



PROJECT EXECUTIVE SUMMARY

GEF COUNCIL SUBMISSION

AGENCY'S PROJECT ID: P066535
GEFSEC PROJECT ID:
COUNTRY: Brazil
PROJECT TITLE: Integrated Management of Aquatic Resources in the Amazon (AquaBio)
GEF AGENCY: World Bank
OTHER EXECUTING AGENCIES: Ministry of Environment; IBAMA; SDS - State of Amazonas; FEMA – State of Mato Grosso.
DURATION: 6 years
GEF FOCAL AREA: Biological Diversity, with relevance to International Waters
GEF OPERATIONAL PROGRAM: Freshwater Ecosystems (#OP2), with relevance to Integrated Land and Water Multiple Focal Areas (#OP9)
GEF Strategic Priority: Mainstreaming Biodiversity in Production Landscapes and Sectors (BD-2), with relevance to Catalyzing Financial Resources for Implementation of Agreed Actions (IW-1)
Pipeline Entry Date: November 10, 1999
ESTIMATED STARTING DATE: November 1, 2005
 IA Fee: \$ 665,000

FINANCING PLAN (US\$)	
GEF PROJECT/COMPONENT	
Project	7,181,900
PDF A	
PDF B	213,000
PDF C	
<u>Sub-Total GEF</u>	7,394,900
CO-FINANCING*	
GEF Agency (World Bank)	559,100
Government (Federal and State Governments)	7,848,400
Multilateral (RFT, FAO)	1,485,000
Others (Beneficiaries)	78,900
<i>Sub-Total Co-financing:</i>	<i>9,951,300</i>
<i>Total Project Financing:</i>	<i>17,450,000</i>
FINANCING FOR ASSOCIATED ACTIVITIES IF ANY: US\$ 8,000,000	
LEVERAGED RESOURCES IF ANY: US\$1,000,000	

*Details provided under the Financial Modality and Cost Effectiveness section

Contribution to Key Indicators of the Business Plan: Under BD-2, one project incorporating biodiversity aspects (fisheries sector); 32,941 km² of freshwater productive landscapes under improved management.

RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT(S):

Mr. Lampert da Costa, National GEF Operational Focal Point, Secretariat for International Affairs, Ministry of Planning, Budget and Management

Date: *March 18, 2005*

Approved on behalf of the World Bank. This proposal has been prepared in accordance with GEF policies and procedures and meets the standards of the GEF Project Review Criteria for work program inclusion.

Steve Gorman
Steve Gorman
 GEF Executive Coordinator, The World Bank
 Date: April 18, 2005

Project Contact Person, Sr. Regional Coordinator
 Jocelyne Albert
 Tel and email (202) 473-3458,
 jalbert@worldbank.org

Background on Project Preparation

PDF-B approved in May 2001. The Ministry of Environment (MMA) wanted FAO as the executing agency for the preparation grant, but an agreement could not be reached between the Bank and FAO on the use of Bank procurement guidelines. On April 5, 2002, MMA started a search for alternative arrangements and on August 30, 2002, entered into an agreement with UNESCO for execution of the PDF-B. After making the necessary adjustments, the Grant Agreement was signed on October 22, 2003. This delay actually benefited the project in two ways: (i) while under the previous circumstances the PMU would be staffed with consultants, by early 2004 the MMA had finalized a process to hire new staff dedicated to manage project preparation and implementation activities; thus greatly contributing to the institutional sustainability of the project; and (ii) in the past four years, the Floodplain Natural Resources Management Project and other projects under the Rainforest Pilot Program have started their implementation, generating lessons and experiences that were incorporated into the proposed GEF Project.

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 Results Framework (Annex B); (iii) public consultation on the AquaBio Project technical proposal – Novo Airão, December 5, 2004, and (iv) 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. The project design has also been enhanced through the Bank's internal review process (Quality Enhancement Review - QER), which provided suggestions in relation to (i) how to improve the story line, including the project's approach to mainstreaming; (ii) better description of the concept of GIBRAH, and (iii) clarification on the integration between the capacity building component and the demonstration activities. Those suggestions have been incorporated into the GEF Project Brief.

Project Summary

- a) Project rationale, objectives, outputs/outcomes, and activities.

Rationale: 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

unequaled; 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. The Amazon's aquatic ecosystems, linked natural resources, and human communities (including indigenous peoples) that depend 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. 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. 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.

Objectives: 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*). The proposed GEF-financed project, called AquaBio, assists the Government of Brazil to put GIBRAH in place and will 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 will 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. 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.

Outcomes: The main expected ones are: (i) 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; (ii) On a demonstrative basis, tested and implemented technologies and production systems that support the mainstreaming of freshwater biodiversity concerns into relevant production sectors; (iii) Greater operational and decision-making capacity by institutions and civil society at local, state, and federal levels, to adopt and implement GIBRAH; and (iv) Strengthened institutional capacity to manage and coordinate actions in the three sub-basins, monitor impacts, and disseminate the experiences generated by the project.

Activities: The main project activities that will lead to the proposed objectives are: (i) development of participatory diagnostic analyses of aquatic resource issues in three demonstrative sub-basins (located in the States of Amazon, Mato Grosso and Tocantins), including two sub-basins characterized by clear (Xingu and Tocantins rivers) and black water rivers/ecosystems (Negro river), respectively; (ii) implementation of initial pilot/demonstration activities in these sub-basins, providing inputs for the development of Action Programs (PAGs) for GIBRAH (demand-driven proposals from local NGOs, community groups and municipal governments for economic activities – e.g. investments in organic and/or indigenous products, handicrafts, ornamental fish, ecotourism–, that generate income while at the same time protects aquatic biodiversity, and hence promoting the transition to more sustainable livelihoods); (iii) formulation and initial implementation of Action Programs (PAGs) in the three demonstrative sub-basins; (iv) support for a process leading to agreed institutional arrangements for the implementation of GIBRAH in the three participating States; (iv) development of a strategy leading to the eventual financial sustainability of PAGs-supported activities); (v) an agreed process and series of activities leading to the expansion of GIBRAH to the other six States in the Basin; (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 the formation of partnerships with organizations dealing with the use of aquatic biodiversity and water resources in the project area; (ix) strengthening or creation of fora (e.g. local committees, state councils) for decision making on GIBRAH issues at local and state/sub-basin levels; (xi) Project Management, Project Monitoring and Evaluation, and Information Dissemination.

b) Key indicators, assumptions, and risks (from Logframe)

Indicators: The key indicators that would be used to evaluate whether the project has achieved the PDO and GEO are: (i) 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; (ii) 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; and (iii) 32,941 km² of freshwater productive landscapes, including associated floodplains and riparian areas, under improved management, with positive impacts on freshwater biodiversity. The Logical Framework in Annex 3 presents the whole suite of project indicators. 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.

Key assumptions: (i) the Government continues to support aquatic biodiversity-related activities and policies, and to provide necessary counterpart financing including dedicated staff to work on project implementation; (ii) local/riverine communities and indigenous groups with continued interest in participating in discussions regarding aquatic resources management, proposing and executing activities that generate alternative sources of income and create a self-sustainable economic base, while at the same time protecting aquatic biodiversity; (iii) outreach to local stakeholders (through education and adoption of pilot sustainable economic sector-based activities) sustains their support over time. The project design has incorporated several elements to help control any factors that may change these assumptions.

Risks outside of the project's control include: (i) co-financed activities are not carried out at the expected pace; and (ii) radical changes in economic conditions affecting the success of the financial sustainability strategy. The Critical Risks matrix in Section C.5 of Project Brief highlights potential risks related to the critical assumptions made by the project and corresponding risk mitigation measures.

2. COUNTRY OWNERSHIP

a) COUNTRY ELIGIBILITY

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

b) 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. 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.

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.

3. PROGRAM AND POLICY CONFORMITY

a) FIT TO GEF OPERATIONAL PROGRAM AND STRATEGIC PRIORITY

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) SUSTAINABILITY (INCLUDING FINANCIAL SUSTAINABILITY)

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 will 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);

c) REPLICABILITY

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.

d) 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 12). 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) on March 9, 2005, a 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 12). 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>

e) MONITORING AND EVALUATION

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. FINANCIAL MODALITY AND COST EFFECTIVENESS

<i>Sources of Co-financing</i>				
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)
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)

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)
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)	Confirmed (Letter from Secretary of State)
Fishermen, agricultural producers, and riparian and rural communities	Beneficiaries	Counterpart foreseen in execution of AquaBio Demonstration Activities	US\$78,900	Confirmed (counterpart funds will 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)
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 IBAMA¹.

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 will be implemented using mostly

¹ 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).

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.

5. INSTITUTIONAL COORDINATION AND SUPPORT

a) CORE COMMITMENTS AND LINKAGES

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). Mainstreaming of environment into sector policies is being supported in Brazil by a large new WB Programmatic Reform Loan for Environmental Sustainability, with an associated Technical Assistance Loan. In addition, 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. 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).

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.

b) CONSULTATION, COORDINATION AND COLLABORATION BETWEEN IAS, AND IAS AND EXAS, IF APPROPRIATE.

The project's design and implementation strategy is based on the establishment of several informal and formal partnerships. The proposed project is in conformity with the objectives of the National Biodiversity Strategy (UNDP as IA), and proposes the necessary actions and investments to achieve those objectives particularly in the project impact areas. The National Biodiversity Strategy is coordinated by MMA's Secretariat of Biodiversity, i.e. the same executing agency of the proposed project. The details of the collaboration 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), are under discussion and would be agreed to prior to CEO Endorsement. The collaboration with the Brazilian National Water Agency (ANA) merits special attention. Its final terms and scope would be established by 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.

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 of Annex 6 of the Project Brief shows the main points of complementarity between these two proposed GEF projects for the Amazon Basin. In addition, on March 9, 2005, the Director of DCBIO and the AquaBio Project Coordinator met with Mrs. Rosalia Arteaga, Director General of the ACTO, and members of her staff, to present the progress in preparing the AquaBio and discuss possibilities for interaction with OTCA's GEF Project during the remainder of project preparation and project implementation.

The *Amazon Region Protected Areas Project (ARPA)*, a GEF supported project with the World Bank (WB) as implementing agency (IA), is currently under implementation by MMA. The ARPA project is supporting the creation of new protected areas (PAs) in the Brazilian Amazon, including the collection of biological, social, and economic data needed to finalize PA selection. AquaBio's proposed Freshwater Biodiversity Information System (SIBA) will provide an important additional source of information to allow for possible identification of currently unknown "hot spots" of freshwater biodiversity in the project area. In addition, ARPA will support the establishment of a biodiversity monitoring system. AquaBio will coordinate its monitoring actions with those of ARPA to ensure compatibility between the two systems. Coordination and collaboration between AquaBio and ARPA will be greatly facilitated as both projects have MMA as the Executing Agency and the Bank as the GEF IA.

Another relevant project is *Promoting Biodiversity Conservation and Sustainable Use in the Frontier Forests of Northwestern Mato Grosso* (UNDP as IA), which is currently under implementation in the State of Mato Grosso (but outside the Xingu River basin). Some of the “lessons learned” and experiences of this project could be very useful for AquaBio activities, particularly those planned in the upper Xingu basin (e.g., proposed activities related to the establishment of agro-silvopastoral systems under the former project). An initial meeting between the Project Coordinator for the AquaBio and a UNDP representative in Brazil has already taken place and further discussions are planned in the near future in the context of planning for a more detailed socio-environmental diagnostic study that will be carried out by the AquaBio in the upper Xingu.

C) PROJECT IMPLEMENTATION ARRANGEMENT

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. 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 (CONABIO) 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. 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 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 an organizational chart, see Annex 6.

Annex A: 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 will 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 will 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/salaries² and US\$ 4.73 million in cash, with the latter corresponding to resources "earmarked" in the country's approved Multi-Year Plan – PPA); (ii) the World Bank (US\$ 559,000) – from the existing National Environmental NEP II Project (WB loan BR-35741); (iii) State governments' own resources from the Governments of the States of Mato Grosso (US\$ 397,200 - US\$ 141,300 in cash and US\$ 256,000 in salaries) and Amazonas (US\$ 467,900 - US\$ 354,500 in salaries/in-kind and US\$ 113,000 in cash); (iv) Rain Forest Trust Fund – RFT/G-8 countries (US\$ 1,46 million) – from the existing Ecological Corridors Project (Central Amazon corridor's component); and (v) resources from beneficiaries (US\$ 79,000).

AQUATIC BIODIVERSITY ISSUES AND UNDERLYING CAUSES

The rivers of the Amazon Basin and their associated ecosystems are characterized by a rich diversity of freshwater fauna and flora of global importance, representing approximately 30% of the world's freshwater ichthyofauna, most of which is endemic. Although smaller, the numbers

² Staff salaries from the Ministry of Environment (MMA) and IBAMA (Headquarters and staff from Amazon and Pará states)

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 will 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 will 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 will mostly produce national benefits in the form of sustainable development and adequate use of natural resources. Its implementation will 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 Americas 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 will 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 will 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 will 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 B: Project Results Framework
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 style="text-align: center;"><i>Indicators of the Result for each Component</i></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 processes established in three sub-basins of the</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 the three sub-basins with institutional arrangements formulated and negotiated with natural resource users by</p>	<p>PY01 adjust efforts if less than two diagnostic activities are underway.</p> <p>PY02 reevaluate capacity building and dissemination strategy</p>

<p>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 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>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 institutions and civil society organizations at</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>By PY06, 10 proposals for projects that contribute to the</p>	<p>PY03 reevaluate the capacity building strategy if the achieved target for any stakeholder group is less than 50%.</p> <p>PY04 increase technical</p>

<p>local, state, and federal levels in the Brazilian Amazon, to support implementation of GIBRAH.</p>	<p>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>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>By PY06, project information dissemination implemented</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> <p>PY03 conduct mid-term</p>

	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).	evaluation and readjust project implementation if necessary.
--	---	--

ANNEX C: RESPONSE TO PROJECT REVIEWS

a) Convention Secretariat comments and IA/ExA response

GEF Secretariat Review: Concept Clearance

Sustainability: To be addressed adequately during project development.

Team Response: Financial sustainability of project interventions will be supported through subcomponent 1.2 as the project will develop a structure for financial sustainability through several lines of action. Institutional sustainability will be facilitated by the project's management structure, but most importantly through project interventions that will contribute to this goal, such as: (i) public policy planning activities which may result in improved institutional arrangements and increased capacity to manage resources and aquatic biodiversity, and to avoid/mitigate conflicts among different actors; and (ii) a comprehensive monitoring and evaluation system which will strengthen the institutional capacity to administer, coordinate public sector interventions, and disseminate project experiences and "lessons learned" to Amazonian states and to countries of the Amazon Basin as a whole. More details on project sustainability can be found on the Project Brief, Section C.4.

Conformity with GEF public involvement policy: The participation of the indigenous people will have to be adequately addressed during project development.

Team Response: Representatives from Indigenous Peoples associations participated in several meetings organized for preparation of the AquaBio project, including the workshop organized in Brasilia, Nov 30 – Dec 01, to discuss and agree on the Project Logical Framework and on the strategy for implementation of Component 2, and the public consultation that took place in Novo Airão (Rio Negro, December 05). Indigenous peoples were represented by members of the Association of Indigenous Tribes of the Xingu (ATIX) and of the Federation of Indigenous Organizations of the Rio Negro (FOIRN). In addition, indigenous peoples are well represented in the project since the Coordination of Amazonian Indigenous Organizations (COIAB) has a seat in the CONABIO. An Indigenous Peoples Development Plan is under preparation and will be ready before project appraisal. Details on the project consultation process can be found in Annex 12 to the Project Brief.

Collaboration with other institutions: This needs to be demonstrated better.

Team Response: The proposed AquaBio Project is a classic "Process Project", as it will start working with "willing" partners available from the start, and will seek to entice the participation of additional stakeholders (institutions, organizations, sectors, etc.) through a variety of project strategies and activities, such as: training and environmental education, support to demonstration activities, support to the creation or strengthening of "discussion spaces" that are deemed adequate by the relevant stakeholders, and development of a financial sustainability strategy for long-term continuation of some of the project supported activities. The high rate of stakeholder participation and interest demonstrated for all AquaBio supported activities so far has proven that there is already a substantial number of "willing" partners to start with, although most are associated with associations of small rural producers (fishermen and farmers), indigenous groups, local level government institutions, or organizations focused on environmental sustainability. Participation of representatives from large producers and the power sector was also present at such meetings, although in much smaller numbers, but project activities are geared to increase participation of other producer and non-producer sectors as project implementation advances.

Complementarity with ongoing activities: This project will have to demonstrate its specific niche.

Team Response: As indicated by the project baseline, there are a number of projects and activities currently under implementation in the Brazilian Amazon, each focused on different aspects of conservation and sustainable use of that Biome. However, with the exception of ProVarzea, none have a

specific focus on the medium and long term conservation and sustainable use of freshwater biodiversity and other aquatic resources. Also, because aquatic ecosystems are vulnerable not only to direct threats to such ecosystems, but also suffer the negative impacts of threats to terrestrial ecosystems and from climate change, the long term sustainability of aquatic ecosystems and its biodiversity - and that of the livelihoods of riparian communities who depend on such resources – need to be addressed in an integrated way, both spatially (river basin) and thematically. The AquaBio Project will provide the relevant stakeholders with the tools to be able to do so.

Technical assurances: Integration of this project with ongoing activities should be demonstrated from the beginning.

Team Response: There are a number of ongoing activities that are relevant in one way or another to the implementation of the AquaBio Project (see Baseline Activities, Table 1 in Annex 15 to the Project Brief). However, better coordination and synergies among the execution of all those activities in the Brazilian Amazon could generate additional and more long-lasting outcomes. The Government of Brazil sees the AquaBio as an excellent tool and opportunity to foster such synergies in a spatial context of River Basins. The integration of the AquaBio with other ongoing activities is also supported by the number and variety of co-financing sources to support project activities in the three priority sub-basins. The proposed project will be implemented in an integrated manner with these ongoing initiatives, and adopting a new paradigm for environmental management – focused on the introduction of objectives of conservation and sustainable use of aquatic biodiversity in various productive sectors (especially fisheries, agriculture, and tourism), while also seeking to discuss inter-sectoral priorities, such as issues related to sanitation/health, mining, transport, energy, and forestry.

Other technical comments: Project should justify the gaps it intends to fill; it should clearly demonstrate that there will be no duplication and that it could form the basis of a strategic approach towards the Amazon.

Team Response: In the spirit of BD-2, the project addresses gaps identified in the recent GEF study that evaluated its Biodiversity Program (Biodiversity Program Study 2004; specifically, the need to address the mainstreaming of biodiversity in non-resource sectors (e.g. finance, health, energy, transport and mining). The AquaBio project, besides internalizing aquatic biodiversity objectives in key sectors of the Amazon (fishing, agriculture, and tourism), takes into consideration the intersectoral needs of issues related to sanitation/solid waste (especially in the sub-basins of the upper Xingu and lower Negro Rivers), mining (Xingu, Negro, and Tocantins Rivers) and hydroelectricity (Tocantins River). There is currently no other project in the Brazilian Amazon, working outside the context of protected areas, that takes such an approach to the sustainable use and conservation of aquatic biodiversity in clear and black water freshwater ecosystems.

GEF Secretariat Review: PDF-B Approval

The Secretariat expects:

(a) clarification of the OP Fit, particularly for OP 9 will be needed; thus far the Secretariat will treat the project as an OP2.

Team Response: Since approval of the PDF-B, another GEF project has been proposed for the whole Amazon Basin under OP9, with a special focus on transboundary water resources issues and climate change. The project, *Integrated and Sustainable Management of Transboundary Water Resources in the Amazon River Basin* (UNEP as implementing agency), was approved for pipeline entry in November 2003, and is currently under preparation. Collaboration and coordination between that project and the AquaBio is presented in Section C.2 of the Project Brief. For this reason, the AquaBio will concentrate its focus on the conservation and sustainable use of freshwater ecosystems and aquatic resources in the Brazilian Amazon.

(b) an annex in the Project Brief describing threats, underlying causes of biodiversity loss, proposed project activities and potential outcomes per sub-basin is expected.

Team Response: Such information can be found in Annexes 1, 3 and 4 of the Project Brief.

(c) the institutional setup to be identified will likely need to include an inter-ministerial committee which would address key inter-sectoral issues and those related to national vs. state and municipal interests.

Team Response: The National Biodiversity Commission will serve as the project's Steering Committee. Members of CONABIO include: 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). It was agreed with the Government that ANA will participate as an invited member in all meetings where AquaBio-related issues are discussed. In addition, the project will also benefit from the inputs and support of Steering Committees at the Sub-basin level. Additional details on the project institutional arrangements can be found in Annex 6 to the Project Brief.

(d) staff involved in project preparation will interact with staff from Brazil's GEF/IW projects so that past experience and lessons learned in these projects can be incorporated in the resulting Project Brief

Team Response: This issue is not as relevant at the current time because the project is being presented under OP2, since it now focuses mostly on issues related to the conservation of freshwater ecosystems on a national basis - see Team Response to item (a) above. However, because MMA is also the executing agency for the Pantanal and Upper Paraguay River Basin GEF Project (IW/OP9), preparation of the AquaBio project has benefitted from the experience of MMA Staff with implementation of that project.

b) STAP expert review and IA/ExA response

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 will be addressed separately. Major hydroelectric projects could threaten the project but the sub-basins chosen either have already (years ago in fact) had such projects (e.g. Tucuruí), or are unlikely to have one built (i.e., the Rio Negro area energy supplies will come largely from natural gas in the foreseeable future). The involvement of Eltronorte in the project should ward off any possible conflicts.

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

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

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

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

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

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

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

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

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

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

Replicability

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

Sustainability

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

Additional issues

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

Conclusion

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

c) GEF Secretariat and other Agencies' comments and IA/ExA response

UNDP's Comments on the Concept Note.

Team Response: UNDP's comments were provided in 1999, when the AquaBio Project was approved for pipeline entry based on its initial Concept Note. Since then, and as previously explained in the responses to the GEF Secretariat Review, the project has evolved from a stronger focus on OP9 related issues to a focus on OP2 related activities, as it addresses the long-term conservation and sustainable use of freshwater ecosystems in the Brazilian Amazon. As such, the team will selectively respond to the comments below that are still relevant at the present time, and that still haven't been answered in the responses to the GEF Secretariat Reviews at the time of pipeline entry or PDF-B approval

The global importance of the Amazon Basin's aquatic biodiversity is uncontested. To protect this biodiversity, the activities proposed for the full-scale project seem to fall principally under OP 9 (IW) rather than OP2 (BD).

The objectives of the project are support to strategy formulation, generation and dissemination of lessons learned and generation of knowledge for eventual formulation of an overall long-term strategy for the Brazilian portion of the Amazon Basin.

Principal activities of the full-scale project would include the development of plans for integrated sub-basin management of water resources and freshwater biodiversity and implementation of *land and water* use practices on a pilot basis that contribute to the sustainability of freshwater biodiversity.

As such, these objectives and activities are very similar to Enabling Activities and less so to the sort of site-specific objectives and activities required by GEF Operational Programs. It must be remembered that Brazil already has an approved Enabling Activity and under the WB-GEF Pilot Phase projects many other similar activities are already being implemented in its Amazon ecosystems. In addition, it is unclear what the actual impacts of the project would be, given that it only proposes to produce strategies and plans, and is otherwise general and ambiguous in its description of final on-the-ground, site-specific impacts.

The fundamental premise of the project is that aquatic biodiversity is threatened from a lack of land-use planning (see threats on page 2). Since we don't know what areas (sub-basins) will be addressed it is unclear whether the areas have been the subject of land use planning through other projects.

Team Response: The sub-basins that will directly benefit from project activities and investments have been clearly identified in the Project Brief. The lack of land-use planning is a central issue in the headwater areas of the Xingu basin and also important in the lower Tocantins basin.

The sub-basins to be addressed would only be identified during a PDF B. PDF B resources would basically be requested for project identification.

Team Response: The establishment of the selection criteria, and the process to identify the three priority sub-basins, took place well before PDF-B resources were made available to MMA. The process and criteria are presented in Annex 1, Appendix 1 to the Project Brief.

The broad geographic scope of the proposed project and the time taken to develop it may hinder development of other initiatives by other IAs in the whole Brazilian part of the Amazon Basin. This concept clearly needs more work and focus.