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PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT FROM THE GLOBAL ENVIRONMENT FACILITY

IN THE AMOUNT OF US$6 MILLION

TO THE

ORGANIZATION OF AMERICAN STATES

FOR THE

BUILDING THE INTER-AMERICAN BIODIVERSITY INFORMATION NETWORK (IABIN) PROJECT

June 29, 2004

Environmentally and Socially Sustainable Development Sector Management Unit

Latin America and the Caribbean Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective)

Currency Unit = US dollar

FISCAL YEAR

FY04 -- FY09

ABBREVIATIONS AND ACRONYMS

CAS	Country Assistance Strategy (World Bank)
CBD	Convention on Biological Diversity
CCAD	Central American Commission for Environment and Development
CEC	Commission for Environmental Cooperation (North America)
CI	Coordinating Institution (of an IABIN Thematic Network)
CHM	Clearing-House Mechanism
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CONABIO	Mexican National Biodiversity Commission *(Comisión Nacional para el Conocimiento y Uso de la Biodiversidad)*
COP	Conference of the Parties (Convention on Biological Diversity)
CRIA	Reference Center on Environmental Information *(Centro de Referência em Informação Ambiental)* (Brazil)
DFS	Department of Financial Services (OAS)
DWA	Direct Withdrawal Application
EBA	Endemic Bird Area (BirdLife)
EU	European Union
FGDC	Federal Geographic Data Committee (US)
FMR	Financial Monitoring Report
GBIF	Global Biodiversity Information Facility
GEF	Global Environment Facility
GIS	Geographic Information System
GISP	Global Invasive Species Programme
GS/OAS	General Secretariat of the Organization of American States
GSD	Global Species Database
I3N	IABIN Invasives Information Network
IABIN	Inter-American Biodiversity Information Network
IAS	Invasive Alien Species
IAvH	Alexander von Humboldt Biological Resources Research Institute *(Instituto de Investigaciones Biológicas Alexander von Humboldt)* (Colombia)
IBRD/IDA	International Bank for Reconstruction and Development /International Development Association
IEC	IABIN Executive Committee
INBio	National Biodiversity Institute *(Instituto Nacional de Biodiversidad)* (Costa Rica)
ITIS	Integrated Taxonomic Information System

IUCN	World Conservation Union
M&E	Monitoring and Evaluation
MA	Millennium Ecosystem Assessment
MAB	Programme on Man and the Biosphere (UNESCO)
MABNet Americas	Man and the Biosphere Network in the Americas
NABIN	North American Biodiversity Information Network
NASA	National Aeronautics and Space Agency (US)
NBII	National Biological Information Infrastructure (US)
NGO	Non-governmental Organization
OAS	Organization of American States
OAS-CIDS	OAS Committee on Sustainable Development
OASES	OAS Enterprise System
OM	Operational Manual
PDF	Project Preparation and Development Facility (GEF)
PIP	Project Implementation Plan
PO	Purchase Order
PSR	Project Supervision Report (World Bank)
RAMSAR	The Convention on Wetlands
REMIB	World Information Network on Biodiversity *(Red Mundial de Información sobre Biodiversidad)*
RINCIS	Rationalization of International Nature Conservation Information Systems
SIAM	Mesoamerican Environmental Information System *(Sistema de Información Ambiental Mesoamericano)*
SOE	Statement of Expenditures
STAP	Scientific and Technical Advisory Panel (GEF)
TEK	Traditional Environmental Knowledge
TN	Thematic Network of IABIN
TNC	The Nature Conservancy
TORs	Terms of Reference
TSA	The Species Analyst
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNEP-WCMC	UNEP-World Conservation Monitoring Center
UNESCO	United Nations Education, Science, and Cultural Organization
USDE	Unit for Sustainable Development and Environment (OAS)
USGS	United States Geological Survey
WB	World Bank
WSSD	World Summit on Sustainable Development
XML	Extended Markup Language

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LATIN AMERICA: BUILDING THE INTER-AMERICAN BIODIVERSITY INFORMATION NETWORK (IABIN)

CONTENTS

Annexes

LATIN AMERICA
Building the Inter-American Biodiversity Information Network (IABIN)

Project Appraisal Document

Latin America and Caribbean Region
LCSEN

Date: June 3, 2004	**Team Leader:** Douglas J. Graham
Sector Manager: Abel Mejía	**Sector(s):** Information technology (100%)
Sector Director: John Redwood	**Theme(s):** Biodiversity (P)
Project ID: P077187	
Focal Area: B - Biodiversity	

Project Financing Data

[ ] Loan [ ] Credit [X] Grant [ ] Guarantee [ ] Other:

For Loans/Credits/Others:

Amount (US$m): $6.0 million (GEF). Parallel financing of $28.9 million from 78 regional/national institutions has been identified. Of this amount, $9.7 million is own-managed "core" parallel financing to co-implement key actions under the project (including parallel financing from the U.S. Government, the Recipient, some NGOs, and the host of the Secretariat). $19.2 million is own-managed parallel financing from institutions that will be disbursing their funds for the execution of activities in furtherance of IABIN's goals and in partnership with the Recipient (all parallel financing will be verified through a comprehensive tracking system).

Financing Plan (US$m): Source	Local	Foreign	Total
BORROWER/RECIPIENT	6.13	0.25	6.38
GLOBAL ENVIRONMENT FACILITY	3.00	3.00	6.00
US, GOV. OF	0.00	6.35	6.35
FOREIGN MULTILATERAL INSTITUTIONS (UNIDENTIFIED)	0.00	1.38	1.38
NON-GOVERNMENT ORGANIZATION (NGO) OF BORROWING COUNTRY	5.72	9.10	14.82
Total:	14.85	20.08	34.93

Borrower/Recipient: OAS
The OAS acts on behalf of the IABIN Council.
Responsible agency: OAS
Address: 17 Street and Constitution Ave., N.W.
Washington, D.C. 20006
Contact Person: Richard Huber
Tel: 202-458-3227 Fax: 202-458-3560 Email: rhuber@Oas.Org

Estimated Disbursements (Bank FY/US$m):

FY	2005	2006	2007	2008	2009				
Annual	0.99	1.42	1.38	1.19	1.02				
Cumulative	0.99	2.41	3.79	4.98	6.00				

Project implementation period: 5 years
Expected effectiveness date: 08/13/2004 **Expected closing date:** 12/31/2009

Does the project depart from the CAS in content or other significant respects? ***Ref. PAD B.1***	~~o Yes~~ o No
Does the project require any exceptions from Bank policies? ***Ref. PAD I***	o Yes ~~o No~~
Have these been approved by Bank management?	o Yes ~~o No~~
Is approval for any policy exception sought from the Board?	o Yes ~~o No~~

Does the project include any critical risks rated "substantial" or "high"? ***Ref. PAD F.2***	~~o Yes~~ o No
Does the project meet the Regional criteria for readiness for implementation? ***Ref. PAD H***	o Yes ~~o No~~

Project development objective ***Ref. PAD B.2, Technical Annex 1***
1) To develop an Internet-based, decentralized network to provide access to biodiversity information currently existing in individual institutions and agencies in the Americas, 2)
To provide the tools necessary to draw knowledge from that wealth of resources to support sound decision-making concerning the conservation and sustainable use of biodiversity

Project description *[one-sentence summary of each component]* ***Ref. PAD C.1, Technical Annex 2***
Component 1, Interoperability and Access to Data, will develop basic data standards and network infrastructure that will allow users to search and access biodiversity data and information.
Component 2, Data Content Creation, will provide data providers the tools, training, and physical capacity to make data available to users through the network.
Component 3, Information Tools for Decision Makers, will provide visualization and data integration tools to improve the usability of the data in the decision making process.
Component 4, Sustainability of IABIN, includes project coordination, support for partnerships and communications and funding, on a declining cost basis, for the position of Director of the Secretariat.
Component 5, Administration, covers strictly administrative costs of the Executing Agency (contracting, procurement, disbursements, audits, etc.).

Which safeguard policies are triggered, if any? ***Ref. PAD E.7***
Not Applicable

Significant, non-standard conditions, **if any**, for effectiveness ***Ref. PAD G.1***; 1) An Operational Manual, satisfactory to the Bank, has been approved by the Executing Agency.
2) The IABIN Secretariat has been established by the IEC and is functionally operating.

Board presentation: June 29, 2004

Loan/credit effectiveness:

Covenants applicable to project implementation:

A. Project Development Objective

1. Project development objective: (see Annex 1)

The Inter-American Biodiversity Information Network (IABIN) was officially mandated at the Summit of the Americas on Sustainable Development, convened in Santa Cruz de la Sierra, Bolivia, in December 1996. To support the development of IABIN, this GEF project seeks to: (i) consolidate the development of this Internet-based, decentralized network to provide wider access to scientifically credible biodiversity information currently existing in individual institutions and agencies in the Americas, (ii) provide the tools necessary to draw knowledge from that wealth of resources, which in turn will support sound decision-making concerning the conservation and sustainable use of biodiversity. In doing so, this project will directly support implementation of Articles 7, 16, 17 and 18 of the Convention on Biological Diversity (CBD), and in particular the development and implementation of the Clearing-House Mechanism (CHM) which the Convention has established to promote and facilitate technical and scientific cooperation (Article 17(3)).

The project will implement IABIN at a regional level through:

- Assessing the information needs of the biodiversity community, decision makers, and stakeholders in the region;
- Promoting a set of standards, protocols, tools, and methodologies (those of GBIF or CHM or others, as appropriate) that will enhance the ability to search, retrieve, and analyze information across networks (including georeferenced data, quantitative and qualitative data, information, and knowledge);
- Digitizing relevant data held in non-electronic forms, thereby increasing the amount of biodiversity information accessible through the network;
- Exchanging scientific expertise through collaborative projects and training and other efforts to build capacity in human and technological resources;
- Producing tools to support decision-making; and
- Supporting development and implementation of the CBD CHM at both regional and national levels in line with the Articles of the Convention and decisions of the Conference of Parties (COP).

The benefits are numerous. IABIN will:

- Promote and facilitate access to the information necessary for ensuring conservation and sustainable use of biological diversity in all appropriate sectors including agriculture, tourism, and forestry;
- Improve regional cooperation for biodiversity management through sharing of knowledge and expertise;
- Provide the capacity to address critical issues—invasive species, migratory species, and the spread of diseases, among others — at a regional level;
- Support local and national decision-making;
- Allow the identification of gaps in knowledge and new fields of interest and facilitate consensus-building on a research agenda to support biodiversity conservation;
- Improve the quality of biodiversity projects (both at preparation and during supervision) in the portfolio of the Global Environment Facility (GEF), the World Bank, and other financiers;
- Help the CBD (through the CHM) and other relevant conventions fulfill their mandates; and

- Deliver information that supports the implementation of certain CBD decisions and programs of work.

2. Key performance indicators: (see Annex 1)

Key performance indicators are noted on the Logical Framework in Annex 1.

B. Strategic Context

1. Sector-related Country Assistance Strategy (CAS) goal supported by the project: (see Annex 1)

Document number: 23084 **Date of latest CAS discussion:** N/A

The Latin America and the Caribbean Region Environment Strategy (June 2002) of the World Bank has four development objectives. The proposed project particularly supports the third objective of "development of enabling frameworks for sound environmental management". The Strategy states that this objective would be promoted by mainstreaming efforts including supporting targeted institution building such as promotion of decision-support systems (priority-setting tools and outcome-oriented monitoring systems). This project implements this part of the Environment Strategy as it will help provide the informatics infrastructure and biodiversity information content required by the countries of the Americas to inform their decision-making.

1a. Global Operational strategy/Program objective addressed by the project:

The IABIN project is a biodiversity enabling activity as defined in the GEF Operational Strategy:

> *Enabling activities in biodiversity are those that prepare the foundation to design and implement effective response measure to achieve Convention objectives. They will assist recipient countries to develop national strategies, plans or programs... and to identify components of biodiversity together with processes and activities likely to have significant adverse impact on conservation and sustainable use of biodiversity...*

The main purpose of IABIN, to create an information-rich enabling environment for conservation and sustainable use of biodiversity in the Americas, fits perfectly the GEF definition of an enabling activity for biodiversity conservation. IABIN's strategic focus supports capacity building of regional, national and local partner institutions that provide data. IABIN also promotes thematic fora and development of information products and services to assist decision making.

The GEF's recently published Biodiversity Strategic Priorities highlight the need for "Generation and dissemination of best practices for addressing current and emerging biodiversity issues." The GEF recognizes that effective sharing of information and knowledge is very important to produce further improvements in results on the ground. IABIN as a hemispheric network addresses this issue, helping to ensure that state-of-the-art information is made available in a timely and effective manner to support decision-making. Knowledge networks will emerge linking participating country government agencies, NGOs, scientific institutions, and the private sector, and north-south and south-south exchange of information will be promoted. These networks are conducive to produce regional syntheses on conservation practices and sustainable use of a variety of biodiversity resources such as coastal and marine biodiversity, biological diversity important to agriculture, forest ecosystems, etc.

IABIN works hand-in-hand with the CHM (Clearing-House Mechanism) of the Convention on Biological Diversity (1992). The Convention has established CHM to:

- Promote and facilitate technical and scientific cooperation, within and between countries;
- Develop a global mechanism for exchanging and integrating information on biodiversity; and
- Develop the necessary human and technological network.

IABIN supports the implementation of measures necessary for achievement of the CBD's objectives, in particular through support for:

- Article 7 on identification and monitoring;
- Article 16 on access to and transfer of technology;
- Article 17 on exchange of information; and
- Article 18 on technical and scientific cooperation.

The Convention also carries out its work through a series of six thematic programs of work which cover: dry and sub-humid lands; forests; inland waters; marine and coastal ecosystems; mountains; and agricultural biodiversity. There are also a series of cross-cutting issues which include: alien invasive species; Global Strategy for Plant Conservation; Global Taxonomy Initiative; protected areas; indicators; Communication, Education and Public Awareness; and sustainable use. The networking of information and expertise within IABIN will facilitate these programs and initiatives. For example, the IABIN Invasives Information Network (I3N) collaborates with the Global Invasive Species Programme, and will help support implementation of the "Guiding Principles" adopted by the CBD Conference of Parties.

Cooperation between IABIN and the CHM has been the subject of a comprehensive Memorandum of Understanding (MOU) signed in 2002. The activities proposed for the implementation of IABIN will help fulfill, at the regional level, CHM's goals of facilitating the exchange of biodiversity-relevant information, and promoting and facilitating technical and scientific cooperation within and between the countries. The CBD Secretariat has been an invited participant in IABIN consultations since the first experts' meeting in December 1997, and IABIN National Focal Points are commonly the CHM National Focal Points for their respective countries.

IABIN thus supports the implementation of measures necessary for achievement of the Convention's goals, targets, and objectives as defined in the Articles of the Convention (Article 16: Access to and Transfer of Technology, Article 17: Exchange of Information, and Article 18: Technical and Scientific Cooperation), the Strategic Plan, and the decisions of the Conference of Parties. The Convention has various work programs based on the work of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) and the COP, and this is necessarily reflected in the work of CHM. The networking of IABIN experts facilitate these work programs and cross-cutting issues. IABIN's Thematic Networks support the six thematic work programs and cross-cutting issues of the Convention.

Through the support provided to the CBD, IABIN also promotes better decision-making in other sectors of interest to the GEF, such as the United Nations Convention to Combat Desertification. IABIN is also of potential value in the implementation of a wide range of other international conventions and programs including the RAMSAR Convention on Wetlands, the Convention on Migratory Species, and the United Nations Education, Science, and Cultural Organization (UNESCO) Man and the Biosphere (MAB) Programme.

IABIN's objectives also promote the World Summit on Sustainable Development (WSSD) Plan of Implementation, and in particular:

- Paragraph 44 on the conservation and sustainable use of biodiversity;
- Paragraph 106 on improving the transfer of technologies to developing countries;
- Paragraphs 109 and 110 on improving the use of information in assessment and decision-making; and
- Paragraph 112 on improving access to information through information and communication technologies.

In 2002, the CBD adopted a target of significantly reducing the rate of biodiversity loss by the year 2010, and this target was subsequently endorsed by WSSD in the Plan of Implementation. Means of assessing progress in achieving this target are still under discussion, but whatever these means are, IABIN will be well placed to support assessment and reporting initiatives.

2. Main sector issues and Government strategy:

Many environmental issues are international in character, and addressing them requires the development of regional and global perspectives. Species migrate across geopolitical borders. Watersheds and ecosystems cut across national borders. International travel and transportation facilitate the introduction of species in geographic areas far beyond their native habitats, often with a negative impact. Actions taken in one country affect its neighbor's efforts to conserve biodiversity. To meet these challenges, the countries of the Americas need to work together to develop integrated approaches to biodiversity conservation and sustainable use.

In the early 1990s, various countries of the Americas were interested in improving the sharing of biodiversity information across national borders. Several countries were establishing national biodiversity information infrastructures to help them meet their obligations under the CBD, other treaty obligations, and their own internal conservation and development objectives. Senior officials recognized that collaboration among countries could enhance local initiatives, provide access to a greater store of information, eliminate duplication of effort, and leverage the scarce resources available to address information needs. Both Agenda 21 and the CBD called for cooperation in the production and dissemination of information needed for the conservation and sustainable use of biodiversity.

IABIN was therefore officially mandated by the Heads of State at the OAS Summit of the Americas on Sustainable Development, held in Santa Cruz de la Sierra, Bolivia, in December 1996. Initiative 31 of the Santa Cruz Plan of Action states that the governments of the Americas should:

> *Seek to establish an Inter-American Biodiversity Information Network, primarily through the Internet, that will promote compatible means of collection, communication, and exchange of information relevant to decision-making and education on biodiversity conservation, and that builds upon such initiatives as the Clearing-House Mechanism provided for in the United Nations Convention on Biological Diversity, the Man and Biosphere Network in the Americas (MABNet Americas), and the Biodiversity Conservation Information System (BCIS), an initiative of nine programs of the World Conservation Union (IUCN) and partner organizations.*

It is noteworthy that IABIN was specifically intended to build on the CHM. The latter operates within the complex political and institutional environment of the CBD but is worldwide in scope,

not focused on the Americas, and has limited technical capacity. This project supports a series of actions that will help build a close collaborative relationship between IABIN and the CHM, potentially leading to a more formal alignment in the future.

The Organization of American States (OAS), in its coordinating role for Summit follow-up, invited each country to designate an official IABIN Focal Point; to date, virtually all of the 34 member States of the OAS have done so (see http://www.iabin.net for a complete list). IABIN was considered officially launched when the OAS Inter-American Committee on Sustainable Development (OAS-CIDS) endorsed IABIN, in a resolution passed on October 15, 1999.

IABIN was also recently strongly supported in the Ministerial communiqué to the Heads of State and delegations attending the Summit of the Americas which led to the endorsement of IABIN in the April 2003 Quebec Presidential Summit Plan of Action. The Plan of Action resolved to:

> *Advance hemispheric conservation of plants, animals and ecosystems through, as appropriate: capacity building, expanding partnership networks and information sharing systems, including the Inter-American Biodiversity Information Network; cooperation in the fight against illegal trade in wildlife; strengthening of cooperation arrangements for terrestrial and marine natural protected areas, including adjacent border parks and important areas for shared species; support for regional ecosystem conservation mechanisms; the development of a hemispheric strategy to support the conservation of migratory wildlife throughout the Americas, with the active engagement of civil society; and the promotion of the objectives and the implementation of the Convention on Biological Diversity and the UN Convention to Combat Desertification.*

A great deal of more detailed background information on IABIN is available in the Project Implementation Plan (PIP) and in other documents, available on the network's web site (http://www.iabin.net).

3. Sector issues to be addressed by the project and strategic choices:

To achieve hemispheric information-sharing needs, the project supports the implementation of IABIN, initially proposed by the Summit of the Americas. It is believed that IABIN is the best instrument to achieve the sector goals because of its integration with the CHM and the Global Biodiversity Information Facility (GBIF: see http://www.gbif.org), tremendous support from governments (as shown by statements from the Summit of the Americas on Sustainable Development and official endorsement from 29 countries for the IABIN project), NGOs, and academic and scientific institutions.

The project will strategically focus on data standards and protocols (the basic information infrastructure for exchange of data), training and capacity building, network content, partnerships with regional and national organizations/initiatives, and having an impact on decision-making. IABIN has chosen that the project shall not include equipment investments, except those critical for the implementation of network-wide applications, as these are best met by the project's national counterparts. Needs such as telecommunication networks are beyond the scope of this project.

Although focused on biodiversity information, the project includes extensive funding to develop links and partnerships with non-biodiversity communities, in order to foster and support a range of development and poverty alleviation goals.

Other networks exist or have been proposed for the Americas but IABIN fills a distinct niche occupied by no other network. In addition, as a highly decentralized network, strongly supported politically and institutionally, rather than a more traditional centralized network, we judge the sustainability of IABIN to be high compared to other network initiatives.

C. Project Description Summary

1. Project components (see Annex 2 for a detailed description and Annex 3 for a detailed cost breakdown):

The following is a description of the proposed project components.

Component 1($1,720,000 GEF funds), **Interoperability and Access to Data**, will develop basic data standards and network infrastructure that will allow users to search and access biodiversity data and information through the IABIN Catalog Service and the Thematic Networks.
Component 2 ($2,465,000), **Data Content Creation**, will provide data providers the tools, training, and physical capacity to make data available to users through the network.
Component 3 ($500,000), **Information Tools for Decision Makers**, will provide visualization and data integration tools to improve the usability of the data in the decision making process.
Component 4 ($913,600), **Sustainability of IABIN**, includes project coordination, support for partnerships and communications (communication products, such as the IABIN Portal, publications, meetings, etc.) and funding, on a declining cost basis, for the position of Director of the Secretariat.
Component 5 ($400,000), **Administration**, covers strictly administrative costs of the Executing Agency (contracting, procurement, disbursements, audits, etc.).

Component	Indicative Costs (US$M)	% of Total	Bank financing (US$M)*	% of Bank financing	GEF financing (US$M)	% of GEF financing
1. Interoperability and Access to Data	8.76	25.1	0.00	0.0	1.72	28.7
2. Data Content Creation	13.17	37.7	0.00	0.0	2.47	41.2
3. Information Tools for Decision Makers	4.25	12.2	0.00	0.0	0.50	8.3
4. Sustainability of IABIN	7.35	21.0	0.00	0.0	0.91	15.2
5. Project Administration	1.40	4.0	0.00	0.0	0.40	6.7
Total Project Costs	34.93	100.0	0.00	0.0	6.00	100.0
Total Financing Required	34.93	100.0	0.00	0.0	6.00	100.0

*This table does not include $1.2 million of World Bank Development Grant Facility funds to support Component 3, approved in May 2004, too recently to incorporate into the project's financial tables.

2. Key policy and institutional reforms supported by the project:

At a global and hemispheric level, conventions and policies are in place to promote the exchange and use of biological information (CBD, GBIF, Summit of the Americas, etc.). The project will support advances to national institutional policies in terms of data sharing, data access, and increasing opportunities for efficient use of information in decision-making relevant to biodiversity and the environment. Such reforms however are not considered prerequisites to the implementation of IABIN.

3. Benefits and target population:

An investment in IABIN will result in global benefits considerably exceeding those that would likely accrue over the next decade through national efforts alone. Some of these national and global benefits are covered in Annex 4 on Incremental Costs. All the countries and territories in the Americas will benefit directly and/or indirectly from this project, especially communities whose

development depends on biodiversity resources, people who are vulnerable to natural disasters, students and the scientific community, and policy makers. See also the section on Sustainability for a table of the incentives that drive the participation in IABIN of different groups of stakeholders.

4. Institutional and implementation arrangements:

Organizations responsible for the project include the World Bank as an Implementing Agency of the GEF, the IABIN Council and the IABIN Executive Committee (IEC) as key policy guidance forums, the OAS as the Executing Agency and Recipient of the grant funds in representation of the IABIN Council, IABIN's Secretariat (based at The City of Knowledge, Panama City), the Coordinating Institutions (CIs) of the Thematic Networks, and the governments and non-governmental institutions of the Americas who are both data-providers and information users. The following texts briefly elaborate their roles (see more detailed texts in the PIP) and the following graphic illustrates their roles.

Implementing Agency
The IABIN Council has requested that the World Bank be the Implementing Agency for this project. The Bank will receive funds from the GEF and disburse them to the Executing Agency. It will also have a strong role in the technical and administrative oversight of the Project.

IABIN Council and IABIN Executive Committee (IEC)
IABIN operates through a membership assembly called the IABIN Council which comprises:

- national focal points (at present, thirty-four countries have officially designated IABIN focal points);
- representatives from organizations, centers, institutions or initiatives of global or international scope;
- a representative of the diplomatic host organization (OAS); and
- a representative of the Clearing-House Mechanism.

The Council meets about once per year, or as it determines, and makes all decisions regarding IABIN. The IABIN Executive Committee (IEC) guides the operations of IABIN between Council meetings and executes the policy decisions of the IABIN Council. The Executive Committee consists of nine voting members, including:

- the Council Chair (presently the U.S.) and Vice-Chair (presently Jamaica);
- governmental representation elected at large (presently Antigua & Barbuda, Brazil, Argentina, Costa Rica, Ecuador, and Peru); and
- a non-governmental representative (presently GBIF).

IABIN Project Institutional Structure & Responsibilities

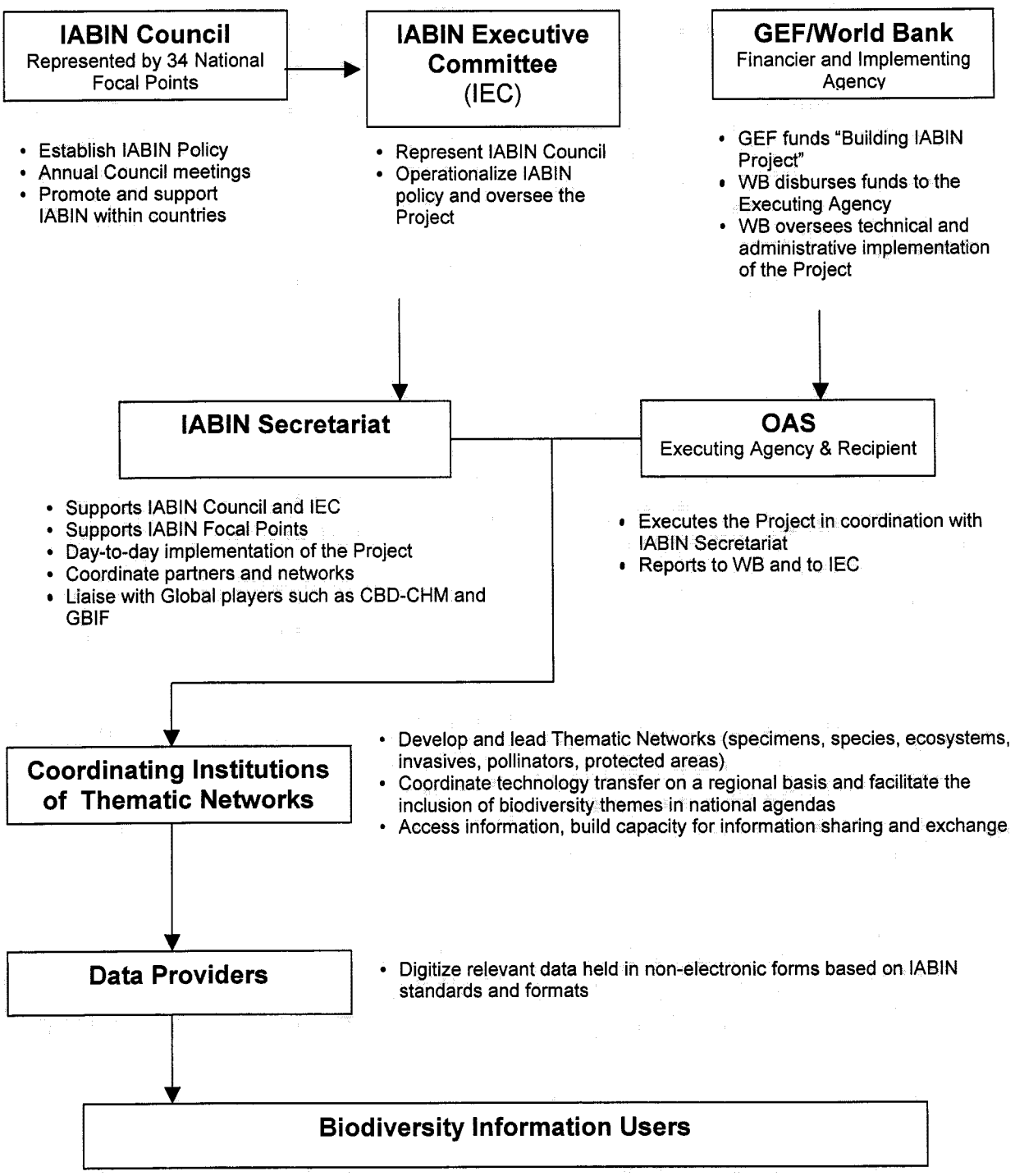


Chart showing the lines of authority, responsibility, interrelationships among participants and the IABIN Network in accordance with various decision making process (policy, financial and technical procedures).

Executing Agency/Recipient
The IABIN Council, through a decision of the IEC in October 2003, chose the OAS as the Executing Agency of the GEF IABIN Project. The Executing Agency receives the funds from the World Bank and is responsible for the management and administration of the funds as well as being legally responsible for the technical implementation of the Project, on behalf of the IABIN Council.

The Executing Agency will exercise its functions through two mechanisms: i) the Washington office of the OAS will be responsible for procurement, contracting, disbursements, auditing, and other administrative functions as well as providing technical oversight; ii) decentralized Project consultants will be responsible for technical implementation of the project and will physically sit in offices provided by the organization housing the Secretariat. The OAS will work under the direction and review of the IABIN Executive Committee.

By virtue of the status of the OAS, all expenditures (contracts, purchases and operating expenses) of the Project are exempt from taxation in all beneficiary countries.

IABIN Secretariat
The IABIN Network is envisioned as a highly decentralized partnership between governments and organizations but it still needs a small Secretariat to provide a physical home for the Network. The Secretariat is physically located in a host organization chosen by the IEC, the City of Knowledge in Panama City, an NGO. The City of Knowledge has agreed to provide financing in the form of office space, connectivity, and computers, as well as support personnel.

Independent of the World Bank GEF Project, the Secretariat has the function of technical coordination of IABIN. The Secretariat will consist of: i) a Director; ii) technical/support personnel depending on available funding; and iii) office space, infrastructure (computers, connectivity, servers), personnel, and technical assistance, offered by the organization that hosts the Secretariat. A consultant will be hired by the Project for the position of the Secretariat's Director, but on a declining cost basis, GEF support declining to 40% by the end of the Project. Other consultants hired under the Project would likely be physically located at the Secretariat but would not formally be Secretariat staff.

Through the Director, partially supported by the Project, the Secretariat will assist in the day-to-day management of the IABIN project and will be in charge of running the IABIN network. It will report to the Executing Agency concerning the GEF project implementation and to the IABIN Council on all aspects of its activities.

Coordinating Institutions (CIs)
The Project proposal is in part built around the concept of Thematic Networks (TNs), each facilitated by a Coordinating Institution (CI) which, with the exception of the invasive species TN, will be competitively chosen during project implementation. The CIs have a special role in the coordination and promotion of key technical aspects of IABIN such as the development of functioning networks and development of thematic information resources.

Under the Interoperability and Access to Data Component, the TNs will:

- Supervise the operation of the basic network infrastructure: links to the IABIN Catalog Service and other Thematic Networks;
- Develop the basic information infrastructure necessary to operate the TNs; and
- Seek agreements on the use of standards and protocols to ensure compatibility of diverse data sources within the region.

Under the Data Content Creation Component, the TNs will:

- Develop and adapt tools for data content creation;
- Develop training packages;
- Control quality of information;
- Carry out or coordinate training;
- Digitize biodiversity data in the subject area of their TN;
- Determine data content creation priorities;
- Identify what information is required by decision makers and in what form; and
- Host data, if needed.

Partner Organizations in Implementation

During the preparation phase of this project, potential contributors to IABIN were identified and letters of interest, including parallel co-financing information, were received from 78 organizations. It is expected that during project implementation, these same organizations will form the core of a large set of organizations that will be the most active players in the Thematic Networks as data providers and information users. However, if an institution has not submitted a formal expression of interest in the IABIN Project, this in no way precludes their active participation in the Project, nor does it guarantee access to project funds.

IABIN is complementary to the Global Biodiversity Information Facility (GBIF). The goals of GBIF align well with those of IABIN; both are interoperable networks of biodiversity databases and information technology tools that will enable users to navigate and put to use the world's vast quantities of biodiversity information to produce national economic, environmental, and social benefits. IABIN is an associate member of GBIF and GBIF currently occupies the single seat on the IABIN Executive Committee reserved for a non-governmental organization. It is expected that current GBIF funding will allow that initiative to take the lead in developing relevant network protocols and information management tools. IABIN will take advantage of GBIF efforts, and will in turn support the implementation of GBIF in the Americas. See also Annex 10 on a range of other key global and regional initiatives in the area of biological informatics.

D. Project Rationale

1. Project alternatives considered and reasons for rejection:

Centralized network vs. completely distributed system?
IABIN is envisioned as an open, decentralized network with common standards, where users needing biodiversity information can find quality, relevant information through a gateway web page. An advantage of a distributed approach is that responsibility is vested in individual network members, and therefore "ownership" of the network is broader, leading to greater sustainability and a lower overhead for maintaining data currency and quality. A centralized network is not appropriate to achieve these goals as it requires long-term, external maintenance of a network and the expensive centralized management of data, while a distributed system can avoid both.

2. Major related projects financed by the Bank and/or other development agencies (completed, ongoing and planned).

Sector Issue	Project	Latest Supervision (PSR) Ratings (Bank-financed projects only)	
		Implementation Progress (IP)	Development Objective (DO)
Bank-financed Environmental Information Management Systems	- Conservation and Sustainable Use of the Mesoamerican Barrier Reef System Project (P053349)	S	S
	- Argentina Biodiversity Conservation Project (P039787)	S	S
	- Costa Rica Biodiversity Resources Development Project (P039876)	HS	S
	- Nicaragua Second Rural Municipal Development Project (P055823)	U	S
	- Africa Regional Environmental Information Management Project (REIMP) (P000003)	S	S
	- Brazil - Amazon Region Protected Areas Project (P058503)	S	S
	- Indonesia - Biodiversity Collections Project (P034080)	S	S
Other development agencies UNEP (GEF)	- Conservation and Sustainable Management of Below Ground Biodiversity		

UNDP (GEF)	- In-situ Conservation of Crop Wild Relatives through Enhanced Information Management and Field Application - GEF Biodiversity Data Management Project (completed) - Mesoamerican Biological Corridor Regional Project		

IP/ O Ratings: HS (Highly Satisfactory), S (Satisfactory), U (Unsatisfactory), HU (Highly Unsatisfactory)

3. Lessons learned and reflected in the project design:

The development of IABIN has benefited over the last several years from the experience of several projects and networks and from its own analytical work. See the web site for a major paper on lessons proposed for IABIN governance that was authored by John Busby, a founder of Australia's pioneering Environmental Resources Information Network (ERIN).

Annex 10 entitled "Review of key bilateral and multilateral programs and initiatives in biodiversity information sharing" provides an in-depth review of similar networks and lessons learned from these experiences. The annex also explicitly indicates how this project design builds on these lessons.

4. Indications of borrower and recipient commitment and ownership:

The General Secretariat of the Organization of American States (GS/OAS), in its coordinating role for Summit follow-up, has been mandated by the 34 member States to support IABIN, most recently in the Inter-American Committee for Sustainable Development meeting of February 2002. The GS/OAS has been providing since its inception significant financing and support for IABIN, including project management, interim Secretariat and website functions. The GS/OAS, as the designated recipient of the Grant funds in representation of the IABIN Council, will support the implementation of IABIN with own-funded staff and other in-kind services that will include monitoring and evaluation of time-bound performance indicators and supervision of overall project performance, valued at US$200,000 per year or $1 million over the life of the project.

The commitment to IABIN by the nations of the Americas was made at the highest levels of government, as evidenced by the signatures of the heads of state to the Santa Cruz Plan of Action (Initiative 31). Since that time, IABIN development has received significant support from the 34 countries that have designated official IABIN Focal Points. National support and participation may be measured by the hundreds of hours of staff time contributed toward these start-up and project development efforts and by the demonstrated willingness of agencies and organizations in-country to share biodiversity information. The rather remarkable formal, written endorsement of the Project Preparation and Development Facility (PDF) Block B grant by 28 countries is another indication of the interest of the countries of the Americas.

Particularly notable is the contribution and commitment of the US. The USGS has been a major supporter of IABIN since its start-up. The contribution from the USGS includes significant funding for many technical pilot studies, allocation of dedicated staff, chairing the IABIN Executive Committee, and hosting a US IABIN web site (http://www.iabin-us.org) that also served as the de facto IABIN Portal until the recent establishment of www.iabin.net. Many major non-governmental players such as NatureServe and The Nature Conservancy (TNC) have also expressed their support

for IABIN and at a national level, a great many institutions are actively interested. During project preparation, 78 signed letters of parallel financing or support were received from institutions throughout the Americas representing a broad range of government, private, and non-governmental stakeholders.

See Annex 6(B) for more details on parallel financing.

5. Value added of Bank and Global support in this project:

The Bank is the World's largest financier of the sustainable use and conservation of biodiversity. Over the last decade, Bank funding for biodiversity has involved over 226 projects with about US$1.0 billion of IBRD/IDA resources, over US$450 million of GEF funds and an additional US$1.2 billion in parallel financing from other donors, governments, NGOs, foundations, and the private sector for a total Bank-managed biodiversity portfolio of US$2.6 billion. Thus, involvement of the Bank in IABIN will not only channel the knowledge from Bank operations into IABIN, but also contribute to the integration of future Bank-managed biodiversity projects with IABIN.

According to a recent World Bank publication (*Cornerstones for Conservation: World Bank Assistance for Protected Areas*, 2003) the Latin America and Caribbean Region accounts for 45% of The World Bank Group's investments in protected areas in the 1988-2003 period. This same publication indicates that WB-GEF investments in protected areas in the region account for approximately 38% of total WB-GEF investment in the 1988-2003 period. This clearly shows the importance the Region has in global biodiversity conservation efforts and the World Bank's commitment.

The World Bank, along with the OAS, has traditionally played a key role in the meetings of the Summit of the Americas (Mr. Wolfensohn, the World Bank's President, attended the last Summit in Montreal in early 2003). The IABIN Project represents an interesting possibility for the Bank to support a key Summit initiative. The Bank will also be able to bring to the project parallel financing from its other projects in the region (and from Bank-managed resources) as well as ensure a coordinating role for donor support and inter-governmental support.

The World Bank's role is rooted in its involvement in the start-up stage of IABIN, including provision of about US$0.5 million in support for pilot activities during the period 1999-2000. Pilot activities included support for the invasive species component of IABIN, access to museum collections, development of regional metadata standards, and support for a unified taxonomic authority (Species Analyst). This support was from Dutch trust funds and staff time of World Bank specialists (see also http://www.worldbank.org/ca-env for details on these investments).

Finally, an application to the Bank's Development Grant Facility has very recently been approved, and will further strengthen the Bank's contribution to this effort. This $1.2 million grant will support the development of connectivity between biological and non-biological data.

E. Summary Project Analysis (Detailed assessments are in the project file, see Annex 8)

1. Economic (see Annex 4):
Incremental Cost Analysis (see Annex 4).

2. Financial (see Annex 4 and Annex 5):
N/A.

3. Technical:
The design of IABIN and other technical issues are addressed fully in the technical description of the Project and in the PIP. The most difficult and complex technical issues to be faced during implementation relate to the standards and protocols to be adopted. As has been found however in most similar initiatives, the hurdles to success are not technical but rather institutional.

4. Institutional:
4.1 Executing agencies:
The Organization of American States (OAS).

4.2 Project management:
The OAS is responsible for the execution of many GEF Bank projects and is fully familiar with World Bank project management requirements.

4.3 Procurement issues:
The OAS, as the designated recipient of the Grant funds in representation of the IABIN Council, will be responsible for compliance with Bank procurement procedures. The OAS has considerable prior experience in executing World Bank-implemented GEF projects and has the necessary infrastructure and human resources for this function, not only in its Washington office but in any of its national offices, located in virtually every member country of IABIN. See Annex 6 for detailed procurement arrangements.

4.4 Financial management issues:
Use of statements of expenditures (SOEs)
See Annex 6(B): Financial Management and Disbursement Arrangements.

Operating Account
See Annex 6(B): Financial Management and Disbursement Arrangements.

Audits
See Annex 6(B): Financial Management and Disbursement Arrangements.

Financial Monitoring and Reporting Arrangements
See Annex 6(B): Financial Management and Disbursement Arrangements.

5. Environmental: Environmental Category: C (Not Required)
5.1 Summarize the steps undertaken for environmental assessment and EMP preparation (including consultation and disclosure) and the significant issues and their treatment emerging from this analysis.
No safeguard issues are triggered by this project.

5.2 What are the main features of the EMP and are they adequate?
An Environmental Management Plan (EMP) is not required.

5.3 For Category A and B projects, timeline and status of EA:
Date of receipt of final draft: N/A

5.4 How have stakeholders been consulted at the stage of (a) environmental screening and (b) draft EA report on the environmental impacts and proposed environment management plan? Describe mechanisms of consultation that were used and which groups were consulted?

No environmental analysis (EA) has been carried out although project preparation involved very extensive consultations with stakeholders (see below).

5.5 What mechanisms have been established to monitor and evaluate the impact of the project on the environment? Do the indicators reflect the objectives and results of the EMP?
N/A

6. Social:
6.1 Summarize key social issues relevant to the project objectives, and specify the project's social development outcomes.
During the review of the Project by the Bank's Regional Safeguards Unit, no social safeguard issues were identified. However, as there are interesting issues to be explored in relationship to indigenous peoples, the preparation team has chosen to prepare an annex on indigenous peoples issues (Annex 9).

6.2 Participatory Approach: How are key stakeholders participating in the project?
See next section.

6.3 How does the project involve consultations or collaboration with NGOs or other civil society organizations?
Key NGOs and institutions participate actively in the Council. Project preparation included consultation with virtually every significant NGO and institution involved in biodiversity informatics in the Americas (see detailed reports in the PIP and reports of the sub-regional consultants, all available at the IABIN website). Activities under Component 1, 2 and 3 will depend on the participation of NGOs and institutions interested to take part in the implementation.

6.4 What institutional arrangements have been provided to ensure the project achieves its social development outcomes?
N/A

6.5 How will the project monitor performance in terms of social development outcomes?
N/A

Does this project include any Community-Driven Development component? No

7. Safeguard Policies:
7.1 Are any of the following safeguard policies triggered by the project?

Policy	Triggered
Environmental Assessment (OP 4.01, BP 4.01, GP 4.01)	No
Natural Habitats (OP 4.04, BP 4.04, GP 4.04)	No
Forestry (OP 4.36, GP 4.36)	No
Pest Management (OP 4.09)	No
Cultural Property (OPN 11.03)	No
Indigenous Peoples (OD 4.20)	No
Involuntary Resettlement (OP/BP 4.12)	No
Safety of Dams (OP 4.37, BP 4.37)	No
Projects in International Waters (OP 7.50, BP 7.50, GP 7.50)	No
Projects in Disputed Areas (OP 7.60, BP 7.60, GP 7.60)*	No

7.2 Describe provisions made by the project to ensure compliance with applicable safeguard policies.

N/A

F. Sustainability and Risks

1. Sustainability:

IABIN essentially aims to develop and promote a new way of "doing business" when it comes to biological information. IABIN will further the use of common standards and protocols that will allow better access to and use of biological information. The sustainability of IABIN can thus be considered under two headings: i) sustainability of the concepts and principles of interoperability; and ii) more narrowly focused, the financial and institutional sustainability of the IABIN Secretariat, as one means to the end of promoting the goals of IABIN.

Sustainability of Interoperability Concept

If everybody adopted basic standards and posted data on the Internet in such a way that it could be used by others, there would be no need for IABIN. One of the measures of the sustainability of the interoperability concepts promoted by IABIN might therefore be the disappearance of the network itself if adoption of standards and a new "way of doing business" became sufficiently widespread.

The concepts of interoperability are not just sustainable in the future, they are inevitable. In wide scale consultations carried out during project preparation, there was not a single institution or country that was not interested in the concept of greater sharing of data and greater access to data. As a critical minimal amount of data is structured and posted in a certain way (using IABIN/CHM/GBIF standards) non-conforming institutions will have to adapt and adopt or be left behind. As an example, that leads us to suggest this is possible, the speed with which millions of institutions worldwide have adopted Hypertext Markup Language (HTML) protocols (that is, have participated in the World Wide Web) for sharing textual information is nothing less than astonishing.

Of course, just posting and making data available online does not ensure a critical mass. A key part of sustainability is whether or not information products are useful and usable, delivering what users want in the form that they want it, and ensuring that potential users are well aware of what IABIN can do for them. IABIN's role in the next decade is to keep the ball rolling with these considerations in mind and to ensure that all the countries in the Americas can access training and information in their own languages.

The table on the following page provides a summary of what we view as incentives and disincentives (in italics) to participating in IABIN. The overall incentive environment seems to be highly positive, suggesting strong sustainability in the future.

Short-Term Sustainability

To achieve the above goals, there is no doubt that IABIN as an institution needs to benefit from financial and institutional sustainability over a period of at least a decade or two. It would remain to be determined if it will need to exist beyond that, perhaps for the purposes of training and fine-

tuning and adapting standards to what will be the inevitable technological changes that will emerge.

The institutional sustainability of IABIN depends on the participation of the countries and institutions that constitute the IABIN Council. In comparison to other international networks, we would regard the commitment of member countries and participating institutions to be remarkably high at this point in time, as demonstrated by co-financing letters received, high levels of endorsement of the project, and extensive attendance of Latin American and Caribbean countries at the last IABIN Council Meeting in Cancun in August 2003. The continuing interest and commitment of IABIN countries will of course be a function of the benefits that result from IABIN. As the project is however very strongly oriented to what is needed by all countries: standards development and training, we believe the benefits of participating in IABIN will be apparent.

The partnership of IABIN with GBIF, CHM, and other non-American initiatives is also significant as IABIN will be a vehicle for ensuring that the best of what is being developed throughout the world is brought to bear in Latin America and the Caribbean. Finally, the very strong participation and support of the US Government will ultimately be critical to the success of IABIN; the National Biological Information Infrastructure (NBII) of the US is perhaps the leading biological informatics network in the World and IABIN will serve to channel US support to all countries in the Hemisphere.

The Secretariat of IABIN has recurrent operational costs that must be met for the network to be sustainable. The Secretariat has however been designed with extremely low annual costs, less than $0.5 million, compared to other similar networks (such as GBIF for example, with annual recurrent costs in the millions of dollars). The IABIN Secretariat will have low recurrent costs and there is every reason to think that it would be feasible to generate that kind of financial support in the long run (one of the focus areas of IABIN is invasive species, whose economic costs can probably be estimated in the hundreds of millions if not billions of dollars annually in the Americas, so it is not difficult to envisage that major contributions of IABIN should result in modest support from different beneficiaries). The Scientific and Technical Advisory Panel (STAP) reviewer noted the same conclusion that financial sustainability of IABIN would not be an issue.

More specifically however, a number of measures are in place or will be developed to ensure financial sustainability of the Secretariat:

i) Grants will be solicited from a variety of international organizations (to date, IABIN has been supported by grants and financial support from the OAS, the U.S. Agency for International Development, the World Bank, NatureServe, and others). The goals of IABIN are consistent with the goals of the GEF; the latter's biodiversity portfolio will benefit from IABIN in innumerable ways (see Section B1a.) and the GEF may have every interest in the future to continue supporting this initiative.

ii) The U.S. Agency for International Development (USAID) funded a study in 2001 to investigate and recommend a financial sustainability strategy for IABIN. Each of twelve types of potential funding sources were evaluated for their likelihood of success, as well as for the skills required to obtain funds from that particular source, the level of investment required to launch the enterprise, the risks involved, the possible conflicts within the network, and the longer term availability of this type of funding. This study is a start to developing a financing strategy and will be further developed in the context of the IABIN Project.

Incentives to Participate in IABIN

x Negative incentives

Stakeholders	Environmental	Social	Economic	Other/mixed
All	• Protection of biodiversity	• Knowledge • Credibility • Visibility • Transparency	• Avoid duplication of effort—investment, data collection, tool development *x* Training *and "retooling" costs*	• Community building (users and providers) that sets common goals • Sustainable development *x Intellectual Property Rights concerns*
Data providers	• Credible data for better science • Access to other information	• Ensuring credit for one's work • Links to society • Leadership *x Demand load for formatting and following standards*	• Financial "Certification" for fund raising • Leveraging *x Conversion costs*	• Decision makers support *x Perceived loss of control over data* *x Bureaucracy/slow down; resistance to change*
Primary data users	• Simplifying access to multiple sources		• Reduce collection costs (including data repatriation)	
Data integrators	• Increase use of data as input to environmental models	*x Phase-out of existing less integrated systems has a social cost to those behind the systems*	• Reduce integration costs • Tool sharing	• Increasing feasibility of integration of biodiversity data with spatial and non-biological data
Educators/ students	• Access to information	• Access to training	• Reduced training and specialized environmental education costs	• Better accessibility to data for teaching and research
Civil society	• Increased access to wider information by journalists and conservationists	• Transparency of information (watchdog function)	• Using information for better credibility to facilitate obtaining funds.	
Natural Resources/ land managers	• Better information on systems managed		• Greater likelihood of sustainable use based on knowledge	• Better decision making
Policy makers	• Implementation of CBD and biodiversity strategies	• Better access and relationship with data providers • Demonstrate to tax payers effective use of funds in information management *x Increased access to info—information overload* *x Information may lead to criticism of government*	• Reduce costs for analysis	• Better decision making

iii) IABIN is negotiating the creation of a Foundation. (see details in Annex 2).

iv) The OAS has acted as the Diplomatic Host of IABIN since its inception in 1996 and has consistently provided a minimal level of financing. It is unlikely the commitment of OAS will change in the foreseeable future.

v) During Project Preparation, the IEC carried out a competitive selection process to choose an organization to host the IABIN Secretariat. Three different organizations or international consortia competed for the right to provide free support to IABIN, at least for 5 years (at a minimum, office space, computers, connectivity, technical support). This was a good indication of the support that can be expected from key beneficiaries/actors who are committed to the concept of IABIN.

1a. Replicability:

The project presents tremendous possibilities of replicability across the Americas, both thematically and geographically. The project will focus on selected thematic areas but this effort could be replicated in the future as additional resources become available and new priority areas emerge. Some regions of the Americas have been developing exemplary sub-regional networks (e.g., Central America, Andean countries) or national networks (e.g., the U.S., Mexico, Canada, and Colombia) and IABIN would allow these successes to be replicated in new national or sub-regional initiatives.

As a continental-scale initiative, there are obviously few potential opportunities for replication of IABIN at the same scale. However, as noted by the STAP reviewer, there is a strong possibility that IABIN could be replicated, perhaps in Africa or in Asia. In case of Asia, there has been an attempt to establish an institution by the Association of Southeast Asian Nations (ASEAN) to promote knowledge sharing about best practices and common efforts in the biodiversity sector, and led to a proposal for European Union (EU) collaboration in establishing an ASEAN Regional Centre for Biodiversity Conservation (ARCBC). Although the project is ending, key ASEAN stakeholders in the biodiversity sector have expressed a wish for the momentum achieved by the ARCBC project to be maintained, and have indicated their preferences regarding the main features of a successor institution (details available in Nippon Koei report 2.2; see Annex 8). Upon successful completion, IABIN may be an interesting model for them. The mid-term evaluation of the IABIN project will specifically review lessons learned with regard to replicability (both globally and nationally and sub-nationally).

2. Critical Risks (reflecting the failure of critical assumptions found in the fourth column of Annex 1):

Risk	Risk Rating	Risk Mitigation Measure
From Outputs to Objective Key catalog partnership with USGS maintained	N	The commitment of the USGS to IABIN has been consistent over the last years and there is support at a high level to IABIN and specifically to provide catalog services. In the unlikely event that this partnership would not prosper, there would be other alternatives that could be explored for the hosting of catalog services.

Sufficient coordination can be assured between TNs to allow development of interoperability between them	M	One of the high-level technical consultants to be hired by the project will have the primary function of ensuring coordination between the TNs. Significant and unsuspected technical challenges to interoperability may emerge and would require flexible responses of the project and very close coordination with GBIF and other key standard-setting organizations.
Sufficient incentives for data providers to adopt IABIN standards	M	See incentive table under F1. Sustainability. Consultations during project preparations have suggested there is strong interest in IABIN from data providers. The project however will need to be flexible and adaptable in recognizing incentives and disincentives and reacting to them.
Major parallel financing does not materialize	M	Parallel financing of coordinating institutions and from institutions receiving grants will be documented in contractual agreements. Funding support required by the project can be very fungible so if funding does not materialize from one source, it can be readily substituted by funding from another.
Data is current enough for tools to provide good information	S	The decision support tools under component 3 will have to be carefully designed to ensure they build on reliable data but it is possible there may be significant risks in designing tools that will be sustainable if they need to draw on data sets of third parties.
Secretariat hosting arrangement with City of Knowledge lasts 5 years as agreed in MOU	M	Commitment of the City of Knowledge has been firmly expressed by the Executive Director and supported by a range of partners (Govt. of Panama, Smithsonian, etc.). In the unlikely event this arrangement fails, the IEC should be able to substitute a similar host (at least two similar offers were on the table at the time of selection of the host).
From Components to Outputs		
Interoperability is not technically feasible and such technology is not available	M	IABIN standards and protocols will be carefully chosen including feasibility considerations. The intention is only to develop new standards in exceptional circumstances and to rely normally on existing GBIF and CHM standards.
Overall Risk Rating	M	

Risk Rating - H (High Risk), S (Substantial Risk), M (Modest Risk), N (Negligible or Low Risk)

3. Possible Controversial Aspects:

The Project has no particularly controversial aspects except regarding access to information and intellectual property rights. A policy for IABIN has been prepared during the preparation and will be further refined during the Project. It is available at http://www.iabin.net.

G. Main Conditions

1. Effectiveness Conditions

1) An Operational Manual, satisfactory to the Bank, has been approved by the Executing Agency.
2) The IABIN Secretariat has been established by the IEC and is functionally operating.

2. Other [classify according to covenant types used in the Legal Agreements.]

N/A.

H. Readiness for Implementation

The engineering design documents for the first year's activities are complete and ready for the start of project implementation.

☐ 1. a) The engineering design documents for the first year's activities are complete and ready for the start of project implementation.
☒ 1. b) Not applicable.

☒ 2. The procurement documents for the first year's activities are complete and ready for the start of project implementation.
☒ 3. The Project Implementation Plan has been appraised and found to be realistic and of satisfactory quality.
☐ 4. The following items are lacking and are discussed under loan conditions (Section G):

I. Compliance with Bank Policies

☐ 1. This project complies with all applicable Bank policies.
☒ 2. The following exceptions to Bank policies are recommended for approval. The project complies with all other applicable Bank policies.

OP/BP 12.20 Special Accounts: The Recipient maintains one omnibus account in a commercial bank (the "Operating Account") for all its transactions, and separate ledger accounts for individual projects are maintained only within the Recipient's Enterprise System (OASES) financial system. Although this arrangement is acceptable to the Bank, said arrangement constitutes a deviation from Bank policy concerning the establishment, operation and maintenance of Special Accounts. Therefore, Management hereby requests the Board to approve an exception to said policy so as to enable the transfer of GEF Trust Fund Grant resources to the Recipient's Operating Account in respect of the Project. The GEF Secretariat has no objection to this exception.

Douglas J. Graham **Team Leader**	Abel Mejía **Sector Manager/Director**	John Redwood **Country Manager/Director**

Annex 1: Project Design Summary

LATIN AMERICA: Building the Inter-American Biodiversity Information Network (IABIN)

Hierarchy of Objectives	Key Performance Indicators	Data Collection Strategy	Critical Assumptions
Sector-related CAS Goal: To develop enabling frameworks for sustainable environmental management	**Sector Indicators:** - IABIN-generated information or resources cited in environmentally positive policy changes in area of natural resource management in at least 10 countries by Year 4, 20 by year 5.	**Sector/ country reports:** - National reports - Independent evaluation	**(from Goal to Bank Mission)**
GEF Operational Program: To create an enabling environment for conservation and sustainable use of biodiversity in the Americas	**Outcome / Impact Indicators:** - By end of Year 3, half the countries in the Americas using IABIN-generated information in the development of mechanisms for measuring the status/trends of the conservation and use of biodiversity (and two thirds by end of project) - Majority of major internationally funded projects involving use and conservation of biodiversity, starting in Year 4, using the above mechanisms in project design	- National Reports - CBD Analyzer - Governmental reports - External evaluation - Development Gateway listings of projects - CBD Analyzer - Independent assessments	- Effective management of biodiversity information is a significant factor in sustainable development
Global Objective: To develop an Internet-based, decentralized network to provide access to biodiversity information currently existing in individual institutions and agencies in the Americas To provide the tools necessary to draw knowledge from that wealth of resources to support sound decision-making concerning the conservation and sustainable use of biodiversity	**Outcome / Impact Indicators:** - About 4 new multinational partnerships per year facilitated by IABIN involving access to biodiversity information within the Americas, starting in Year 2 (At least 16 in total) - Starting in Year 3, IABIN-developed or IABIN-supported information management tools being downloaded and demonstrably used in decision making	**Project reports:** - Project reports by the Secretariat - TN reports - Survey with selected participating institutions/ users - User feedback (web forms)	**(from Objective to Goal)** - Decisions concerning conservation and sustainable use of biodiversity are significantly influenced by availability of good information

Output from each Component:	Output Indicators:	Project reports:	(from Outputs to Objective)
Component 1: Interoperability and access to data	1.1		
1.1 IABIN Catalog 1.2 Species Thematic Network 1.3 Specimens Thematic Network 1.4 Ecosystems Thematic Network 1.5 Invasive Species Thematic Network 1.6 Pollinators Thematic Network 1.7 Protected Areas Thematic Network	- IABIN Catalog is developed and user-base expands to reach 10,000 users by Year 3, and continues to expand by 20% a year thereafter - Metadata tools and training materials available in multiple languages 1.2 - 1.7 - Each TN is operational by end of Year 2 with established protocols, standards and tools which have been adopted by a wide range of organizations in the region - Number of institutions and number of countries participating in TNs increasing by 20% in Year 3 (baseline=Year 2) and by 10% in Years 4 and 5 - Use of datasets and websites developed by each TN increasing by 20% per year after the TN is operational for one year	- Project reports by the IABIN Secretariat - Indicator monitoring system - Web statistics - Surveys to IABIN Focal Points	- Key catalog partnership with USGS maintained - Data providers willing to provide adequate metadata accessible to the Catalog. - Sufficient coordination can be assured between TNs to allow development of interoperability between them
Component 2: Data content creation			
2.1 Data content creation	- IABIN Catalog content increases by 10% a year, and number of institutions contributing metadata increases by 10% a year (baseline = end of Year 2) - Number of datasets in the region consistent with IABIN interoperability standards increase by 20% a year (baseline = end of Year 2) - Each year, 5% of data available through IABIN is newly digitized data (in particular addressing known data gaps)	- Indicator monitoring system - Data Content Manager's report - Analysis of Catalog content - Surveys with IABIN Focal Points	- Sufficient incentives for data providers to adopt IABIN standards - Suitable personnel available for training - Sufficient data can be digitized to significantly impact data availability - Concerns about intellectual property rights that arise can be adequately resolved
2.2 Technical training	- At least 100 people trained per year		

Component 3: Information tools for decision makers 3.1 Information tools for decision making	- At least 3 decision-support tools developed that integrate information from more than one TN - Downloading of these tools increasing by 10% per year once they have been available for one year	- Secretariat Report - Surveys to IABIN Focal Points - Web statistics	- Sufficient data available for the information tools to access - Data is current enough for tools to provide good information
Component 4: Sustainability of IABIN 4.1 Project Coordination	- Visits to IABIN Portal increase by at least 20% per year the first year (and 10% thereafter) indicating effective coordination and maintenance (baseline = pre-project visits of 18,000/month) Additional funding identified and obtained for continued and effective functioning of IABIN by end of year 2 (to cover costs covered on a declining basis by GEF	- Project semi-annual reports - IABIN Council reports - Web statistics - Data Content Manager's report	- Secretariat Hosting arrangement with City of Knowledge lasts 5 years as agreed in MOU - Small secretariat envisaged is adequate to operate IABIN - IABIN Focal Points remain engaged and provide country-level support
4.2 Partnerships and Communications	- Collaborative agreements established with at least two international initiatives and/or networks each year - IABIN Council Meetings and/or IEC meetings held every year		- Key partnerships with GBIF and CHM can be further strengthened
Component 5: Project administration 5.1 Project administration	- Project M&E is rated satisfactory or better by the World Bank and by the IABIN Council	- WB's supervision missions and project supervision reports	- The IEC is able to provide effective oversight of the Executing Agency
Project Components / Sub-components: **Component 1** 1.1 IABIN Catalog 1.2 Species Thematic Network 1.3 Specimens Thematic Network 1.4 Ecosystems Thematic Network 1.5 Invasive Species Thematic Network 1.6 Pollinators Thematic Network	**Inputs: (budget for each component)** US$ 1.72 million	**Project reports:** - Disbursements and audit reports	**(from Components to Outputs)** - Implementation of interoperability standards and prototypes is feasible

1.7 Protected Areas Thematic Network			
Component 2 2.1 Data content creation 2.2 Technical training on IABIN data capture tools	US$ 2.47million	- Disbursements and audit reports	- Intellectual property rights concerns limit data creation and data access
Component 3 Information tools for decision makers	US$ 0.50 million	- Disbursements and audit reports	- Multi-sectoral nature does not impede implementation because of lagging standards implementation in non-biological sectors
Component 4 4.1 IABIN Secretariat 4.2 Partnerships and communications	US$ 0.91 million	- Disbursements and audit reports	- Financial sustainability does not prove elusive
Component 5 Project administration	US$ 0.40 million	- Disbursements and audit reports	

Annex 2: Detailed Project Description

LATIN AMERICA: Building the Inter-American Biodiversity Information Network (IABIN)

By supporting the development of the Inter-American Biodiversity Information Network (IABIN), the project will: (i) develop an Internet-based, decentralized network to provide access to scientifically credible biodiversity information currently existing in individual institutions and agencies in the Americas, (ii) provide the tools necessary to draw knowledge from that wealth of resources, which in turn will support sound decision-making concerning the conservation and sustainable use of biodiversity.

A summary description of the components is provided here. Detailed descriptions, timetables, and budgets are included in the Project Implementation Plan (PIP), available in Spanish and English on the IABIN web site.

By Component:

Project Component 1: Interoperability and Access to Data - US$8.76 million
This component includes $1.72 million of GEF funds.

Objectives
This component will create the information infrastructure necessary for users to search and access biodiversity data and information. For this to happen, IABIN will seek to develop a regional consensus on standards and promoting interoperability with other regional and global efforts, especially the Global Biodiversity Information Facility (GBIF). Under this component, the project will seek agreement on the use of certain standards and protocols to ensure compatibility of diverse data sources within the region. Areas requiring consensus on standards include: communications, taxonomic information, metadata, controlled vocabularies, other authorities (names, institutions, etc.), and record structures for particular types of information (e.g., specimen data, bibliographic data, GIS, images, etc.). Since these are issues addressed by various initiatives around the world, and the ultimate goal is to achieve global compatibility, IABIN will document and evaluate existing standards (e.g., GBIF and CHM standards), which may simply be adopted after appropriate consultation. Annex 4 of the PIP includes a discussion of protocols and standards suggested for IABIN adoption.

This activity will also take into consideration the distinct structural issues and metadata standards for eventual inclusion of ethnoecological or "traditional environmental knowledge" generated by indigenous peoples into IABIN. Activities under subcomponents for the Catalog service and the TNs will also target the inclusion of key indigenous groups involved in the generation and management of biodiversity information, especially in terms of providing access to training events as well as in the development of information requirements and use policies (see Subcomponent 4.2 and Annex 9).

IABIN's approach to enabling better biodiversity information access will be through the development of: i) the IABIN Catalog Service; and ii) the IABIN Thematic Networks (TNs). A Thematic Network Coordinator, sitting in the Secretariat, will oversee the implementation of the IABIN Catalog Services and the TNs.

1.1 IABIN Catalog Service

Biological information is held by multiple institutions in varying formats, and is often available only within the country that has produced and maintains the information. The need for this information, when appropriate, to be available throughout the IABIN network to other participating countries and partners is paramount to IABIN succeeding as a network on a regional and global scale.

The ***objective*** of the IABIN Catalog Service is to provide a mechanism to locate, evaluate, and access biological data and information from a distributed network of cooperating data and information sources from across the Americas. The IABIN Catalog search service will allow Internet users to search through an assortment of standardized descriptions (metadata) of different information products (such as databases, maps, websites, other information systems, etc.) to identify those that meet their particular requirements. Once items of interest have been identified, the user would be directed to the data provider site where the source data could be accessed, downloaded or purchases, as per the intention of the data provider.

IABIN has already implemented a pilot catalog service of biodiversity data and information resources satisfying the requirements described above. The Catalog Services are being developed in partnership with the National Biological Information Infrastructure (USGS/NBII), utilizing the existing infrastructure developed for the NBII Clearinghouse (http://metadata.nbii.gov). This functionality is being provided via the IABIN web site (http://www.iabin.net).

Under the existing partnership with IABIN, the USGS has developed interfaces in Spanish and Portuguese to its BioBot Search Tool and expanded its scope of content to cover additional categories of information of importance to IABIN. The IABIN BioBot tool facilitates easy access to web content, FGDC metadata, and other content of relevance to IABIN and its members. Under this agreement IABIN will benefit from further development of the NBII Clearinghouse. This approach allows IABIN to provide a cost-effective catalog service, while focusing the GEF funds on the TNs and the implementation of a data creation program (Component 2).

Expected ***products*** for a total of about $220,000 in GEF funds through consultancies, services, and training (no funds will be provided directly to the USGS) are:

- Creation of the Catalog Technical Working Group by the Secretariat staff.
- Three meetings of the Technical Working Group.
- Development of metadata creation tools in multiple languages. Some of these tools presently exist only in English.
- Modification of existing multilingual user interfaces as necessary.
- Develop multilingual training materials.
- Maintenance and operations of the Catalogue.

1.2 Thematic Networks

IABIN will support the development of a number of Thematic Networks (TNs), that will provide search and retrieval capabilities to data on a specific theme or area of interest. The data will preferably, but not exclusively, be distributed, depending on efficiency, existing infrastructure, and sustainability issues. The implementation of the TNs will help fulfill the objectives of IABIN and complement those of other networks and parallel initiatives, generating support for mutual efforts. The TNs are considered to be mechanisms to:

- Develop standards specific to the needs of the TN but compatible with other TNs;
- Access information;
- Build capacity for information sharing and exchange;
- Coordinate technology transfer on a regional basis;
- Facilitate the inclusion of biodiversity themes in national agendas; and
- Explore the need for information in decision making.

The following criteria were established for the prioritization of TNs:

- Theme is of interest to countries (demand driven) as determined by the consultations carried out during the PDF phase;
- Valid regional or sub regional data exist;
- Infrastructure exists or is planned;
- Theme is a priority for global and regional programs;
- Theme is a priority of the Convention on Biological Diversity and the 2nd IABIN Council meeting; and
- Network leverages other funds.

Using the above information and criteria, the following six TNs were identified as a priority for IABIN. Each TN will be coordinated by an institution, which will be selected by the Secretariat on a competitive basis and supported by a Technical Committee of Experts constituted by specialists from across the region, chosen by the Secretariat (except for the Invasive Species TN). The Coordinating Institution (CI) is responsible for organizing the development of the TN, including recommendations on standards and protocols, as well as policies for information use. The latter are subject to a "no objection" from the IABIN Council. The CI may also be responsible for the coordination of other activities, such as the development of tools for accessing data, entering data in the network, and training, which may be carried out by the CI or by other groups. The funds for each TN will therefore be disbursed as single lump-sum contracts bid internationally and competitively.

1.1.1 Specimens Thematic Network

Some of the specimen data of any given country reside in its own museums and herbariums, although a significant part of the data reside in museums outside the country or hemisphere. In coordination with other TNs, the ultimate objective of this TN is to allow the user to consult and use specimen data, integrated with species and ecosystems networks. Repatriation of specimen data will be an important consideration in the implementation of the Specimens TN.

The ***objective*** of the Specimens Thematic Network is to define and implement the architecture, tools, standards and protocols to access specimen information located in institutions throughout the region, by using distributed access standards.

Expected ***products***, for a total GEF investment of $200,000, are:

- Information requirements from representative user groups evaluated and prioritized (building upon the information obtained from the IABIN Regional Report prepared in the first Project Preparation and Development Facility (PDF) stage of this project);
- Policies for the use of information defined;

- Architecture, protocols, tools and standards for the search of specimen databases distributed throughout the region defined. Standards and protocols defined by GBIF and others will be evaluated for the development of the specimen network;
- A website in a central server, installed, that will allow searches and access to the information available. This includes training for web administrators;
- Software developed for data providers, national partners and the central server required for the implementation of the specimen information network. Includes training for trainers;
- Protocols, tools and standards defined and implemented in order to integrate the specimen network with the species and ecosystems networks;
- A specimen information network operational and maintained by the CI; and
- Multi-lingual training materials developed.

1.1.2 Species Thematic Network

Species represent the fundamental unit for understanding the diversity of life on earth, and are the typical level of biodiversity that is protected by laws (e.g., Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), IUCN Red Lists). Beyond the basic need to classify species known to exist (taxonomy), decision makers require information about the status of species, individual species requirements (natural history and phenology), and the best practices for managing populations, especially for vulnerable species.

The ***objective*** of the Species Thematic Network is to implement an electronic and institutional network dedicated to regional species information that supports the decision making process. Ultimately, tools developed by the Network should allow the user to consult species information, integrated with specimen and ecosystems databases in an integrated manner (in coordination with other Thematic Networks).

Expected ***products***, for a GEF investment of $200,000, are the following:

- Information requirements from representative user groups evaluated and prioritized (building upon the information obtained from the IABIN Regional Report prepared in the first PDF stage of this project);
- Technical Advisory Group workshop on GBIF standards and protocols as they apply to IABIN information priorities;
- Recommendations for the architecture and protocols documented and distributed to the focal points and data providers;
- Documentation for the cross-cutting Thematic Networks on how to use the species standards and protocols.
- Tools for entering species data;
- Policies for the use of species information accepted and documented;
- Web site on a central server that provides access to species data using distributed access tools adapted from GBIF;
- Prototype tools for integrated searches of ecosystem, species and specimen information;
- Training program for web administrators;
- On-line help system to report and explain advances and changes in protocols and tools;
- Processes in place to ensure sustainability of the information system; and
- Species expert database and directory.

1.1.3 Ecosystems Thematic Network

The ecosystem is the fundamental unit of resource management. Ecosystem maps are, among other things, integrated planning tools that provide a record of the location and distribution of ecosystems within a management area. They create a framework for developing various site-specific uses.

The ***objective*** of the Ecosystem Thematic Network is to implement an electronic and institutional network dedicated to regional ecosystem information that supports the decision making process. Ultimately, tools developed by the Network should allow the user to consult specimen, species and ecosystems databases in an integrated manner (in coordination with other thematic networks). This work will be closely coordinated with the Millennium Ecosystem Assessment and other key players in this area. The specific objectives are the following:

- Enhance the usefulness of ecosystem information for decision makers in government and civil society;
- Establish standards for providing access to information on ecosystems that is distributed among multiple institutions;
- Establish a hemispheric system for cross-referencing different ecosystem classifications;
- Integrate ecosystem information with specimen and species information from other IABIN thematic networks; and
- Maintain the ecosystem information Thematic Network.

Expected ***products***, corresponding to a GEF investment of $250,000, are the following:

- A prioritized, annotated list of user types and their requirements;
- Evaluation of ecosystem information system in the context of ongoing regional projects, and recommendations for improvements to the information system;
- Metadata standards for ecosystem data adopted;
- Tools for entering ecosystem data sets implemented by IABIN participants;
- Policies for the use of information accepted and documented;
- Online system for cross-referencing different ecosystem classifications;
- Prototype tools for integrated searches of ecosystems, species and specimen information implemented;
- Training program for web administrators;
- Processes in place to ensure sustainability of the ecosystem information system;
- On-line help system to report and explain advances and changes in protocols and tools; and
- Ecosystems expert database and directory.

1.1.4 Invasive Species Thematic Network

A growing number of plants, animals, and pathogens are becoming invasive in natural areas, inland waters, oceans, croplands, and rangelands. Invasives can result from geographic range extensions or from ecological displacements of a species within a disrupted ecosystem. These invasive species pose increasing risks to human health, native species, ecosystems, and national economies and are second only to habitat destruction as a cause of loss of biodiversity. Documenting current invasions, predicting new invasion sites, and preventing invasions are vital to the protection of biological diversity in all countries. Prediction of and rapid response to invasive species requires ready access to invasive species knowledge bases from many countries.

Internet-accessible knowledge bases can provide crucial information for the early detection, eradication, and containment of invasives—which are most possible for species that have just arrived.

The work of the invasive species thematic network will be a direct contribution to implementation of the decision by the CBD Conference of Parties on alien species that threaten ecosystems, habitats or species, in particular those aspects of the decision that are concerned with information and assessment.

The ***objective*** of the Invasive Species Thematic Network is to encourage the creation and standardization of national and sub-national databases, promote their interoperability to provide direct access to databases currently scattered and inaccessible, and create value-added products.

Expected ***products*** for a GEF investment of $200,000 are the following:

- Standards adopted and promoted;
- Value-added products developed;
- Multilingual search and retrieval tools developed;
- Data entry tools developed; and
- TN operating.

The USGS is proposed as the CI for the Invasive Species Thematic Network. The USGS will not however receive GEF funds, but rather will help coordinate the development of this TN. The IABIN Invasive Species Information Network (I3N) was initiated by the USGS in early 2001. Thirteen countries, covering most of the terrestrial area of the hemisphere, are currently in various stages of implementing I3N; three new participants signed up in August 2003. I3N has been recognized by CBD and Global Invasive Species Programme (GISP) as an initiative to be supported. The IABIN council reaffirmed the key role of I3N at its third meeting. I3N consists of web-accessible, national catalogs of invasive species metadata. Tools at the disposal of the network include a cataloging and data output tool; a listserv; a virtual community; and an extensive bilingual web site that contains a repository for data submitted by those participants not able to serve their own, a Cataloguer download page with instructions, a search and browse page, instructions on creating Extended Markup Language (XML) and on serving data on the internet, fact sheets, contact information, sample XML output, and all pilot project documents.

For this reason it is proposed that I3N be recognized as the IABIN invasive species thematic network. USGS/BIO and its partners in NBII have made major investments to increase the amount of publicly available biological information on invasive species and international initiatives. The NBII invasive species initiative funds I3N-related activities by developing the Invasive Species Information Node, encouraging NBII nodes to adopt data standards, participating in GISP activities, coordinating workshops, furthering agreements on protocols and standards, and providing technical assistance to NBII partners.

The executing agency, in coordination with the CI, will directly execute the project funds destined to support I3N through consultancies, training, and non-technical services.

1.1.5 Pollinators Thematic Network

The action of pollinators ensures reproduction for many sexually reproducing plant species and the maintenance of genetic variability that plant populations need to survive and continue to evolve. There are hundreds of thousands of pollinator species such as beetles, flies, birds, bats, wasps, ants, etc. Bees, however, are the most important pollinators of wild and cultivated plants. Information on pollinators taxonomy is scattered and often unavailable. An electronic Global Species Database (GSD) is needed as a linking element to facilitate the integration of biological, ecological, and agricultural information, in an efficient retrieval system.

The work of the Pollinators Thematic Network will be a direct contribution to implementation of the CBD Plan of Action for the International Initiative for the Conservation and Sustainable Use of Pollinators.

The ***objective*** of the Pollinators TN is to facilitate the integration of pollinator species information at the regional level and to promote their interoperability to provide effective sharing of such information. An initial goal of this subcomponent is to deliver the electronic multilingual New World Bee Catalog, contributing approximately 30,000 names (valid names and synonyms) to a Bee GSD. The effort will build on the integration of existing local datasets such as the checklist of bee species from Brazil and regional checklists such as Moure's Catalog of Neotropical Bees, with bee databases from North America. The effort will be developed aiming at future coordination with relevant regional initiatives (Europe, Africa, Asia and Oceania) towards the development of the World Bee Catalog. This catalog will be developed using IABIN standards, insuring interoperability with the Thematic Networks on specimen, species and ecosystems, and it will support IABIN's work with the Integrated Taxonomic Information System (ITIS).

Other activities that will be carried out under this subcomponent are:

- Development of an online directory of experts; and
- Expansion of the Bee Catalog to include non-bee pollinators.

The Pollinator Catalog will be integrated with the Specimen, Species and Ecosystem Thematic Network, thus providing the user a valuable tool that will address pollinator issues such as habitat loss, ecosystem functions, natural history, etc.

Expected ***products*** of $180,000 of GEF funds are the following:

- On-line New World Bee Catalog contributing approximately 10,000 valid names and 20,000 synonyms to the GBIF Electronic Catalog of Life and the Species 2000—ITIS Annual Checklist;
- Online Directory of Experts;
- Multilingual data entry tool;
- Multilingual training materials;
- Online Pollinator Catalog; and
- Pollinator Information System linking Pollinator Catalog to Specimen, Species and Ecosystem Thematic Networks.

1.1.6 Protected Areas Thematic Network

Protected areas face numerous threats, including global climate change, habitat loss and fragmentation, consumptive uses by human populations, and invasive alien species. In addition to these and other threats, the conservation value of the network of protected areas is weakened by a disproportionate coverage of barren areas. Through a process of data accumulation and standardization followed by improved access, the protected areas thematic network may assist countries with strategic planning and analysis of management effectiveness, by providing the basis for a comprehensive information network where data on protected areas could be easily located, queried, accessed for management and scientific needs. The outputs of the World Parks Congress held in South Africa last year, and the decision and program of work adopted by the CBD Conference of Parties held in Malaysia earlier this year, both stress the importance of protected areas in achieving conservation.

The ***objective*** of the Protected Areas Thematic Network is: i) to promote the more effective sharing of information on protected areas within and between the countries of the region, building on and contributing to existing global experience in this area; and ii) to provide the tools by which countries can assess the effectiveness of their protected area system and to share best practices and lessons learned. It is intended that national protected areas agencies will work closely with a host of other potential partners including the Information Center for the Environment (ICE) at the University of California, Davis (on biological inventories), the UNESCO Man and the Biosphere (MAB) Programme (on Biosphere Reserves), various other international agreements and programs on protected areas and a range of internationally active non-governmental organizations.

Expected ***products***, for a total GEF involvement of $230,000, are:

- A prioritized and annotated assessment of the users of protected areas data at national and international levels, and the data required;
- Adoption by IABIN of protocols and standards for protected area data, and their promotion with multilingual training materials within the region;
- Data development/sharing/synthesis;
- Dissemination of any necessary further guidance on the application of the IUCN protected area management categories within the region; and
- Prototype tools for integrated searches of protected areas also cross referenced with ecosystems, species and specimen information.

Project Component 2: Data Content Creation - US$13.17 million
This component includes $2.47 million of GEF funds.

Objectives
The incorporation of standards within IABIN needs to be accompanied by development of a formal Content Development Program. The IABIN Content Development Program will support multilingual training, and provide technical leadership to IABIN countries as they develop data for access within the IABIN network. While Component 1 will create the network infrastructure and the contents and standards to access data and information through the IABIN Catalog Services and six thematic networks, Component 2 will improve the availability of critical data and metadata.

The Program includes:

- Carrying out training sessions on the use of data creation tools;
- Providing Grants to institutions with high quality data to support institutional efforts to make data available through the network (see details on matching grants in section 5.2.2); and
- Data and metadata quality control.

Recipients of training and of grants (which must be from countries eligible for GEF funding through this project) will be chosen by an evaluation committee as agreed upon by the IABIN Executive Committee and the OAS through a competitive funding mechanism to be detailed in the Operational Manual using some or all of the criteria below:

- Linkage to IABIN's thematic priorities;
- Available co-financing;
- Availability of qualified personnel and protocols;
- Relevance to multiple countries;
- Commitment to IABIN standards and protocols;
- Impact of filling data gaps;
- Relevance for conservation and sustainable use; and
- Inclusion of indigenous TEK/biodiversity information providers/users.

Consultants, chosen competitively as described above, will carry out the training in coordination with the CIs for the Catalog and the Thematic Networks. A Data Content Manager will coordinate the data content activities across the Catalog system and all the Thematic Networks. Very heavily co-financed, this component includes $2.225 million of GEF funds for projects plus $240,000 for a full time position of Content Manager (providing overall support to the Data Creation Component and also responsible for content on the IABIN Portal).

Products
Products under this component will include:

- Trained personnel throughout the hemisphere;
- Newly prepared metadata;
- Newly digitized data;
- Newly created data and metadata available for access through the IABIN network; and
- Repatriation of information from databases and collections outside the region.

Project Component 3: Information Tools for Decision-Making - US$ 4.25 million
The GEF funds will contribute $0.5 million to this component. The total for this component does not include an additional $1.2 million grant from the World Bank's Development Grant Facility that was approved only in May 2004. These funds will further contribute to the objectives of this component by improving connectivity between biological and non-biological data.

Objectives
An important ultimate objective of IABIN is to make biodiversity information useful to decision-makers in the public and private sectors. The IABIN Portal will host a series of value-adding applications that will demonstrate to decision makers how data and information can be effectively used in the decision making process. These information products could be as simple as a

specialized reporting for a select group of biological data or as complex as the species prediction capabilities of LifeMapper (http://www.lifemapper.org).

The major categories of decision-makers are:

1) Operational: Protected area managers, water management officials, and resource managers.
2) Sub-national: Provincial environmental and natural resource officials, provincial legislators.
3) National: National legislators, policy advisors and government officials involved in national planning and regulatory development, planners and strategists of large resource extraction companies, NGO policy developers and planners.
4) Regional and Global: National leaders, advisors and official representatives to international organizations and conventions, CEOs of multinational companies.

Products
Specifically, the products of this component will includes tools that will allow the user to ask questions from biodiversity and socio-economic databases in an integrated manner. The integration of natural and social science data and information is increasingly recognized as vital to scientific research and societal decision making related to a wide range of pressing environmental and biodiversity issues. Under this component socio-economic data relevant to biodiversity issues will be identified, and tools will be provided through the IABIN Portal that will allow users to access socio-economic and biodiversity data in an integrated manner.

Project Component 4: Sustainability of IABIN - US$7.35 million
$913,600 of GEF funds will be allocated to this component.

4.1 IABIN Secretariat

Under this subcomponent, we include the costs of an IABIN Executive Director and the Secretariat's costs of operations not covered by the host, the City of Knowledge. The Director's salary costs will be covered on a declining cost basis; the GEF Project support for this position will drop to 40% by the end of the project. The Director would act as Project Coordinator and will sit physically in the Secretariat. $453,000 of GEF funds will be allocated to the Secretariat (consultancies and a small amount of goods).

An important function of the Director will be to seek additional financial support for the Secretariat to both ensure adequate functioning during the lifetime of the project and subsequently. To date, IABIN has been supported by grants from the U.S. Geological Survey, the World Bank, OAS, U.S. State Department, U.S. Agency for International Development, and the Brazilian Government, and by in-kind contributions from nations of the hemisphere. An increasing number of nations have committed to the development of IABIN and will support it with in-kind contributions at varying levels according to their capacities. However, continued development and maintenance of the network requires that a strategy for the financial sustainability of IABIN be developed and implemented.

Financial sustainability for IABIN has two components. First, sources of recurring funding for the operation of the Secretariat and other periodic activities (e.g., IABIN Council meetings) must be identified. Second, participating agencies and institutions must be assured of continued internal funding for IABIN-related activities that are their in-kind contributions to the development of IABIN. GEF funds can kick-start or top-off projects and is expected to facilitate the fund-seeking

process by helping its members identify potential funding sources and potential partners with whom collaborations can be formed to leverage available resources.

4.2 Partnerships and Communications

$460,000 of GEF funds have been allocated to this subcomponent. These funds will be used for consultancies, for minor goods (such as communication materials), for services such as organizing meetings, and for maintaining the IABIN Portal.

This component further develops inter-governmental and inter-institutional relationships as well as relationships with existing programs. This will be done through:

- Convening three IABIN Council meetings during the lifetime of the project;
- Convening two IABIN Executive Committee meetings;
- Negotiating agreements with key organizations and initiatives;
- Maintaining close cooperation with the CHM program manager at the CBD Secretariat;
- Collaborating with CHM national focal points;
- Producing a variety of communication tools such as publications, newsletters, and brochures; and
- Participating in other global and regional biodiversity informatics initiatives, such as GBIF.

In addition, an important set of activities under this subcomponent will focus on building partnerships with indigenous peoples, as well as providing adequate information and training access for indigenous peoples, and assessing the distinct structural issues related to eventual inclusion of traditional environmental knowledge (TEK) into IABIN. To this end, the subcomponent will support preparation of a needs assessment and strategy for capacity building of indigenous TEK and biodiversity providers and users; it will also fund studies and other activities related to development of policy, guidelines and information standards for inclusion of TEK data in IABIN. These activities will feed into and inform implementation of targeted indigenous training and policy activities under Components 1 and 2 (see Components 1 and 2, and Annex 9).

The IABIN Council meetings will be scheduled in coordination with CHM meetings, if possible. It is expected that IABIN will partially cover the costs of the IABIN focal points attending the meetings with GEF funds. It is expected that the participating countries will have to cover some part of the participants' travel costs.

While IABIN is envisioned as a distributed system of data providers in which data are maintained and controlled by the provider, a single point of access to the integrated resources of the network is a key component of IABIN. The IABIN Portal is in the process of becoming a gateway to biodiversity information in the Americas as well as a mechanism for facilitating interconnection of different institutions and agencies concerned with biodiversity conservation. The Portal will provide simple user interfaces for sharing knowledge, discussing issues, accessing projects and statistical databases, and registering and profiling users.

The vision for the IABIN Portal is that it will be the "go to" website for users and providers of biodiversity information in the Americas. Through the use of standards, it will provide ready access to information throughout the region, whether that information is in relational databases, documents, images, map products, or other data sources. The Portal will serve as an online access

point for the Americas and a coordination center for IABIN partners and users. Some of these functions could however be better implemented on various partner sites and in these cases, the IABIN Portal would not seek to replace them. The major components of the IABIN Portal are:

- General information;
- IABIN Catalog Service;
- Access to Thematic Networks;
- Project collaboration areas and tools;
- Specialized value-added applications;
- Feedback mechanisms; and
- Biodiversity Informatics Links.

Project Component 5: Project Administration - US$1.40 million
This component covers administrative costs of the Executing Agency (contracting, procurement, disbursements, audits, and evaluation). Detailed cost tables prepared by the OAS and reviewed with the World Bank establish a cost of $400,000 for the administration of the project. In addition, the OAS is contributing about $1 million of technical assistance during the life of the project.

The General Secretariat of the Organization of American States (GS/OAS) has been chosen by the IABIN Executive Committee as the Executing Agency for the IABIN GEF Project and thus is responsible for compliance with Bank procurement and disbursement procedures. The OAS has considerable experience in executing World Bank implemented GEF projects, and through its Unit for Sustainable Development and Environment (USDE) will provide necessary support for procurement, legal, and financial management activities, and, working closely with the IABIN Council, guarantee effective execution of project funds.

As a condition of effectiveness, the OAS will prepare an Operational Manual with complete details of administrative procedures including a detailed explanation of the monitoring system.

5.1 Monitoring and Reporting

Monitoring and evaluation of the project will be the responsibility of the Executing Agency, with the assistance of the IABIN Secretariat, the CI, and other participants as appropriate. The World Bank, as Implementing Agency, will assist with monitoring and auditing the project as appropriate, following Bank procedures.

The IABIN Secretariat will report to the Executing Agency on the progress of activities and the outcomes measured by the indicators developed (see Annex 1). The Executing Agency will submit semiannual reports that document project progress to the IABIN Council and to the World Bank. These reports will be summaries of progress reports compiled by the IABIN Secretariat and financial reports from the Executing Agency itself. These reports will draw on assessments, reviews, minutes of meetings, planning and programming documents, study reports, and other documentation prepared concerning the project. All key IABIN documents and all reports will also be posted on http://www.iabin.net.

As established in the Grant Agreement, the GS/OAS will prepare Financial Monitoring Reports (FMRs) acceptable to the Bank, adequate to reflect the operations, resources and expenditures related to the project every six months (see Annex 6(B)). These FMRs will be used as reporting tools to the GEF and all participating institutions that contribute to the project.

Annex 3: Estimated Project Costs

LATIN AMERICA: Building the Inter-American Biodiversity Information Network (IABIN)

The following table (all figures in $US) summarizes the estimated project costs and indicates the approximate amount of committed parallel financing to for the implementation of IABIN.

Table 1. Project costs and parallel financing

	GEF support	Percentage	Co-financing (millions)	Total financing (millions)
Comp. 1: Interoperability/data access				
Catalog Services	0.22			
Specimen TN	0.20			
Species TN	0.20			
Ecosystem TN	0.25			
Invasive Species TN	0.20			
Pollinators TN	0.18			
Protected Area TN	0.23			
Thematic Network Technical Specialist	0.24			
Subtotal	*1.72*	*29%*	*7.04*	*8.76*
Comp. 2 : Data Content Creation				
Metadata Content Program	0.30			
Specimen Content Program	0.40			
Species Content Program	0.40			
Ecosystem Content Program	0.40			
Invasive Species Content Program	0.28			
Pollinator Species Content Program	0.27			
Protected Area Content Program	0.18			
Data Content Manager	0.24			
Subtotal	*2.47*	*41%*	*10.71*	*13.17*
Comp. 3 : Information Tools for Decision Making				
Subtotal	*0.50*	*8%*	*3.75*	*4.25*
Comp. 4: Sustainability of IABIN				
IABIN Secretariat	0.45			
Partnerships and Communications	0.46			
Subtotal	*0.91*	*15%*	*6.43*	*7.35*
Comp. 5: Project Admin.				
Subtotal	*0.40*	*7%*	*1.00*	*1.40*
Total	**6.00**	**100%**	**28.93**	**34.93**

Table 2. Parallel financing provided by each institution with its profile

Name of Co-financier (source)	Amount (US$)*	Comp. 1	Comp. 2	Comp. 3	Comp. 4	Comp. 5
Academic Institutions						
CaribHerp — Pennstate University (US-Caribbean)						
Centro de Estudios Conservacionistas (CECON), Universidad de San Carlos (Guatemala)	60,000		40,000		20,000	
Centro de Malacología, Universidad Centroamericana de Managua (Nicaragua)	24,000		24,000			
Consortium for Caribbean (MCZ Harvard University) (US-Caribbean)						
Escuela Politécnica Nacional del Ecuador	50,000		50,000			
Museo Entomológico de León (Nicaragua)						
Universidad Austral (Chile)	105,000		105,000			
Universidad de Concepción (Chile)						
Universidad de los Andes (CVULA)	150,000		100,000		50,000	
Universidad de los Andes (ULABG) (Venezuela)	150,000		100,000		50,000	
Universidad de Panamá	80,000	20,000	40,000		20,000	
Universidad Nacional de Tucumán (Argentina)	30,000	10,000	20,000			
Universidad Nacional del Nordeste - Fac. Ciencias (UNNE) - Colección Herpetológica Corrientes	50,000		50,000			
University of California, Davis (Information Center for the Environment)	120,000		120,000			
University of Suriname	100,000	50,000	50,000			
SUBTOTAL (ACADEMIC INSTITUTIONS)	**919,000**	**80,000**	**699,000**		**140,000**	
NGOs						
Asociación Boliviana para la Conservación - TROPICO (Bolivia)	20,000		10,000		10,000	
BioNET International	1,050,000	350,000	400,000		300,000	
Bird Life International	400,000	100,000	100,000	100,000	100,000	
City of Knowledge Foundation (Panama)	250,000				250,000	
Colección Boliviana de Fauna	50,000		50,000			

Name of Co-financier (source)	Amount (US$)*	Comp. 1	Comp. 2	Comp. 3	Comp. 4	Comp. 5
(Bolivia)						
Comité Nacional Pro Defensa de la Flora y Fauna - Amigos de la Tierra (CODEFF) (Chile)	70,000		50,000		20,000	
CRIA (Brazil)	1,000,000	250,000	250,000	250,000	250,000	
Fundación La Salle de Ciencias Naturales (FLASA) (Venezuela)	50,000		20,000		30,000	
Fundación de Historia Natural Félix de Azara (Argentina)						
Grupo de Conservación de Germoplasma ex situ de Raíces y Tuberosas Andinas (RTA's) (Andes)						
Fundación Habitat y Desarrollo (Argentina)						
Guyra Paraguay						
Herbario Nacional de Bolivia	155,000	55,000			100,000	
Herbario Nacional de Ecuador	350,000	250,000	100,000			
IADIZA-CRICYT (Argentina)	280,000		100,000	100,000	80,000	
INBio (Costa Rica)	1,050,000	750,000	250,000		50,000	
Instituto Alexander von Humboldt (Colombia)	175,000	100,000			75,000	
Instituto de Botánica Darwinion (Argentina)	75,000		75,000			
Instituto Geográfico de Venezuela	250,000	75,000		100,000	75,000	
Museo Argentino de Ciencias Naturales (MACN) (Argentina)	150,000		150,000			
Museo de la Plata -- Argentina						
Museo de Zoología, Universidad de Costa Rica	15,000		15,000			
Museo Nacional de Costa Rica	151,000	21,000	100,000		30,000	
Museo Nacional de Historia Natural (Chile)	325,000	100,000	225,000			
NatureServe (US)	2,500,000	600,000	800,000	600,000	500,000	
National Biodiversity Network	216,000	100,000	100,000		16,000	
Smithsonian (US)						
Smithsonian (Panamá)	120,000					
The Nature Conservancy	5,000,000					
West Indian Whistling-Duck	200,000		150.000		50.000	
SUBTOTAL (NGOs)	**13,902,000**	**4,001,000**	**4,295,000**	**2,400,000**	**3,206,000**	
Governments						
Autoridad Nacional del Ambiente Panamá						
WB Colombia Disaster Management Project (WB)	TBD					
Conabio (Mexico)	2.500.000	1,000,000	1,500,000			

Name of Co-financier (source)	Amount (US$)*	Comp. 1	Comp. 2	Comp. 3	Comp. 4	Comp. 5
Corporación Nacional Forestal (CONAF) (Chile)						
Env. SALs (WB) (Mexico, Brazil)	TBD					
Honduras Disaster Vulnerability (WB: support to SINIA)	200,000	50,000	50,000	50,000	50,000	
IABIN Focal Points of participating countries	1,500,000				1,500,000	
MINAE (Costa Rica)	100,000		100,000			
Ministerio de Ciencia y Tecnologia de Venezuela	110,000		60,000		50,000	
Ministerio del Ambiente y Recursos Naturales (MARENA) (Nicaragua)	250,000		250,000			
Ministry of Environment (Haiti)	40,000		20,000		20,000	
Ministry of Health and Env. (Bahamas)	65,000	20,000	25,000		20,000	
MIZA (Venezuela)	80,000	20,000	20,000		40,000	
Nicaragua Second Rural Municipality Project of WB (support to SINIA)	400,000	100,000	100,000	100,000	100,000	
SERNA (Honduras)	88,000	20,000	40,000		28,000	
Servicio Agrícola y Ganadero (Chile)	50,000		50,000			
SUBTOTAL (GOVERNMENTS)	**5,383,000**	**1,210,000**	**2,215,000**	**150,000**	**1,808,000**	
U.S. Government						
I3N (NBII) (USGS)	2,900,000	750,000	1,500,000	500,000	150,000	
USGS/EROS Data Center	200,000			200,000		
USGS/NBII	3,250,000	750,000	1,750,000		750,000	
SUBTOTAL (U.S. GOVT.)	**6,350,000**	**1,500,000**	**3,250,000**	**700,000**	**900,000**	
Recipient						
OAS	1,000,000					1,000,000
SUBTOTAL (RECIPIENT)	**1,000,000**					
Multilateral Agencies						
Convenio Andres Bello (CAB) (Andes)	1,000,000	250,000	250,000	250,000	250,000	
CCAD						
CIAT (Colombia)						
Commission For Environmental Cooperation (N. America)						
Development Gateway (WB)	TBD					
Development Grant Facility (WB)	**					
MBC/WB/Dutch Trust Fund	250,000			250,000		
UNEP (GRID)	62,000			50,000	12,000	
UNEP Caribbean CAR RCU	70,000				70,000	

Name of Co-financier (source)	Amount (US$)*	Comp. 1	Comp. 2	Comp. 3	Comp. 4	Comp. 5
UNEP Mexico						
SUBTOTAL (MULTILATERAL INSTITUTIONS)	**1,382,000**	**250,000**	**250,000**	**550,000**	**332,000**	
TOTAL PARALLEL FINANCING	**28,936,000**	**1,500,000**	**3,250,000**	**700,000**	**900,000**	**1,000,000**

*If no amount is indicated, the IEC received only a letter of support without a parallel financing commitment. TBD indicates that such commitment is still under consideration.
** Funding of $1.2 million from the Bank's Development Grant Facility was approved too recently to incorporate into this table.

Annex 4: Incremental Cost Analysis

LATIN AMERICA: Building the Inter-American Biodiversity Information Network (IABIN)

Baseline Scenario

In the baseline scenario, institutions responsible for collecting and maintaining information on biological diversity do so independently without a formalized information sharing mechanism, or at best through ad hoc sharing between a small number of organizations. Information sharing between institutions is informal and limited to the sub-regional level.

During preparation of the project, we requested estimates of baseline funding and parallel financing from a great many institutions across the region. Activities by the approximately 70 parallel financing academic, scientific, governmental and non-governmental institutions for baseline activities account for US$28 million. The baseline activities are generally: (i) Improving access to databases at institution level ($0.5 million); (ii) Dataset creation at institution level for various biological information datasets ($26.77 million); and (iii) Maintaining sustainability of databases ($0.77 million). We consider this the baseline funding given that the Project will most likely work with the institutions that were sufficiently motivated and interested to sign agreements. However, it could just as easily be argued that if we were to include all institutions in the Americas that deal in biological information and that will be future beneficiaries of IABIN, baseline financing would be in the hundreds of millions of dollars per year.

Under the baseline scenario, different institutions collect and maintain biological information that is of importance to local biodiversity. However, without a uniform structure and standards to create and record the information, compatibility and knowledge sharing is not realized between institutions. The dominant share of the baseline activities, i.e. over 95 percent of the costs, are for data creation activities. Activities to develop a network to connect the different databases in the region to facilitate efficient information sharing are minimal.

GEF Alternative

The GEF alternative would expand on the existing set of data in the region and promote greater management and coordination in the collection, sharing and use of biodiversity information relevant to decision making and education. It would result in the creation of information compatible to region-wide standards and an internet based network to promote inter-exchange of scientific knowledge crucial for sustainable use of biological resources.

Due to the international nature of many biological resources such as migrating species, international watersheds and ecosystems, activities implemented in one country will often cause serious consequences in other surrounding countries. The GEF alternative addresses this issue by facilitating exchange of information across borders. Furthermore, implementation of the GEF alternative would develop research and other value added activities of a regional scope that would not have been possible under the baseline scenario. Policymakers would therefore be able to better address issues related not only to national biological resources but those with regional as well as international consequences.

Incremental Cost Matrix

Component 1: Interoperability and access to data	**Baseline**	**Alternative**	**Increment (of which GEF)**
Cost (US$ million)	**0.5**	**9.26**	**8.76 (1.72)**
Domestic Benefits	* Institutes in the region construct databases without a uniform compatibility standard, thus hindering information sharing. * Individual databases remain unlinked	Develop regional consensus on standards for communication, taxonomic information, metadata, controlled vocabularies, and record structures to ensure region-wide compatibility to promote greater coordination, better management and decision-making of biological information	
Global Benefits		Provides a network in the region to exchange information relevant to conservation and sustainable use of biological diversity to help fulfill the mandate of the Clearing-House Mechanism of the Convention on Biological Diversity	
Component 2: Data Content Creation	**Baseline**	**Alternative**	**Increment (of which GEF)**
Cost (US$ million)	**26.77**	**39.94**	**13.17 (2.47)**
Domestic Benefits	Each institution creates their datasets according to different standards and structures	Multilingual data creation tools will enable institutions to create compatible datasets and a high quality metadata set	
Global Benefits		Creation of region-wide compatible datasets will help fulfill the mandate of the Clearing-House Mechanism of the	

		Convention on Biological Diversity	
Component 3: Information Products for Decision Makers	**Baseline**	**Alternative**	**Increment (of which GEF)**
Cost (US$ million)	**0**	**4.25**	**4.25 (0.5)**
Domestic Benefits	Region-wide applications of datasets is hindered due to incompatibility between institutions using different data structures	IABIN Portal will host value added applications that will provide capabilities for advanced presentation, analysis and assessment of biological data	
Global Benefits		Value added application will contribute to a greater understanding and better decision-making of conservation and sustainable use of biological diversity	
Component 4: Sustainability of IABIN	**Baseline**	**Alternative**	**Increment (of which GEF)**
Cost (US$ million)	**0.77**	**8.12**	**7.35(0.91)**
Domestic Benefits	* Regular maintenance and upgrading of respective databases * Awareness building to facilitate database use	The IABIN secretariat will ensure financial sustainability and quality control even after the completion of the project	
Global Benefits		Same as domestic benefit	
Component 5: Project Administration	**Baseline**	**Alternative**	**Increment (of which GEF)**
Cost (US$ million)	**0**	**1.4**	**1.4 (0.4)**
Total	**Baseline**	**Alternative**	**Increment**
Cost (US$ million)	**28.04**	**62.97**	**34.93 (6.00)**

Annex 5: Financial Summary

LATIN AMERICA: Building the Inter-American Biodiversity Information Network (IABIN)

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Project Costs						
Investment Costs	0.99	1.42	1.38	1.19	1.02	6.00
Recurrent Costs	0	0	0	0	0	0
Total Project Costs	0.99	1.42	1.38	1.19	1.02	6.00
Financing						
GEF	0.99	1.42	1.38	1.19	1.02	6.00
Governments	0.95	1.36	1.32	1.13	0.99	5.75
NGOs	2.43	3.49	3.39	2.90	2.49	14.70
Foreign Multi-lateral	0.35	0.51	0.49	0.42	0.36	2.13
US Government	1.05	1.51	1.47	1.25	1.08	6.35
Total Financing	**5.76**	**8.28**	**8.06**	**6.89**	**5.91**	**34.93**

Annex 6(A): Procurement Arrangements

LATIN AMERICA: Building the Inter-American Biodiversity Information Network (IABIN)

Procurement

A. General

Procurement for the proposed project would be carried out in accordance with the World Bank's "Guidelines: Procurement Under IBRD Loans and IDA Credits" published by the Bank in January 1995 and revised in January and August 1996, September 1997 and January 1999; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" published by the Bank in January 1997 and revised in September 1997 and January 1999, and the provisions stipulated in the Grant Agreement. The general description of various items under different expenditure category are described below. For each contract to be financed by the Grant, the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and time frame are agreed between the Recipient and the Bank in the Procurement Plan. The Procurement Plan will be updated at least annually.

Procurement of Goods: Goods procured under this project would include some computer and office equipment. The total amount for the entire life of the project under this category is $30,000. Since no individual purchase will be above $25,000, the procurement will be done using International and National Shopping based on comparison of price quotations obtained from at least three suppliers and using documents satisfactory to the Bank.

Procurement of non-consulting services: Technical Services will consist of logistics arrangements involving various meetings of Technical Working Groups, Council meetings, and training. Extensive work will be undertaken with data holders to provide them with training and assistance in converting existing data to IABIN-compatible standards, and with member countries to organize training activities in biological informatics. In addition, virtual forums pertinent to biodiversity information and targeted to different audiences would be organized and training and outreach materials developed. Individual contracts for technical services are not expected to cost more than $250,000 and they will be procured using International and National Shopping based on comparison of price quotations obtained from at least three suppliers and using documents satisfactory to the Bank.

Selection of Consultants : Coordinating Institutions will be hired to coordinate Thematic Networks to improve interoperability among network information sources, and development of analytical tools and training materials to facilitate access to and use of network content. CIs must show that they will be willing to provide cofinancing to be eligible to bid on these contracts. Individual consultants will be hired to implement a communications and partnership strategy, to administer and supervise the implementation of the initiative as the IABIN Secretariat, to develop and maintain the IABIN Internet-based Portal, etc.

Operating Costs: Operating Costs related to reasonable recurrent expenditures that would not have been incurred by the Recipient for operation and maintenance of office equipment needed for the implementation of the Project, would be financed by the project and would be procured using the Executing Agency's administrative procedures which were reviewed and found acceptable to the Bank. In addition the project administrative costs of the Executing Agency are included as operating costs.

Matching Grants: Under component 2 of the project, matching grants (or "IABIN Subprojects") will be awarded to institutions with high quality data, to support their efforts to improve the availability of critical data and metadata through the network. Recipients of these grants will be selected through a competitive funding mechanism using the provisional criteria in Annex 2, to be further detailed in the Operational Manual. A call for proposals will be published in IABIN's website and a selection committee, approved by the IEC, will rate the proposals to determine which institutions will receive the award. The selected institutions will sign a contract with the GS/OAS defining the use of the funds and the co-financing.

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

Most procurement activities will be carried out by the OAS Headquarters in Washington, DC. Some minor shopping activities may be carried out from the OAS office in Panama City, Panama. A Project Operational Manual is being prepared and it will include, in addition to the description of each procurement procedure, the Request for Proposals (RFP) document to be used for the selection of consulting firms and guidance for the request for quotations.

An assessment of the capacity of the General Secretariat of the OAS to implement procurement actions was carried out by the Bank in October 2001 during the preparation of the Environmental Protection and Sustainable Development of the Guarani Aquifer System project which is now being implemented by the GS/OAS. The assessment determined that the GS/OAS has the necessary infrastructure and human resources to carry out and manage its procurement in an orderly and well established manner. Since the OAS office in Panama City will only be responsible for carrying out simple shopping procedures for a total amount of $30,000 for the entire life of the project, it was deemed unnecessary to carry out a procurement capacity assessment of that office. The GS/OAS will ensure that the OAS office in Panama City will have the Operational Manual with the instructions and appropriate documents to carry out Shopping procedures acceptable to the Bank.

The overall project risk for procurement is "Average".

C. Procurement Plan

The OAS developed a Procurement Plan for project implementation. This plan was analyzed and agreed between the OAS and the Project Team during negotiations. The Procurement Plan will be updated in agreement with the Bank annually or as required to reflect the actual project implementation needs.

D. Frequency of Procurement Supervision

In addition to the prior review supervision to be carried out from Bank offices, the capacity assessment of the OAS has recommended that every 12 months a supervision mission visits the OAS offices at Headquarters to carry out post review of procurement actions.

Attachment 1

Procurement Methods (Table A)
(US$ million equivalent)

Expenditure Category	Procurement Method					Total Cost
	CQ	QCBS	ICB	Shopping	Other	
1. Goods other than under IABIN Subprojects				0.03		0.03
2. Consultants' Services other than under IABIN Subprojects	1.41	1.56				2.97
3. Non-consultant technical services				0.64		0.64
4. Goods and/or Consultants' services under IABIN Subprojects			1.37			1.37
5. Training				0.57		0.57
6. Operating Costs				0.02	0.40	0.42
Total	**1.41**	**1.56**	**1.37**	**1.26**	**0.40**	**6.00**

Table A1: Consultant Selection Arrangements
(US$ million equivalent)

Consultant Services Expenditure Category	Selection Method					Total Cost[1]
	QCBS	QBS	LCS	CQ	Other	
A. Firms	1.56	0.00	0.00	0.00	0.00	1.56
B. Individuals	0.00	0.00	0.00	1.41	0.00	1.41
Total	1.56	0.00	0.00	1.41	0.00	2.97

1\ Including contingencies

Note: QCBS = Quality- and Cost-Based Selection
QBS = Quality-based Selection
SFB = Selection under a Fixed Budget
LCS = Least-Cost Selection
CQ = Selection Based on Consultants' Qualifications
Other = Selection of individual consultants (per Section V of Consultants Guidelines), Commercial Practices, etc.
N.B.F. = Not Bank-financed
Figures are the amounts to be financed by the Bank Grant.

Prior review thresholds (Table B)

Expenditure Category	Contract Value Threshold (US$ thousands)	Procurement Method	Contracts Subject to Prior Review
1. Goods other than under IABIN Subprojects	>150 <150	ICB Shopping	All First contract only
2. Consultants' Services other than under IABIN Subprojects			
a) Firms	>100 <100 --	QCBS CQ Sole sourcing	All First contract only All
b) Individuals	>50 --	Section V of Consultants Guidelines Sole sourcing	All All
3. Non-consultant technical services	<250	Shopping	First contract only

Annex 6(B): Financial Management and Disbursement Arrangements
LATIN AMERICA: Building the Inter-American Biodiversity Information Network (IABIN)

Financial Management

1. Summary of the Financial Management Assessment
1.1 Capacity Assessment

The Bank has reviewed the financial management and monitoring systems already in use by the OAS to implement projects funded by multilateral financial institutions. This review included the evaluation of the organization, qualifications and responsibility of the staff, decision making process, accounting policies and procedures, disbursement and reimbursement procedures, and reporting and auditing arrangements. The OAS has appropriate infrastructure and human resources, both in headquarters and in the resident missions, to carry out and manage its procurement in an orderly and well established manner. The financial management information system in use by the OAS is a very complete software based on the registration of operations and transactions. Nevertheless, some arrangements have to be made to provide the Bank with the necessary information for the preparation of Bank account reconciliation and for the monitoring of the project using the financial monitoring reports (FMRs).

1.2 Financial flows

Following is a detailed explanation of how funds flow from the Implementing Agency through the Executing Agency.

1.2.1 Prior to receiving funds

1) The OAS and the World Bank sign a Grant Agreement. Before opening an award in the GS/OAS enterprise administrative system (OASES), the OAS Department of Financial Services (DFS) must receive a copy of this agreement.
2) DFS records an award in OASES that identifies the donor, the amount of the agreement, the dates of execution, and the executing Unit among other specifics.
3) The technical unit responsible for executing the funds, the USDE in the case of IABIN, prepares a template and sends a request to DFS to open a Operating Account, specific for the project, identifying the source of funds (award).
4) DFS opens the project's Operating Account, a unique number that identifies the project, and defines a specific project-award combination.
5) After the Bank receives evidence satisfactory to it that the Operating Account has been duly opened, it deposits a contribution in the OAS' Bank of America account equivalent to the authorized allocation stipulated in the Grant Agreement.
6) DFS enters an installment amount in the award to reflect the payment received from the donor, and delimits the maximum amount of funds that the project can receive from this award.
7) DFS gives a budget to the specific project-award combination, meaning that project funds can be executed.

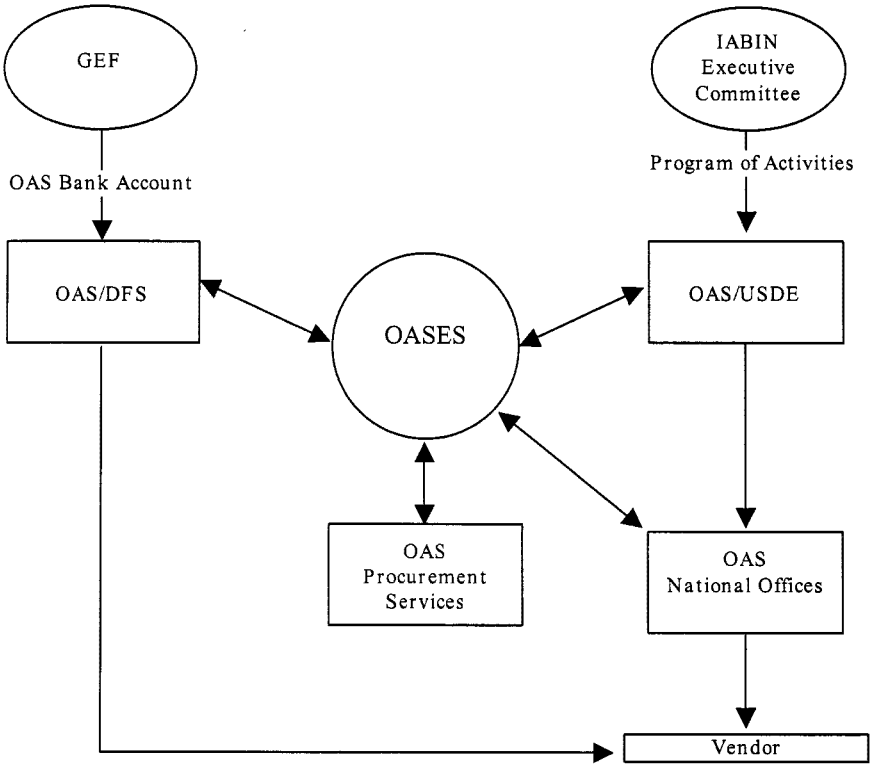
1.2.2 Execution of funds

1) Following the program of activities approved by the IABIN Executive Committee and conforming to the provisions stipulated in the Grant Agreement, the USDE begins execution of project funds.

2) Under the project-award combination, USDE creates a requisition encumbrance (pre-obligation) in the OAS Enterprise System (OASES) to record a future purchase, contract, or travel expense.
3) OAS departments (legal, procurement, and DFS) verify purchasing and contracting procedures, and also availability of funds before converting any requisition into a Purchase Order (PO), a firm commitment between the OAS and a supplier. When applicable, POs are sent to National Offices by close of business day.
4) Payments against POs are made upon confirmation of delivery of product or services to OAS satisfaction. The USDE is responsible for authorizing and requesting to DFS disbursement or transfer of funds.
5) Payments at headquarters are directly paid by DFS and immediately charged to the project's Operating Account. Payments in the field are made through the OAS National Offices by transferring funds to the country. National Offices wait for the technical unit to authorize payment and following OAS procedures, request appropriate documentation before disbursing funds.
6) National Offices process payments in OASES and disburse funds via the national bank account. An authorization in OASES to cut a check simultaneously debits the project's Operating Account. Account information at the Award and Project level is updated on a daily basis.
7) Payments out of the Operating Account will be made exclusively for eligible expenditures in accordance with the provisions stipulated in the Grant Agreement.

Figure 1 below shows a schematic of the execution of project funds.

Figure 1. Execution of Project Funds



1.3 Counterpart and Parallel Funding

Parallel financing of $28.9 million dollars from seventy-eight regional or national institutions and programs has been identified (see Annex 3, Table 2). This amount of parallel financing is well in excess of the suggested amount of parallel financing (2:1) that was originally requested by the GEF. Much of the co-financing represents parallel financing from institutions that will be redirecting or directing funds in support of the objectives of IABIN. Although representing a tremendous leverage of the use of GEF funds, much of this parallel financing is not indispensable for the implementation of critical project activities.

In contrast, we have identified almost $10 million of "core" parallel financing that is considered essential to implement certain critical parts of the project. These include the following:

- Parallel financing (at least 2:1, thus double the amount of the GEF contribution) from the institutions that will be under contract as Coordinating Institutions in Component 1;
- Matching contributions (at least 1:1) from the organizations that will receive the data content creation grants under Component 2;
- Parallel financing (at least 2:1) from the institutions that will be under contract to develop new information tools in Component 3;
- Parallel financing from the City of Knowledge in Panama for the costs of the Secretariat (Component 4);
- Parallel financing from the United States Geological Service (USGS) which will be providing core support to Component 1; and
- Parallel financing from the OAS as a contribution to the management and administration of IABIN (Component 5).

A breakdown of the core parallel financing by source and component is shown in the table below:

	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Total
GEF Financing	**1.72**	**2.47**	**0.50**	**0.91**	**0.40**	**6.00**
Parallel financing						
Coordinating Institutions (CIs)	2.96		1.00			3.96
Secretariat				0.25		0.25
Grants		2.22				2.22
US Government	2.25					2.25
OAS (Recipient)					1.00	1.00
Total assured parallel financing	**5.21**	**2.22**	**1.00**	**0.25**	**1.00**	**9.68**

The core parallel financing is substantiated by various instruments. Parallel financing of coordinating institutions and from institutions receiving grants will be documented in contractual agreements. The parallel financing from the USGS is documented in signed letters of support; these are not legal contracts but in the unlikely event this funding was not forthcoming, the project team would be able to substitute similar core support from a number of different sources. The availability of this kind of support is evidenced in letters of commitment and support received from other leading informatics institutions. The parallel financing from the City of Knowledge is documented in a signed Letter of Agreement with the IEC, which, although not representing a legal contract per se, because IABIN does not yet have a legal personality, is judged to represent a very

firm commitment. Finally, the General Secretariat OAS commitment, as mandated in several OAS General Assembly Resolutions, is also indicated in a signed letter. The OAS is the diplomatic host of IABIN and their long-term commitment to IABIN is very firm.

The OAS will be responsible for tracking parallel financing, both core and non-core, during project implementation with the assistance of the IABIN Focal Points and IABIN Secretariat. The appropriate forms and guidelines will be designed before project effectiveness setting value benchmarks for various types of parallel financing such as personnel, physical infrastructure, and connectivity. Such forms will facilitate the tracking of parallel financing by project components.

As part of the competitive process to select consultants and grantees, Requests for Proposals (RFPs) will be prepared stipulating that contracts with selected institutions will include the amount of parallel financing they are providing for the activity and will require that their records are available for review by external auditors if requested. The reported parallel financing will be evaluated against the list of benchmarks and the expected output before registering it in a cofinancing database. Coordinating Institutions and grantees will report parallel financing as part of periodic progress reports or every six months, whichever occurs first. The OAS, IABIN Secretariat, and other institutions will be requested to report their parallel financing semiannually. The cofinancing database will track parallel financing by country, institution, and project components.

1.4 Financial Monitoring and Reporting Arrangements

The Executing Agency will submit semi-annual reports that document project progress to the IABIN Council and to the World Bank. These financial monitoring reports (FMRs) will be summaries of progress reports compiled by the IABIN Secretariat and financial reports from the Executing Agency itself. The FMRs and other project reports will draw on assessments, reviews, minutes of meetings, planning and programming documents, study reports, and other documentation prepared concerning the project. All key IABIN documents and all semi-annual reports will also be posted on http://www.iabin.net. Monitoring and evaluation of the project will be the responsibility of the Executing Agency, with the assistance of the IABIN Secretariat, the CI, and other participants as appropriate.

The FMRs will include the following reports:

1. Sources and Uses of Funds, for each quarter and cumulative including a forecast for the next six months. The format will reflect the receipts and payments, and the net available cash.
2. Uses of Funds by Project Component, Activity and type of Expenditure based on the project cost description approved for the operation.
3. Physical Progress Report for each quarter, considering the project component, activity and output, comparing the total for the project life, the cumulative to date and the actual as a percentage (%) of the total planned for project life.
4. A Subsidiary Ledger to allow the identification of all the receipts and expenditures related to the project, including the accounting bank account.
5. A yearly statement of changes in fund balance of the project, certified by the Treasurer of the executing agency, attesting to the accuracy and completeness of contributions by the Bank and disbursements by the executing agency, and further certification that the in-kind contribution amounts are consistent with the methodology agreed upon between the Bank and the executing agency.

1.5 Project Financial Management Supervision
Project financial management supervision will be conducted at least once a year by the assigned financial management specialist from the Bank.

1.6 Operational Manual
The roles, organization, and coordination arrangements should be included in a project Operational Manual (OM) which will serve as guidelines for all stakeholders involved in the project. The OM should include an organizational chart, roles, and responsibilities of the different participants, procurement procedures, financial arrangements, monitoring and evaluation procedures, and project reporting, following OAS and Bank guidelines. The OM should also include counterpart resources arrangements, and benchmarking criteria for in-kind contributions.

2. Audit Arrangements
Ernst and Young are currently the GS/OAS (General Secretariat/OAS) external auditors. The Bank will rely on the OAS external audit process, in particular accepting OAS annual audited financial statements for the purpose of complying with Bank's audit requirements ('single audit opinion' concept). GS/OAS will request the auditors to perform a review of the project as part of GS/OAS annual audit review. Special arrangements were agreed between the OAS and the Bank to prepare an amendment to the terms of reference of the external auditors' contract to include the following paragraph: "The financial transactions of the specific fund projects shown in the attached schedule [which schedule to list the IABIN Project] are an integral part of the financial records of the GS/OAS which are audited on a yearly basis within the context of the external audit commissioned by the Board of External Auditors of the GS/OAS. The GS/OAS agrees to furnish copies of these audit reports to the World Bank along with such other related information as may be requested with respect to any questions arising from the audit report." The exemption from the Bank's normal audit requirement for annual external audits when the OAS is the direct recipient of the grant, has been granted with a decision by the Financial Management Operations Review Committee (FMROC) on May 18, 2004.

In addition, internal auditing procedures are performed by the Office of the Inspector General charged with the responsibility to assist the Secretary General and the governing bodies to monitor the management of GS/OAS's programs and resources, and adherence to the rules and regulations governing the execution of these resources. The internal control and auditing system ensures an adequate follow up of the use of funds.

3. Disbursement Arrangements
3.1 Operating Account
The GS/OAS will maintain in Dollars an Operating Account on terms and conditions satisfactory to the Bank, including appropriate protection against set off, seizure, or attachment. Following its Budgetary and Financial Rules, the GS/OAS does not open a separate bank account for each of its specific projects. However, each project and related disbursements are kept in a separate General Ledger account in the OAS Enterprise System (OASES) through an award which is opened for every project. The OASES is a tightly integrated set of Oracle Applications that allows the GS/OAS to manage the entire cycle from quota or donors receivables to project management to supplier payment. The award structure allows total segregation of funds and allows tracking of all financial transactions. Though cash is kept in a single bank account, funds are not commingled.

3.2 Use of statements of expenditures (SOEs)
Disbursements will be made on the basis of full documentation for all expenditures made under contracts requiring prior review by the Bank, and contracts whose value will be raised above the

prior review limits as a result of amendments. All consolidated SOEs documentation will be maintained by OAS for post-review and audit purposes. Reimbursement requests should be sent to the Bank on a monthly basis.

3.3 Replenishment

The authorized first allocation to the Operating Account will be US$600,000. Monthly replenishment of funds will be made on evidence of satisfactory utilization of the previous advance(s) as evidenced by the documentation submitted in support of disbursement applications. Replenishments, up to the Authorized Allocation(s) will be made initially on the basis of Applications for Withdrawals (Form 1903) accompanied with the supporting and other documentation specified in the Disbursement Handbook.

3.4 Accounting Arrangements

The financial management and reporting system for the project, including the Operating Account, shall meet the requirements of the Bank. This includes maintenance of an Operating Account, the preparation of financial reports, and auditing in accordance with international accounting and auditing standards. The accounting system should provide specific information regarding:

- Parallel financing (at least 2:1, thus double the amount of the GEF contribution) from the institutions that will be under contract as Coordinating Institutions in Component 1;
- Matching contributions (at least 1:1) from the organizations that will receive the data content creation grants under Component 2;
- Parallel financing (at least 2:1) from the institutions that will be under contract to develop new information tools in Component 3;
- Parallel financing from the City of Knowledge in Panama for the costs of the Secretariat (Component 4);
- Parallel financing from the United States Geological Service (USGS) which is a critical partner of IABIN and will be providing core support to several different components; and
- Parallel financing from the OAS as a contribution to the management and administration of IABIN (Component 5).

Table C: Allocation of Grant Proceeds

Expenditure Category	Amount in US$million	Financing Percentage
Goods other than under IABIN Subprojects	0.03	100 %
Consultants' services other than under IABIN Subprojects	2.97	100 %
Non-consultant technical services	0.64	100 %
Goods and/or Consultants' services under IABIN Subprojects	1.37	100 %
Training	0.57	100 %
Operating Costs	0.42	100 %
Total Project Costs with Bank Financing	6.00	
Total	6.00	

Annex 7: Project Processing Schedule

LATIN AMERICA: Building the Inter-American Biodiversity Information Network (IABIN)

Project Schedule	Planned	Actual
Time taken to prepare the project (months)	16	26
First Bank mission (identification)	12/01/2001	01/13/2002
Appraisal mission departure	03/01/2003	03/17/2004
Negotiations	04/01/2003	04/20/2004
Planned Date of Effectiveness	08/13/2004	

Prepared by:
IABIN Executive Committee and the Organization of American States.

Bank staff who worked on the project included:

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NBII: Mike Frame, Technology Manager
Nippon Koei: Paul Driver, Team Leader and Jerry Harrison, UNEP-WCMC

Annex 8: Documents in the Project File

LATIN AMERICA: Building the Inter-American Biodiversity Information Network (IABIN)

A. Project Implementation Plan

Project Implementation Plan
Component Implementation Plan(s), Costs, Timetable and Procurement Plan
PDF-B Regional and sub-regional reports

B. Bank Staff Assessments

Financial Management Assessment
Nippon Koei Reports "Support to Building the Inter-American Biodiversity Information Network" (see below for titles)

Report		Nippon Koei Report Title
Main	Sub	
1		**Review of key bilateral and multi-lateral programs and initiatives in biodiversity information sharing**
2.1		**Biodiversity Information for Decision Making — International Experiences**
	2.2	ASEAN Regional Centre for Biodiversity Conservation — Experience in developing a regional information network
	2.3	EC Clearing-House Mechanism — Experience in developing a regional clearing-house mechanism
	2.4	Review of existing and potential use of internet-accessible biodiversity information in the oil and gas industry
	2.5	Review of the use of biodiversity information in the decision making process in Japan
	2.6	**Linking Biodiversity Information with non-biological networks**
	2.7	**Recommended Standards and Practices for sharing of GIS-based information**
	2.8	Use of GIS in the biodiversity sector in Japan
	2.9	GIS and mapping by the European Environment Agency
	2.10	UNEP-WCMC Interactive Map Service — IMAPS
	2.11	**Role and Use of Biodiversity Indicators at the Regional Level**
	2.12	Pressure and Response Indicators
4.1		**National Strategies for Effective Biodiversity Information Management**
	4.2	Comparative evaluation of toolkits for development of the CBD Clearing-House Mechanism
5.1		**Review of Taxonomic Authority Archives and Networks**
	5.2	Specimen collections in Japan relevant to IABIN
	5.3	Identification of key specimen collections relevant to the region
6.1		**Review of International Initiatives in Biodiversity Vocabulary and Thesauri**
	6.2	Comparative Review of Thesauri
7.1		**Recommendations on Bioinformatics Standards and Practices for donor-financed projects**
	7.2	Review of international initiatives in metadata management
	7.3	Review of experience in developing interoperable systems for international data management and sharing

C. Other

Access to Information and Intellectual Property Regulation for IABIN, the OAS.
Financial Sustainability of IABIN, Miguel Pellerano and Fernando Frydman, May 2002.
See the web site of IABIN (http://www.iabin.net) for many other background and related documents.

Annex 9: Indigenous Peoples and IABIN

LATIN AMERICA: Building the Inter-American Biodiversity Information Network (IABIN)

Background

Indigenous peoples have long been recognized as playing an important role in the maintenance and sustainable use of much of the world's biodiversity. This is particularly evident in the case of the Americas, which includes among its population a vast array of indigenous societies living, for the most part, in the hinterland areas containing the richest stores of biological diversity. The geographic overlap with conservation sites is especially significant, with indigenous people living in 80-85% of protected areas in Latin America.[1]

Five of the ten most biologically diverse countries in the world can be found in the western hemisphere (Brazil, Colombia, Ecuador, Peru, and Mexico). The region is also characterized by a rich cultural diversity, with some 50 million indigenous people making up about 13 percent of the total population. A total of about 400 aboriginal or native languages are still spoken throughout the region. Today, they comprise large parts of the rural peasant and migrant populations of Mexico, Central America, and the Andean countries. In the Amazon Basin region, there are also scores of relatively isolated tribal societies, some of which have only recently come into sustained contact with outsiders as a result of road building and land settlement programs. In the United States and Canada, native tribes continue to populate some of the most pristine areas.

While the main policy and research focus related to biodiversity has been on the biological and economic consequences of biodiversity loss, growing attention is being paid to the related importance of maintaining the cultural diversity that is often reflected in specialized indigenous knowledge of natural resource management and enhancing the role of indigenous people in biodiversity protection. The 1992 Global Biodiversity Strategy, for example, includes as one of its ten principles for conserving biodiversity the principle that "Cultural diversity is closely linked to biodiversity. Humanity's collective knowledge of biodiversity and its use and management rests in cultural diversity; conversely, conserving biodiversity often helps strengthen cultural integrity and values."[2]

This was further developed in the subsequent 1992 Convention on Biological Diversity (CBD), which in its preamble recognizes the

> close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components.

Article 8(j), which is concerned with indigenous peoples and *in situ* conservation, calls on the Parties to:

> respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices.

Similarly, the CBD Clearing-House Mechanism, which was established to facilitate the access of all governments to the information and technologies they need for their work on biodiversity, has targeted special efforts "to ensure the participation of indigenous communities, whose unique knowledge and expertise are so important."[3]

The Role of Traditional Environmental Knowledge

The term "traditional knowledge" is often used to refer to the complete body of knowledge, practices and innovations developed and maintained by indigenous and local communities. The more specific concept of "traditional environmental knowledge" (TEK) has been defined as "a body of knowledge built by a group of people through generations living in close contact with nature. It includes a system of classification, a set of empirical observations about the local environment, and a system of self-management that governs resource use."[4]

Over the past few decades, many academics and scientists have grown increasingly interested in the sophistication of TEK among many forest communities. For example, the Shuar people of Ecuador's Amazonian lowlands use 800 species of plants for medicine, food, animal fodder, fuel, construction, fishing and hunting supplies. Traditional healers in Southeast Asia rely on as many as 6,500 medicinal plants, and shifting cultivators throughout the tropics frequently sow more than 100 crops in their forest farms. Indigenous peoples plant forest gardens and manage regeneration of bush fallows in ways which take advantage of natural processes and mimic the biodiversity of natural forests. Much of the world's crop diversity is maintained by farmers who follow age-old farming and land use practices that conserve biodiversity and provide other local benefits.[5]

Traditional environmental knowledge has also been an important resource in technologies based upon the manipulation, adaptation or use of biological resources. This is especially evident in the pharmaceutical sector, where a recent analysis has shown that over half of the top 150 brands prescribed contained at least one active compound derived or patterned after compounds derived from biological diversity. Furthermore, the vast majority (94%) of the 35 plant-derived drugs included in the top 150, contained at least one compound that had a similar use in traditional medicine as in "western" bio-medicine.[6]

Recent years have seen growing acknowledgement of the importance of traditional knowledge by conservation and international development agencies, including the World Bank, who increasingly seek to integrate indigenous and traditional resource management practices with their own biodiversity conservation and sustainable development strategies.

Nevertheless, despite increasing recognition of the potential for integrating traditional knowledge into sustainable development strategies, "western" scientists, in general, still remain largely skeptical about the utility or validity of TEK. This is mainly due to the vastly different world views, that cannot be easily reconciled, governing how environmental knowledge is generated, recorded, transmitted, and managed. Most solutions offered by traditional knowledge systems are usually localized and context-specific, and therefore cannot be extricated from that context and generalized without affecting their potential effectiveness — which flies in the face of the principle of replicability guiding occidental science.

Skepticism is also based on the perception that TEK, to the extent that it offers viable solutions to biodiversity management and sustainable development problems, is being irreversibly eroded by the assimilation of aboriginal peoples into western culture and by the failure of elders to pass on the traditional knowledge to younger generations. Indeed, TEK is in danger of disappearing not only under influence of global processes of rapid change, but also because the infrastructure and

capacity for indigenous peoples themselves to document, protect, and disseminate their knowledge are lacking, especially in developing countries.[7]

This is not to say that information on TEK is not available; indeed, the number of "indigenous knowledge centers", and the extent of global, regional and national networking, has grown dramatically since the 1990s. Other regional activities have collected, linked, and analyzed existing regional data on indigenous peoples and biodiversity through creation of integrated databases, generally in map format, covering indigenous territories, and combining data on biodiversity, socioeconomic conditions, demographic data, and the like for use in policy making and research. At the local level, indigenous communities are increasingly undertaking information collection through "ethnocartography". These community mapping projects are being used for a range of purposes, including to demarcate and protect territorial boundaries and gain recognition of land rights, conserve and reinforce local and traditional knowledge about resources, improve community resource management, raise and mobilize local awareness of environmental issues, increase local capacities to deal with external agencies, and further collaboration with conservation groups.

The issue of documenting traditional knowledge, however, raises a number of fundamental questions that need to be addressed, about data ownership, authorization, quality control and interpretation. Many, if not most, existing databases related to traditional knowledge are created and maintained by non-indigenous groups, who while they are putting this information out in the public domain are at the same time under current regimes recognized as the "owners" of this information by virtue of their compiling the database. Storing information on traditional concepts and uses of biodiversity can potentially aid in the retention of traditional knowledge. But once stored, how can knowledge be protected from use and exploitation without informed consent? Is it coherent to argue that western scientific knowledge is a public good, while at the same time providing special protection to TEK as a cultural property or secret? How to develop coherent system of group rights?[8]

Main Issues Related to IABIN

Intellectual Property Rights. The Convention on Biological Diversity recognizes the central role of indigenous and local communities in effective *in situ* biodiversity conservation, and calls for wider use and application of traditional knowledge, innovations, and practices. But the CBD does this without providing for the development of appropriate mechanisms for protection and equitable benefit sharing (insofar as Parties to the CBD are essentially just encouraged to carry out this obligation to the degree possible, subject to national legislation).

While indigenous peoples and representatives recognize the potential that exists for the wider application of their traditional knowledge and resources, they are concerned that existing systems of intellectual property rights are inadequate to guarantee equity and protection. Many argue that existing IPR systems undermine the essence of traditional knowledge insofar as they are based on the concept of private ownership and individual invention and thus are inherently at odds with many indigenous cultures, which tend to emphasize collective creation and ownership of knowledge. Finally, there is concern that IPR systems facilitate the appropriation of traditional knowledge for commercial use without providing for fair benefit sharing.[9]

Thus, one of the main issues related to the IABIN project emerging from this larger debate is that of the need to define adequate IPR policies and guidelines to protect TEK and other biodiversity related information generated by indigenous and local communities from inappropriate claim or misuse. Also in need of clarification are certain structural issues related to data formats and metadata standards to facilitate the eventual inclusion of TEK into the network.

Capacity building. Indigenous peoples recognize that to effectively communicate their goals and to participate in decision making on biodiversity and sustainable development activities, training and technical support is important. This support, however, should be based on collaboration and mutual exchange which draws on indigenous knowledge of the environment, as well as indigenous decision making structures. Thus, another major issue related to IABIN is that of the need for capacity building and support both for indigenous peoples to develop their own biodiversity related networks, and to access scientific data and technologies. One of the main prerequisites for the process of collecting, applying, and disseminating TEK and other biodiversity related information is the full participation of the local people involved. Capacity building is a key issue in this regard, and vital if traditional knowledge systems are to receive active local support needed to sustain them. Indigenous and local communities will be able to "own" and manage their TEK and biodiversity related networks only to the extent to which they are able to own and manage the relevant information technologies needed to record, validate, disseminate, and protect the data.

IABIN and Indigenous Peoples

In light of the above, the following activities will be included in the IABIN project design to facilitate indigenous peoples' participation in the project and share in its national and regional benefits.

Capacity building for indigenous and local communities. As noted above, capacity building is key to enabling indigenous and local communities to manage their TEK and biodiversity information. Equitable access to existing scientific information and technologies is another vital aspect of this issue. The project would therefore aim to provide equitable access to capacity building through the six thematic networks under Component 1, and the IABIN Content Development Program under Component 2, to key indigenous TEK and biodiversity users and providers. In addition, Component 4.2 will support the following assessment activities related to capacity building to inform the implementation of training activities under Components 1 and 2, and to support establishment of collaborative partnerships with indigenous groups involved in the generation and dissemination of TEK and other biodiversity information: (i) preparation of a survey and needs assessment to determine existing indigenous TEK and biodiversity providers and users, their training needs, information gaps, existing or planned infrastructure, and the like throughout the region; and (ii) preparation of a capacity building strategy for indigenous TEK/biodiversity providers and users through the thematic networks and content development program.

The IABIN project will also include activities related to the development of policy and guidelines for dealing with the eventual inclusion of TEK information in the network, including addressing oversight for TEK that might be conveyed through the network, as well as issues related to the clarification and definition of appropriate metadata standards for TEK inclusion. To this end, under Component 4.2, a TOR and analysis would be prepared on the current parameters of the indigenous IPR issue as related to IABIN, the development of appropriate metadata standards and protocols, and recommendations on proposed policy and guidelines for inclusion of TEK in the IABIN network.

[1] Catherine M. Marquette, *Indigenous Peoples and Biodiversity in Latin America: A Survey of Current Information*. Unpublished World Bank report, 1996.

[2] World Resources Institute, et al., *Global Biodiversity Strategy: Policy Makers' Guide*. Baltimore: WRI Publications, 1992.

[3] Clearing-House Mechanism, CBD website, www.biodiv.org/chm.

[4] Martha Johnson, "Research on Traditional Environmental Knowledge: Its Development and Its Role," in *Capturing Traditional Environmental Knowledge*, M. Johnson, Editor, International Development Research Centre, 1992.

[5] Darrell Addison Posey, *Provisions and Mechanisms of the Convention on Biological Diversity for Access to Traditional Technologies and Benefit Sharing for Indigenous and Local Communities Embodying Traditional Lifestyles*. Oxford, UK: OCEES Research Paper No. 6, 1996.

[6] Francisco Grifo, et al. "The Origins of Prescription Drugs," in *Biodiversity and Human Health* 131. Francisco Grifo and Joshua Rosenthal, Eds., Washington, DC: Island Press, 1997.

[7] Johnson, op. cit.

[8] Preston Hardison, International Conservation Networking System (ICONS) Project, pers. comm.

[9] David Downes, *Using Intellectual Property as a Tool to Protect Traditional Knowledge: Recommendations for Next Steps*. Center for International Environmental Law Discussion Paper, 1997. Cited in Marquette, op cit.

Annex 10: Review of Key Bilateral and Multilateral Programs and Initiatives in Biodiversity Information Sharing
LATIN AMERICA: Building the Inter-American Biodiversity Information Network (IABIN)

1 INTRODUCTION

1.1 Purpose

The purpose of this annex is to provide the context within which IABIN is being built and will participate. It defines the scope and extent of "biodiversity information" and the intended role of IABIN, and an overview of the range of international information networks and processes currently sharing biodiversity information.

1.2 Scope of "Biodiversity Information"

The term "biodiversity information" is difficult to define in a global context, for there is no consistent and accepted meaning. Various views as to the scope and meaning have evolved from different sectors of the environmental science community, and three differing major views have developed, as follows:

First view - Biodiversity means taxonomy: The taxonomic community has interpreted the Convention on Biological Diversity (CBD) as support and justification for increased scientific research in their specific field. Hence the apparent view that "biodiversity information" equals taxonomy, even though this scientific endeavor provides only a partial picture, and is only one of many classes of information important to the conservation of biodiversity. This has resulted in misleading names for institutions such as the Global Biodiversity Information Facility, which in fact, concentrates on scientific issues in taxonomy (naming and relationships) and on specimen collections in museums and herbaria.

Second view - Biodiversity information means species-related information: This view of the scope extends from taxonomy and museum specimens to species observational data — e.g. distribution and populations of species. This implies information exchange on the occurrence and movement of species, their protection status, and natural habitat requirements.

It should be noted that the North American Biodiversity Information Network (NABIN) has to date operated from a completely species-centric viewpoint, with a particular emphasis on linkage of museums regarding specimen data, similar to GBIF. This represents only a small proportion of the biodiversity information data for which improved access and harmonization is needed in order to support decision-making.

Third view - Biodiversity information has broad ecological scope: Biodiversity information as implied by the Convention on Biological Diversity extends beyond species-centric data, to include biodiversity management and ecosystems information — that would include protected areas, habitats, ecosystem condition and monitoring, conservation strategies and methodologies, population dynamics, actions towards conservation (conventions, regulations, action plans), and so on. The Convention also encompasses information related to socio-economic considerations and concepts such as "equitable sharing of benefits" and "sustainable development".

The objectives for IABIN clearly indicate that the project's vision falls within the third view described above. This would then encompass a number of major categories as follows:

Taxonomic Information

- Taxonomic reference systems and registries;
- Species nomenclature and synonymy;
- Species identification; and
- Museum, herbarium, and botanic garden specimens.

Species Information

- Species distribution;
- Species population and dynamics;
- Conservation status;
- Threats;
- Behavior and habitats;
- Species conservation activities (*in situ* and *ex situ*); and
- Species "hot-spots".

Protected areas

- Location and distribution;
- Purpose;
- Protection status, international and national;
- Management;
- Relationship to species; and
- Ecosystem protection.

Ecosystems

- Characteristics;
- Distribution and dynamics;
- Threats;
- Status and condition;
- Long term monitoring; and
- Relationship to species.

Responses

- Conventions and treaties;
- Legislation and regulation;
- Strategies and policies; and
- Action plans and projects.

These five major categories provide the core information required for effective decision-making on the range of topics identified in the IABIN objectives. In terms of circumscribing the scope of "biodiversity information", it is important to note that this rather broad definition does NOT extend as widely as "environmental information" — i.e., does not encompass information on pollution loads, renewable and non-renewable resource extraction and utilization, and many other factors normally considered part of State-of-the-Environment reporting.

Thus, the scope of "Biodiversity Information" includes biological information related to the five categories above, but excludes pollution and resource extraction information. That is, we see IABIN as a network for the exchange of biodiversity information (broadly defined) but not an Inter-American *Environmental* Information Network.

2 KEY INTERNATIONAL PROGRAMMES

2.1 Overview

A recent study of international information-sharing networks that provide support to European decision-makers (Rationalization of International Nature Conservation Information Systems — RINCIS) identified some 289 information sources and networks in 10 major categories. A further 66 programs or initiatives aimed at harmonizing these networks also came to light. The following table shows the distribution by category of information networks identified in the RINCIS Study.

Category	Networks	Harmonization Initiatives
1 - Convention and Treaty Information Sources	21	17
2 - Information on Protected Sites	27	5
3 - Development projects and donor information	18	3
4 - Clearing-House Mechanisms & Integrated Exchange Networks	29	4
5 - Environmental Law Information	14	1
6 - Global and Regional Long Term Ecological Monitoring	24	5
7 - Taxonomic Reference Information	55	12
8 - Species Status Information	34	7
9 - Policy and Strategy Information	38	0
10 - European Nature Conservation Information	29	12

If one were to add the regional and sub-regional networks, and sources more particular to the Americas, these numbers would further increase. Some of these are of long standing, while many others have developed in recent years, responding to calls for increased information-sharing for decision-makers, for instance from Agenda 21, Chapter 41.

There is considerable evidence of overlap and lack of harmonization amongst these existing networks. Many claims of these networks ("definitive", "complete", "authoritative", "global", etc.) are exaggerated, and reflect more the ultimate good intentions rather than the current reality. Many have no consistent guaranteed on-going source of funding. Further, in spite of the apparent proliferation of networks, significant information gaps exist as well. One particular area in which information is sparse and poorly coordinated is in long term monitoring of ecosystems, and consequent indicators that would assist decision-makers to assess whether policies and actions are effective.

It is in this maelstrom of rapidly proliferating, overlapping and confusing biodiversity information networks that IABIN must find a useful niche that contributes non-redundantly to the whole rather than adding confusion.

In the following sections, some of the most significant international programs and initiatives with which IABIN should co-ordinate are profiled, and the acronyms explained. Of the global systems, GBIF, UNEP.Net, UNEP-WCMC, The CBD Clearing-House Mechanism, the Global Invasive Species Programme, The Millennium Biodiversity Assessment, BioNET, and Birdlife

International, are the most relevant. In a regional context, NatureServe, CONABIO-REMIB, INBio (Costa Rica), CRIA (Brazil), and NABIN are of relevance.

2.2 Key Global Programs

2.2.1 Global Biodiversity Information Facility

The Global Biodiversity Information Facility (GBIF) has been established through an inter-governmental process, with the aim of increasing access to global biodiversity data, especially those that exist in museums and herbaria. The stated mission of GBIF is to: "Make the world's biodiversity data freely and universally available via the Internet". The four priority work program areas that have been identified for the first three-year phase are to:

- create an Internet-based catalogue of known names of species;
- digitize data on species information in museums and herbaria;
- create interoperability of databases and search engines for accessing these data; and
- build capacity in nations for the implementation of GBIF.

To accomplish its goals, GBIF's activities are organized around six thematic areas:

- Data Access and Database Interoperability;
- Digitization of Natural History Collections;
- Electronic Catalogue of the Names of Known Organisms;
- Outreach and Capacity Building;
- SpeciesBank; and
- Digital Biodiversity Literature Resources.

The purposes of these programs are:

> "1) To facilitate the full use of biodiversity and other databases by establishing an information architecture that enables interoperability and facilitates data-mining.
>
> 2) To facilitate the expansion of biodiversity knowledge by having legacy and newly acquired primary species occurrence data digitized and dynamically accessible.
>
> 3) To make integrated searching possible, as well as to facilitate the exploration and rapid expansion of biodiversity knowledge, by providing a complete, digital listing of the names of all known organisms.
>
> 4) To bridge biodiversity information technology 'digital divides' through training and capacity building to ensure that people in every country have access to and can easily and freely use the world's biodiversity information.
>
> 5) To provide, in real time, a complete compendium of knowledge about particular species, including name and synonyms, distribution, natural history, physiology, etc., drawn from online information sources.
>
> 6) To enable Web access to digitized versions of the published literature extending back in time at least to Linnaeus' publications of the 1750s, which are the basis of the system for scientific naming of organisms that is now in use."

GBIF works through "Participant Nodes" in national governments and regional organizations. In particular, it collaborates with the CBD, Species 2000, ITIS and UNEP-WCMC. The agreements on standards and tools for information exchange of taxonomic and specimen related data are of particular significance to IABIN.

2.2.2 UNEP.Net

The UNEP.Net partnership was initiated by the United Nations Environment Programme (UNEP) in September 2000, so as to bring specialized scientific environment communities together under one umbrella. The partnership is using the communities' varied and vast information resources to begin a new global process of developing integrated solutions to well-known environmental problems, while also highlighting emerging issues by using relevant components of their scientific information holdings. In doing this, UNEP is fulfilling a part of its mandate by bringing together environmental information and data-providers, and facilitating and encouraging the exchange of information between them by using the most current Internet technologies.

There is a large volume of well-researched scientific environmental information fragmented in a wide variety of institutions and Web sites, and this has made it difficult to filter for relevant information required for solving real-world environmental problems. The integrated solutions on the UNEP.Net site compile information from different scientific institutions to develop comprehensive solutions to specific environmental challenges. Environmental research and localized environmental solutions and best practices in many countries have also gone unrecognized, and three benefits that will be realized by this environment network are: provision of the forum for scientific technical peer review, provision of insights on environmental issues to the global community, and the exchange of ideas.

UNEP.Net is a decentralized and distributed system, which allows the integrated applications to query and generate reports from remote environmental databases and servers. This architecture enables the contributing publishers to continue to upgrade their systems and update their information holdings locally, with the benefits being realized directly by the partnership. In negotiating contributions with various partners, UNEP maintains respect for intellectual property, but encourages its partners to exchange and make their information and data available free of charge. The site also hosts independent specialized solutions and information/data of its publishers, developed to address specialized environmental issues and concerns. The dynamic and integrated applications can be accessed by specialized software and toolkits provided through the site, or directly with a Web browser, in which case less functionality is exposed to the user. For instance, downloading a copy of the freely distributed ArcExplorer and using it to overlay maps, etc. allows extensive manipulation of the map-based applications.

One of the major goals of UNEP.Net was to serve to integrate a number of distinct UNEP information services, notably Infoterra and the GRID facilities. Since its inception, UNEP.Net has been responsible for the establishment of a number of interactive thematic portals (for instance at GRID-Arendal) and provides a technology base for map-based server applications providing ecosystem and biodiversity information query and dissemination.

Plans for expansion of UNEP.Net are currently under review and its future status is uncertain.

2.2.3 UNEP-WCMC

UNEP-WCMC is the biodiversity assessment, policy support, and information delivery centre for the United Nations Environment Programme (UNEP). This role is significant because UNEP is the leading global environmental authority: it sets the global environmental agenda and promotes coherent implementation of the environmental dimensions of sustainable development within the United Nations system. Serving as an authoritative advocate for the global environment, UNEP is mandated by governments through its Governing Council. The Centre is specifically mandated:

- to provide data and information of the highest quality and accessibility and interoperability, in co-operation with the Convention on Biological Diversity and consistent with the need to monitor progress towards meeting biodiversity-related objectives set by the Plan of Implementation of the World Summit on Sustainable Development;

- to establish a network of collaborating centers in developing countries to co-operate with the Centre and to assist them in undertaking relevant parts of their work program; and
- to strengthen the World Database on Protected Areas, including linking it with other databases on biodiversity and ecology; establishment of a global consortium; and the strengthening of the relationship between the United Nations Environment Programme and the World Conservation Union on global protected area issues through a specific memorandum of understanding.

In fulfilling its role, the Centre relies on:

- its strong scientific base;
- powerful partnerships 'on the ground'; and
- the analytical skills and experience to add value, by preparing and presenting policy-relevant data to appropriate audiences.

UNEP-WCMC has three key objectives:

- To analyze the state of global biodiversity, assess trends, and provide early warning of emerging threats in support of international co-operation and action;
- To support the development and implementation of international agreements and programs that promote sustainable biodiversity conservation; and
- To support international action by providing expertise, tools, techniques, and information for public awareness, education, capacity-building, and cross-sectoral co-operation.

For almost twenty-five years, UNEP-WCMC has provided information on the living world, including ecosystems, protected areas, and threatened species. With collaborators and partners around the world, the Centre has built and published databases on the world's most important ecosystems in tropical, temperate and polar regions, covering both land and seas. These databases contain information on more than 210,000 protected species and 100,000 protected areas. The Centre's heritage has led to the legacy of a complex "web of information systems" that now needs to be based on a more coherent and robust information and communications infrastructure to enable future growth as part of the United Nations, and the development of effective access for decision-makers worldwide.

The center has therefore launched Project Proteus, a major initiative to integrate and enhance the delivery capacity of the UNEP-WCMC information holdings. Proteus has as one of its principal objectives:

"To create a comprehensive knowledgebase on global biodiversity, able to support national and international policy development and decision making."

The Proteus approach includes:

- Linking and networking of existing databases internally and externally, rather than a disjointed collection of separate databases;
- Providing facilitated access to narrative style assessments and atlases on ecosystems, as well as the detailed quantitative information that lies behind them;
- Interoperability with partners and decentralization through "federated" information systems — in a way that is transparent to users; and
- A total integrated view of information holdings, with all-encompassing quality management.

In summary, the project seeks to develop a quality controlled knowledge management system that is:

- open and accessible (inter-operable with other systems);

- extendable and scalable;
- consistent and integrated;
- documented and accessible (to people); and
- sustainable over the long term.

One of the main work elements required is to integrate information management within UNEP-WCMC so as to increase access to information, ensure continued future access, and to increase cost-effectiveness of services. At the same time, it is necessary to build partnerships and external networks, enhance the means by which external sources of information can be efficiently accessed, and finally, to develop computer-based tools to provide access to information resources through the Internet.

Project Proteus is a joint venture with private sector and inter-governmental partners. It is currently in its second year and is scheduled for completion in 2007.

2.2.4 The CBD Clearing-House Mechanism

The stated mission of the Clearing-House Mechanism (CHM) of the Convention on Biological Diversity (CBD) is to:

- "Promote and facilitate technical and scientific co-operation, within and between countries;
- Develop a global mechanism for exchanging and integrating information on biodiversity; and
- Develop the necessary human and technological network"

The Clearing-House is coordinated by the Executive Secretary of the CBD, and overseen and guided by an Informal Advisory Committee set up by the Parties to the Convention. The committee works in a transparent and co-operative manner to promote awareness of the multiple needs and concerns facing various communities, countries, and regions. In addition, a network of national focal points for the mechanism has been established to address matters relating to technical and scientific co-operation. The Parties have recently emphasized the need to strengthen the role of these focal points.

The CHM's first priority is to ensure universal access to the Convention's official records. The texts of the Convention and the Cartagena Protocol on Biosafety, lists of signatories and Parties, and official reports and documents have been made available through the Convention's website, on CD-ROM, and in paper form. Since then, the range of available information has been greatly expanded. Users can now readily access case studies, national and other reports, and initiatives and programs such as the Global Taxonomy Initiative and those on sustainable tourism and traditional knowledge. Technical and scientific expertise is promoted through a roster of government-nominated experts in relevant fields.

The Clearing-House also seeks to increase public awareness of Convention programs and issues. It is establishing an Internet-based system to facilitate greater collaboration among countries through education and training projects, research co-operation, funding opportunities, access to and transfer of technology, and repatriation of information. Experts are being linked to facilitate joint work programs. For example, the CHM works with the Global Invasive Species Programme (GISP) and with the Convention's scientific body to develop a joint scientific initiative on invasive alien species. The Clearing-House also strives to link the rich human resources of developing countries with cutting-edge scientific initiatives in developed countries, to create a mutually supportive and beneficial approach to problem solving.

Still another initiative is the creation of a section dedicated to the Biosafety Clearing-House to support the Cartagena Protocol. This will enable the CHM to facilitate the exchange of scientific,

technical, environmental and legal information, and experience relating to living modified organisms (LMOs).

The Secretariat of the Convention is promoting the Clearing-House and its goals through workshops addressing the scientific and technical information needs of developing countries. These workshops give priority to issues identified by the countries themselves, such as:

- assessing national capacities for implementing the Convention;
- improving access to new information technologies and expertise; and
- strengthening public education and awareness.

Key characteristics of the CHM are:

- Compatible with different levels of national capacity;
- Needs-driven;
- Structurally decentralized;
- Provides access to information;
- Supports decision-making;
- Has no vested interest in controlling the expertise or information; and
- Created for the mutual benefit of all participants.

An important associated development is the "CBD Controlled Vocabulary" that provides a consistent basis for searching across biodiversity information holdings.

2.2.5 Global Invasive Species Programme

The Global Invasive Species Programme (GISP) was established in 1997 to address global threats caused by Invasive Alien Species (IAS), and to provide support to the implementation of Article 8(h) of the Convention on Biological Diversity. Key partners during the initial GISP years, referred to as GISP Phase I, were the Scientific Committee on Problems of the Environment (SCOPE), CAB International (CABI) and the World Conservation Union (IUCN), partly funded by the United Nations Environment Programme (UNEP).

GISP Phase I largely relied on the voluntary contributions from a substantial group of scientists, lawyers, and managers from all parts of the world. Phase II was envisaged as a contributory Partnership Network of organizations and programs from around the world, with an interest in IAS issues. Building on this partnership approach, GISP is continuously looking at innovative ways of improving co-operation with their existing and new partners in the IAS world. The aim is to minimize, and where possible eliminate, any form of duplication, whilst maximizing the effectiveness of joint programs and promoting the sharing of best-practice information. GISP is in essence an enabling body, focusing on effective information exchange and networking mechanisms.

To this end, the GISP Secretariat has established a website which will become part of the Clearing-House Mechanism, for all IAS information that relates to the Convention on Biological Diversity.

The GISP mission is "to conserve biodiversity and sustain human livelihoods by minimizing the spread and impact of invasive alien species."

To this end, GISP seeks to:

- improve the scientific basis for decision-making on invasive species;
- develop capacities to employ early warning, rapid assessment, and response systems;
- enhance the ability to manage invasive species;
- reduce the economic impacts of invasive species and control methods;
- develop better risk assessment methods; and

- strengthen international agreements.

In addition, GISP strives to:

- develop public education about invasive species;
- improve understanding of the ecology of invasive species;
- examine legal and institutional frameworks for controlling invasive species;
- develop new codes of conduct for the movement of species; and
- design new tools for quantifying the impact of invasive species.

Since 1997, the demand for GISP's productive, multi-disciplinary approach has grown dramatically, necessitating its evolution into a program that openly engages the expertise and capacity of an even wider variety of stakeholders. At the March 2001 meeting of the Convention on Biological Diversity's (CBD) Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), GISP released a Call to Action, inviting all stakeholders to become members of a "GISP Partnership Network". More than 50 governments, as well as numerous industries, scientific institutes, non-governmental organizations, and intergovernmental organizations have signed the Call to Action, making GISP a truly co-operative program of global scale.

The development of a Phase II Implementation Plan was initiated at the GISP Phase I Synthesis Conference at Cape Town, South Africa in September 2000. At the meeting, representatives from 42 governments, 17 intergovernmental institutions (including key Conventions, scientific institutes and development assistance agencies) and 17 national and non-governmental organizations provided input to establish priorities for Phase II. GISP presented these priorities at the sixth meeting of the CBD SBSTTA and incorporated feedback from the Parties and other bodies. The Phase II initiatives of GISP reflect the findings and recommendations of a four-year assessment, conducted in collaboration with major GISP stakeholders.

GISP is a component of DIVERSITAS, an international program on biodiversity science. The GISP Secretariat is located in Cape Town, South Africa.

2.2.6 The Millennium Ecosystem Assessment

The Millennium Ecosystem Assessment (MA) is an international work program designed to meet the needs of decision-makers and the public for scientific information concerning the consequences of ecosystem change for human well being, and options for responding to those changes. The MA was launched by UN Secretary-General Kofi Annan in June 2001. It will help to meet the assessment needs of the CBD, Convention to Combat Desertification, Ramsar Convention, and Convention on Migratory Species, as well as the needs of other users in the private sector and civil society. If the MA proves to be useful to its stakeholders, it is anticipated that an assessment process modeled on the MA will be repeated every 5—10 years, and that ecosystem assessments will be regularly conducted at national or sub-national scales.

The MA focuses on ecosystem services (the benefits people obtain from ecosystems), how changes in ecosystem services have affected human well-being, and how ecosystem changes may affect people in future decades. It also identifies response options that might be adopted at local, national, or global scales to improve ecosystem management, and thereby contribute to human well-being and poverty alleviation. The specific issues being addressed by the assessment have been defined through consultation with the MA users, as follows.

The MA will:

- Identify priorities for action;
- Provide tools for planning and management;
- Provide foresight concerning the consequences of decisions affecting ecosystems;

- Identify response options to achieve human development and sustainability goals; and
- Help build individual and institutional capacity to undertake integrated ecosystem assessments and to act on their findings.

The MA synthesizes information from the scientific literature, datasets, and scientific models, and makes use of knowledge held by the private sector, practitioners, local communities, and indigenous peoples. All of the MA findings undergo rigorous peer review.

The MA is governed by a board comprised of representatives of international conventions, UN agencies, scientific organizations and leaders from the private sector, civil society, and indigenous organizations. A 13-member assessment panel of leading social and natural scientists oversees the technical work of the assessment, supported by a secretariat with offices in Europe, North America, Asia, and Africa, and coordinated by UNEP. More than 500 authors are involved in four expert working groups, preparing the global assessment, and hundreds of others are undertaking more than a dozen sub-global assessments.

The MA is a "multiscale" assessment, consisting of interlinked assessments undertaken at local, watershed, national, regional, and global scales. The MA sub-global assessments directly meet needs of decision-makers at the scale at which they are undertaken, strengthen the global findings with on-the-ground reality, and strengthen the local findings with global perspectives, data, and models. Sub-global assessments that have been approved or are being planned as components of the MA in the Americas include: São Paulo, Brazil; Coastal British Columbia, Canada; the Caribbean Sea; Salar de Atacama, Chile; Colombia; the Chirripo river basin, Costa Rica; the Vilcanota Region, Peru; Trinidad and Tobago; and the tropical forest sites of the CGIAR Alternatives to Slash and Burn Project.

The assessment will provide a number of output products. A report describing the approach and methods used in the MA — Ecosystems and Human Well-being: A Framework for Assessment — was published in 2003. The technical assessment reports produced by each of the four MA working groups will be published in 2005, along with short syntheses distilling the findings for ease of use by specific audiences. Each of the MA sub-global assessments will produce additional reports to meet the needs of their own audiences. All printed materials will be complemented by an information- and data-rich Internet site, capacity-building activities, briefings, and workshops designed to help communicate the findings, tools, and methods to the users.

Guided by the Conceptual Framework, four Working Groups are undertaking the scientific work of the Millennium Assessment. These Working Groups are co-chaired by natural and social scientists from developed and developing countries. These eight co-chairs and four other experts comprise the Assessment Panel, chaired by Angela Cropper and Harold Mooney. In addition to the four working groups, the MA secretariat co-ordinates a set of Engagement and Outreach activities designed to ensure that the needs of the users and stakeholders in the MA are reflected in the MA design, and that the findings of the MA reach their intended audience.

When completed, the MA will leave a legacy of a baseline database supporting three global assessments:

- The Global Conditions & Trends Assessment;
- The Global Scenarios Assessment; and
- The Global Responses Assessment.

A number of sub-global assessments will also be completed.

2.2.7 BioNET-International

BioNET-International, The Global Network for Taxonomy, is dedicated to "supporting sustainable development by helping developing countries to overcome the taxonomic impediment by becoming

self-reliant in taxonomy, i.e. self-reliant in the skills, infrastructure and technologies needed to discover, identify, name, classify and to understand the relationships of all organisms."

BioNET supports the CBD Global Taxonomy Initiative, and is particularly focused on helping countries implement environmental conventions such as the International Plant Protection Convention. It operates through sub-regional "Locally Organized and Operated Partnerships" (LOOPs) of institutions in developing countries, that provide a cost-effective basis for strengthening the ability of countries to meet their taxonomic needs by sharing resources subregionally. LOOPs are Technical Co-operation Networks (as defined by UNDP), designed to be permanent government-owned structures, formed by intergovernmental agreement to address national and regional taxonomic priorities identified by their member countries.

Principal activities include:

- Training;
- Rehabilitation and resourcing of biological and literature collections;
- Information and communications; and
- Introduction and application of appropriate new technologies.

Recently, activities in the Americas have been strengthened with the creation of a MESOAMERINET to join the existing ANDINONET (Andean countries) and CARINET (Caribbean) LOOPs.

2.2.8 BirdLife International

By focusing on birds, and the sites and habitats on which they depend, the BirdLife Partnership is working to improve the quality of life for birds, for other wildlife (biodiversity), and for people.

BirdLife's aims are to:

- prevent the extinction of any bird species;
- maintain and, where possible, improve the conservation status of all bird species;
- conserve and, where appropriate, improve and enlarge sites and habitats important for birds;
- help, through birds, to conserve biodiversity and to improve the quality of people's lives; and
- integrate bird conservation into sustaining people's livelihoods.

BirdLife International is a global Partnership of conservation organizations that operate in over one hundred countries and territories worldwide. It has a strong Americas Division hosted in Quito, Ecuador, that co-ordinates and facilitates activities in the region by supporting its Partnership and promoting conservation action in those countries where it does not have an official representative. The regional network of Partners works to protect threatened species and their habitats, identify and protect the Important Bird Areas (IBAs), educate local communities and their leaders on the importance of birds, and promote the long-term sustainable use of unique ecosystems. According to BirdLife studies, around 4,500 of the world's 10,000 or so species of birds are found in the Americas. Roughly 650 are considered globally threatened and at risk of extinction by 2020. Seven of the 12 territories with the highest number of threatened species in the world are located in the Americas. The highest numbers occur in Brazil (114 species) and Colombia (77 species).

The Americas Program activities include:

- The Americas Sea Bird Conservation Program;
- Important Bird Areas in the Americas;
- Serra das Lontras Atlantic Forest Project, Bahia, Brazil;
- The World Bird Festival in the Americas; and

- Black-breasted Puffleg Conservation, Ecuador.

BirdLife has developed a relational database, known as the World Bird Database (WBDB) that provides 120 tables covering in excess of 1,400 data fields. The data covers more than 10,000 species of birds, over 8,000 Important Bird Areas (IBAs) and 218 Endemic Bird Areas (EBAs). To these are added spatial data (e.g. on population distribution), multimedia files, other documents and links.

For each bird species, information held includes:

- characteristics;
- range (country and island distribution);
- range (map);
- population numbers and trends;
- occurrence in EBAs;
- occurrence in biomes;
- habitat use (including importance and seasonal use);
- threats (including timing, scope, severity and impact);
- targets for future action;
- IUCN Red List Category;
- images;
- text accounts across a number of themes; and
- references.

Development of the database started in 1994, and data are being added continually. Users can search for detailed information on species, sites and EBAs, see examples of recent analyses, and download subsets of the database.

2.3 Key Regional Programs

2.3.1 NatureServe

NatureServe is a non-profit conservation organization that provides scientific information and tools to help guide effective conservation action. NatureServe represents an international network of biological inventories - known as natural heritage programs or conservation data centers - operating in all 50 U.S. states, Canada, Latin America, and the Caribbean. They collect and manage detailed local information on plants, animals, and ecosystems and develop information products, data management tools, and conservation services to help meet local, national, and global conservation needs. The scientific information about species and ecosystems developed by NatureServe is used by all sectors of society, including conservation groups, government agencies, corporations, academia, and the public to make informed decisions about managing natural resources.

Key activities include:

- Establishing scientific standards for biological inventory and biodiversity data management;
- Developing comprehensive and current databases on at-risk species and ecological communities;
- Designing advanced biodiversity data management systems in partnership with information technology leaders;
- Making biodiversity information available to the public through websites, publications, and custom services to clients and partners; and

- Providing information products and conservation services to guide natural resource decision-making.

NatureServe is a derivative of The Nature Conservancy and their management of data about the status and distribution of species and ecosystems of conservation concern in the USA. The NatureServe network now includes 74 independent natural heritage programs and conservation data centers throughout the Western Hemisphere. It is headquartered in Arlington, Virginia, with field offices in four U.S. locations and in Canada, and is funded by a membership organization.

NatureServe Explorer is a regional North American initiative designed to allow access to a wide range of information on North American species, particularly those of conservation concern. It is based on a biodiversity data model that reflects a set of inventory and data management standards and protocols referred to as "natural heritage methodology". Adhered to by each of the network members, this model and the associated standards and protocols are encapsulated in NatureServe's Biotics 4 software. Biotics 4 represents the eighth generation of data management software developed by NatureServe for use by network participants. Element-referenced objects incorporated in the data model include information that relates to a species or community's identity (including name and classification), status, general distribution, and life history characteristics. Spatial entities in the data model include the location and bounds of a species population or community stand, sites of ecological, scientific, or conservation interest, and areas under protective management.

2.3.2 CONABIO-REMIB

The Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO) is a Mexican national inter-ministerial organization mainly dedicated to:

- Maintaining a National System of Biodiversity Information (SNIB);
- Supporting projects and studies focused on the knowledge and sustainable use of biodiversity;
- Advising governmental institutions and other sectors;
- Undertaking special projects; sharing the knowledge of biological diversity; and
- Supporting international agreements related to biodiversity.

CONABIO sponsors and hosts the *Red Mundial de Información sobre Biodiversidad* (REMIB) ("The World Biodiversity Network"). REMIB is a computerized system of biological information that includes databases on curatorial, taxonomic, ecological, cartographic, bibliographic, ethno-biological information, and catalogues on natural resources. It is based on an academic inter-institutional decentralized and international organization, formed by research and higher education centers, both public and private, that possess both biological collections and data banks.

Its purposes are to:

- Promote the exchange of biotic information through an international network of databases, and to analyze and agree to joint policies on intellectual property, quality control and the formats for information exchange;
- Increase and improve accessibility and quality of this information, and maintain it up to date; and
- Offer basic knowledge of biodiversity to the public in general.

In its first stage, REMIB incorporated collections managed and funded by CONABIO. Subsequently, other international institutions demonstrated their interest in the Network, thus it changed its name to the World Biodiversity Information Network, incorporating information not only from Mexico, but also from an additional 146 countries. Throughout this time, most of the decisions on its implementation have been made on the basis of suggestions from academic

personnel and curators, and members of REMIB. This network is governed by a Board of Directors and two Executive Committees.

REMIB functions with institutions that possess databases on biodiversity and natural resources, which act as nodes, and their researchers or experts are responsible for the information. The nodes are the institutions where the biological scientific collections or other sources of original data on biodiversity are physically located, as well as the computer workstations where the exchange of data contained in this network operates. The person in charge of the node is the formal representative of the institution where the node is located, and his/her function is to hook up the institution with REMIB, and channel the relations of the Board of Directors and the Academic Committee with the institution and the curators.

The central node has its headquarters in CONABIO, which does not engage in scientific data collection, but has databases provided by experts, which pertain to the National System of Information on Biodiversity (SNIB). It is also in charge of establishing the rules and procedures for operating REMIB, for developing the programming tools that allow for the connection between nodes, and for providing the necessary technical support. In addition, it co-ordinates the participation of the institutional nodes and promotes the entry of new institutions as members of REMIB.

Many of the key institutions that are participating in IABIN are nodes in REMIB.

2.3.3 INBio (Costa Rica)

The Costa Rican Instituto Nacional de Biodiversidad (INBio) is a non-governmental, non-profit, public interest organization founded in 1989. Its mission is "To promote an improved awareness of the value of biodiversity, to achieve its conservation, and to improve the quality of human life". It has five main programs:

- National Inventory of Biodiversity;
- Information Management;
- Biodiversity Prospecting;
- Biodiversity Social Outreach Program; and
- Conservation for Development.

INBio is considered one of the prime leaders in the conservation of biodiversity in the region, with strategic alliances locally and internationally, with governmental, academic, private, and investigative sectors. They are considered leaders in developing public awareness of the importance of biodiversity and promoting bioliteracy. Of particular relevance is the national inventory of biodiversity (and the associated information systems) and the parataxonomist program that is a model for public involvement in biodiversity.

The Institute collaborates locally and regionally, including agreements with the University of Costa Rica, National University, School of Agriculture of the Tropical Humid Region (EARTH) and the Technological Institute of Costa Rica (ITCR), and foreign institutions such as the University of Strathclyde in Scotland, the Laussane Institute, and the Missouri Botanical Gardens, among many others. It also collaborates with CONABIO, the CBD Clearing-House Mechanism, GBIF, IABIN, and SIAM (Mesoamerican System of Environmental Information). INBio is currently supported by a major World Bank-implemented GEF Project.

The Institute through its Inventory process has gained considerable expertise in biodiversity information management. The core information management process of INBio is based on capturing, processing, assembling, packaging, and disseminating information about Costa Rican

biodiversity. Data is obtained from both museum collections and observations of specimens in the protected wild areas of Costa Rica, as well as from other scientific institutions.

Each collected specimen is accompanied by a basic data set indicating where, when, how and by whom it was collected. Information management processes involve integrated connected databases that include GIS mapping of ecosystems, and bar-code identification for specimens. The "ATTA" database employs technology from Oracle de Centroamérica and ESRI, and has developed methods and standards that may have wider application.

2.3.4 CRIA (Brazil)

The Centro de Referência em Informação Ambiental (CRIA) is a Brazilian national agency dedicated to the dissemination of electronic information for the scientific and technological community. It provides biological information of environmental and industrial interest, with the intent of contributing to the conservation and sustainable use of Brazil's biological resources. It seeks to provide various sectors of society with high quality information as a basis for decision-making.

It has developed and is using distributed environmental information systems. For example, "SinBiota", an Environmental Information System for the State of Sao Paulo, facilitates access to information about biodiversity by the scientific community, government and society in general, in order to contribute to the conservation and sustainable use of the state's biological diversity. All data generated by state projects are integrated, systemised and made available through SinBiota.

They have also developed "The Virtual Institute of Biodiversity" which aims to contribute to implementation of the Convention on Biological Diversity within the State of Sao Paulo.

Although a national center, CRIA is collaborating regionally, including working with the Biodiversity Research Centre of Kansas University on the development of "Lifemapper". Financed by NSF (US National Science Foundation), this project is creating a large repository of geographic distribution models for approximately 100,000 species (including Brazilian species) that are part of the Species Analyst Network. This uses "DesktopGarp", a software package for biodiversity and ecology research that allows users to predict, model, and analyze the geographic distribution of wild species.

The Centre is collaborating on the IABIN Invasives Information Network (I3N) Project that aims to develop a distributed and interoperable information network about the invasive species of the Americas. Within the scope of the implementation of IABIN, this tool for cataloguing information was developed, and is being tested by, organizations in 13 countries of the region.

CRIA also collaborates with the Integrated Taxonomic Information System (ITIS), Species 2000, and the Global Biodiversity Information Facility (GBIF). It is significant that CRIA frequently organizes and hosts regional symposia and workshops related to biodiversity information sharing, such as "Trends and Developments in Biodiversity Informatics Symposium: Key Innovations in Biodiversity Informatics" held in October 2002, and the "Inter-American Workshop on Environmental Data Access", held on 3rd-6th March 2004.

2.3.5 NABIN

The North American Biodiversity Information Network (NABIN) is described as "a collaborative network of people and institutions involved in the management and use of biodiversity information". NABIN's stated goal is "to improve access and integration of biodiversity information in North America for better conservation decision-making".

It has been partly supported by the trilateral (Canada, USA, Mexico) Centre for Environmental Cooperation (CEC), and funded by multiple national sources. To date, it has particularly focused on technical standards and protocols for the exchange of information on museum specimens in North America. In this regard, it has been considered very successful and The Species Analyst (TSA), a tool for searching and geographically mapping specimens, is pointed to as a result — to the extent that in some quarters, NABIN and the TSA are considered synonymous. NABIN is identified as a partner to GBIF and collaborator with the CBD CHM.

The broader objectives of NABIN include:

- To encourage and facilitate the participation of institutions in developing standardized and harmonized means to access and integrate biodiversity information throughout North America;
- To increase the usefulness of biodiversity information for decision making, by identifying sources of biodiversity information and developing means of integrating species data with observational and monitoring data, and ecological information;
- To stimulate and catalyze projects and networks that provide for information integration and sharing across national, regional, and global biodiversity initiatives;
- To provide a forum for the exchange of scientific and technical knowledge and expertise related to the integration and inter-operability of biodiversity databases;
- To develop (and foster the development of) IT tools for improved information access, harmonization and interoperability; and
- To promote the free exchange of biodiversity information among private, public, and governmental entities.

Past work towards these objectives has included:

- NABIN seed-funding and facilitation has leveraged national and international funding for such initiatives as the Species Analyst (TSA), and ITIS;
- Outreach activities maintained NABIN's presence in the biodiversity information community, and encouraged experts to exchange practical experiences on information management;
- Recommendations on the development of a NABIN website for information exchange;
- Information management standards have been chosen for the web site: the FGDC-CSDGM international standards for maps, and the Dublin Core standard for non-mapping data;
- Considerations of NABIN-assisted unification of TSA and REMIB;
- The University of Kansas and associated researchers have developed applications in support of Climate Change scenarios that affect species' ranges and habitats, using TSA; and
- Developed, in part with NABIN seed-funding, the Yellowstone to Yukon Conservation Initiative pilot application, which is now on-line at <http//www.rockies.ca/birds>. This application is becoming a North American model to respond to transboundary conservation issues.

Plans for 2003 included the development of a Web "Portal" for NABIN to provide a forum for information sharing and development of tools, and the expansion of the scope of NABIN to attack information exchange and harmonization barriers beyond museum specimens — for instance to observational data on species of common conservation concern, and protected area data. Restructuring the NABIN Advisory Committee with refreshed Terms of Reference was also planned. These plans have not yet materialized, and there is still no Web presence for NABIN, or widely available documentation for the "Tools" and standards previously developed. Following a review, the coordinating support from the CEC seems to have been reduced, and so the future of NABIN and its future relationship to IABIN is now unclear.

3 NICHE for IABIN

3.1 Overlaps and Gaps

The 13 Global and regional programs profiled here, all provide elements that support, or purport to support, the stated objectives of IABIN — that is, to facilitate the exchange of biodiversity information between institutions with a target audience of "decision-makers". These existing programs overlap in both geographic scope and subject content. UNEP.Net, the CBD Clearing-House Mechanism, UNEP-WCMC and the Millennium Ecosystem Assessment all have a broad sweep of subject matter — covering all the main categories listed in Section 1.2, although with varying emphasis. For example, the CHM emphasizes national responses and implementation measures, the MA provides broad assessments and measures of the state, UNEP-WCMC concentrates on protected areas and protected species, whilst UNEP.net is focused on map-based inventories and program information. There is clear overlap between the species-related data maintained by UNEP-WCMC and the more focused database of BirdLife International, and between the general GBIF and more specialized BioNET, particularly with regard to taxonomy capacity building. These programs co-operate and interlock in various ways, but cannot be said to be either rationalized or fully harmonized. The solid database structure established by BirdLife may form a base model for managing species data, and the GBIF standards and protocols for the exchange of taxonomic data are of key consideration.

The key players in the region offer several examples of database structures for species information (such as that used by NatureServe and the ATTA system of INBio), and good examples of regional and sub-regional networks.

3.2 Principles for a Niche

In helping to develop an appropriate "niche" for IABIN, we sought to:

- Avoid duplication of existing global and regional exchange networks;
- Avoid redundant development of database structures and tools;
- Emphasize adoption of existing standards and protocols; and
- Emphasize linkage with, and augmentation of, existing networks and mechanisms.

It is clear that INBio, REMIB, and CRIA (and even NABIN) involve overlapping sets of partners and participant countries. Many of the same institutions and individuals participate in meetings, and are members of advisory and governing bodies. Amongst these institutions, there has been significant investment and advances in database structures, and exchange formats and mechanisms that should be employed or advanced rather than re-invented. IABIN should seek to build on past successes and successful national and sub-regional models, and seek further convergence and integration. An emphasis should be placed on using available technology while improving the coverage and appropriateness of information for decision-making, rather than on advancing technology tools. The more specific deliverables of this project will be directed at suggesting the boundaries of such a niche, and assessing and recommending the standards and methods currently successful and appropriate for the region, which can be incorporated to ensure that IABIN strengthens and integrates information exchange for decision-making in the region.