMA/sede, PROARCO/IBAMA/MT, UNEMAT, STR de Matupá, Gaviãozinho de Peixoto de Azevedo Association, Pastoral Land Commission of Colider, Terena Indigenous Association, STR of Lucas do Rio Verde, Entre Rios Association, STR of Guarantã do Norte, Association of the Califórnia Registry Project of the Municipality of Vera, Registry Association “Maria de Oliveira”, Father João Peter Institute, Movement of Small Agricultural Producers of the Municipality of Santa Helena, Colider and Cláudia, Forest Institute, Center of Life Institute (ICV) and Mato Grosso Environmental and Development Forum (FORMAD).
May 10, 2004	Technical Meetings.	Cuiabá/MT	Introduce and disseminate information on the AquaBio project.	FEMA, GEREX/IBAMA/MT, United Faculties of Várzea Grande (UNIVAG), Federal University of Mato Grosso (UFMT), University of Cuiabá (UNIC) the Ecotrópica NGO - GEREX/IBAMA/MT.

Annex 10: 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 adoption, by all stakeholders, of an approach (GIBRAH) that stimulates and facilitates 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 goal of GIBRAH is to internalize the objectives of conservation and sustainable use of aquatic biodiversity in development policies and programs for the Brazilian Amazon River.

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 GIBRAH 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 GIBRAH 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 GIBRAH; 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**:

- i) 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 GIBRAH (PAGs) in these sub-basins;
- ii) Implementation of demonstration activities providing inputs for the development of Action Programs for GIBRAH;
- iii) Support actions that lead to the implementation of institutional arrangements and processes for GIBRAH, with key users of aquatic resources in target areas within the three project sub-basins (involving three states within the Brazilian Amazon);

- iv) Development of a strategy leading to the financial sustainability of PAGs, with pilot financial mechanisms adopted by the end of the project;
- v) Systematization of GIBRAH experiences and formulation of a proposal for institutional arrangements and processes for GIBRAH 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);
- vi) Training of multipliers and animators (leaders and technicians) in principles and practices of GIBRAH;
- vii) 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;
- viii) 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;
- ix) Strengthening of existing and/or creation of new fora (e.g. local committees, state councils) that facilitate social actors participation and provide future continuity to GIBRAH;
- x) Training of local stakeholders (fishermen, rural producers, local politicians and local government staff, local NGOs, etc.);
- xi) Project Management;
- xii) Project Monitoring and Evaluation; and
- xiii) 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/salaries⁷ 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

⁷ Staff salaries from the Ministry of Environment (MMA) and IBAMA (Headquarters and staff from Amazon and Pará states)

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:

- 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. Develop. 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 GIBRAH (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 the Integrated Management of Aquatic Resources (GIBRAH), 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 GIBRAH (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	<i>Note: Consists of: GEF (US\$ 1,06 M) and GOB (US\$ 0,18 M) contributions</i>	
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	<i>Note: Consists of: GEF (US\$ 1.78 M); ; GOB (US\$ 1.47 M) and World Bank/RFT/GovMT/GovAM (US\$ 3.08 M) contributions</i>	
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	<i>Note: Consists of: GEF (US\$ 2.56 M);) and GOB (US\$ 1.10 M) contributions.</i>	
Component 4 Project Management, M&E, and Information Dissemination	Baseline	8.1	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	<i>Note: Consists of: GEF (US\$ 1.77 M) and GOB (US\$ 4.03 M)</i>	
Total	Baseline	33.80		
	GEF Alternative	50.93		
	Incremental	17.3	<i>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</i>	

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

Annex 11: STAP Roster Review

STAP Reviewer: **Thomas Lovejoy**

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 would 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. Tucuruí), or are unlikely to have one built (i.e., the Rio Negro area energy supplies would 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 would 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, would 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) would allow for earlier detection of any problems related to exotic aquatic species in a timely manner. The fact that CONABIO would act as the project's Steering Committee would 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 would 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 would be addressed separately by a GEF/OTCA project.

Team Response: Nevertheless, the dissemination of information component of the AquaBio would 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 would 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 would 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 GIBRAH 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.

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.

Regional Context

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

Replicability

There is every reason to anticipate that success in the three sub-basins would 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.

Sustainability

As at Mamirauá, the success of the project would 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.

Additional issues

One important aspect of this project is that it would 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 12: Map of the Project Area

