

# **BUILDING THE INTER-AMERICAN BIODIVERSITY INFORMATION NETWORK**

## **PROJECT IMPLEMENTATION PLAN**

**DRAFT #8.5 - English**

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### Acronyms used in the text

BIN	Biodiversity Information Network
BIN21	Biodiversity Information Network -- Agenda 21
BKC	Biodiversity Knowledge Commons
CBD	Convention on Biological Diversity
CBIN	Canadian Biodiversity Information Network
CEC	Center for Environmental Cooperation or Centro de Cooperación Ambiental
CI	Coordinating Institution
CHM	Clearing House Mechanism
CONABIO	Comision Nacional para el Conocimiento y Uso de la Biodiversidad (México)
COP	Conference of the Parties (Convention on Biological Diversity)
CRIA	Centro de Referência em Informação Ambiental
DWA	Direct Withdrawal Applications
FMR	Financial Monitoring Reports
GBIF	Global Biodiversity Information Facility
GEF	Global Environment Facility
GS/OAS	General Secretary, Organization of American States
IABIN	Inter-American Biodiversity Information Network
IAvH	Instituto de Investigaciones Biológicas Alexander von Humboldt
IBRD/IDA	International Bank for Reconstruction and Development /International Development Association
IEC	IABIN Executive Committee
ITIS	Integrated Taxonomic Information System
IUCN	World Conservation Union
MAB	Man and Biosphere
MABNet Americas	Man and Biosphere Network in the Americas
NABIN	North American Biodiversity Information Network
NBII	National Biological Information Infrastructure (USA)
NGO	Non-governmental organization
OAS	Organization of American States
OAS-CIDS	OAS Committee on Sustainable Development
PDF	Project Development Fund
UNDP	Programa de las Naciones Unidas para el Desarrollo
RAMSAR	The Convention on Wetlands, signed in Ramsar, Iran, in 1971
REMIB	World Network on Biodiversity Information
SIAM	Sistema de Información Ambiental MesoAmerican
SOE	Statement of Expenditures
TN	Thematic Network
TNC	The Nature Conservancy
UNEP	United Nations Environment Programme



UNEP-GPA	UNEP Global Program of Action Unit
UNESCO	United Nations Education, Science, and Cultural Organization
USD	United States Dollars
USDE	Unit for Sustainable Development and Environment
USGS	United States Geological Survey
WB	World Bank
WCMC	World Conservation Monitoring Center



## **BUILDING THE INTER-AMERICAN BIODIVERSITY INFORMATION NETWORK (IABIN)**

### **DRAFT PROJECT IMPLEMENTATION PLAN (PIP)**

#### **Executive Summary**

Responding to the importance in the Americas of protection of biodiversity (the Americas house 8 of the 25 biodiversity hotspots), the Inter-American Biodiversity Information Network (IABIN) was officially mandated at the Summit of the Americas on Sustainable Development, convened by the Organization of American States in Santa Cruz de la Sierra, Bolivia, in December 1996. IABIN is an Internet-based forum for technical and scientific cooperation that seeks to promote greater coordination among Western Hemisphere countries in the collection, sharing, and use of biodiversity information relevant to decision-making and education. The objective of IABIN is to promote sustainable development and the conservation and sustainable use of biological diversity in the Americas through better management of biological information. While IABIN is envisioned as a distributed system of data providers in which the 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.

Since IABIN's inception in 1996, 34 countries have designated official IABIN Focal Points. Three IABIN Council meetings have been held with the IABIN Focal Points and a broad representation from the international, NGO, and private sector communities. The IABIN Executive Committee (IEC) comprises representatives from 8 Countries and an IGO/NGO member, currently the Global Biodiversity Information Facility (GBIF).

In 2002, the IEC instructed the Organization of American States (OAS), acting as the Executing Agency, to submit a GEF Block B Grant proposal through the World Bank to the GEF. In late 2002 a US\$650,000 project preparation grant was awarded to IABIN. During 2003 the OAS contracted 7 subregional specialists and a regional coordinator to work closely with the biodiversity information provider and user institutions in the Hemisphere, as well as the IABIN focal points, to define the IABIN implementation.

This Project Implementation Plan outlines a \$35 million plan. IABIN is requesting \$6 million from the Global Environment Facility (GEF) towards this plan. Agreements with the primary biodiversity informatics institutions throughout the Americas were forged based on biodiversity data sharing priorities of these institutions and mandates of the first three IABIN Council Meetings. As of this writing, co-financing of \$28.9 million has been identified from 76 regional or national institutions and programs.

The overall project will:



- (i) Develop an Internet-based, decentralized managed 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 of biodiversity, and
- (iii) Provide a mechanism in the Americas to exchange information relevant to conservation and sustainable use of biological diversity, thus promoting and facilitating technical and scientific cooperation to help fulfill the mandate of the Clearing-House Mechanism of the Convention on Biological Diversity.

The IABIN Secretariat will manage day-to-day activities of IABIN. The IEC has chosen the City of Knowledge in Panama City, an NGO, as the Host organization for the IABIN Secretariat.

The IABIN Gateway, found at [www.iabin.net](http://www.iabin.net), is becoming a gateway to biodiversity information in the Americas as well as a mechanism for facilitating interconnection of data from different institutions and agencies concerned with biodiversity conservation. The Gateway provides simple user interfaces for sharing knowledge. IABIN is also developing a searchable catalog of biodiversity data and information resources that allows users to identify and locate content available through the network: biodiversity datasets, publications, museum collections, value-added information (such as hotspots, ecoregions, invasive species), and other biodiversity related databases. Additional value-added tools are expected from Secretariat and network activities.

Throughout 2003-4, during the PDF phase of the GEF project, subregional specialists worked with leading information institutions in the Americas to plan the implementation of TNs (Thematic Networks) in various thematic areas. This work includes documenting implementation requirements and activities, developing cost sharing agreements among IABIN and the institutions leading the development of the network, and obtaining letters of intent from the data-providing institutions. Documentation for each TN contains: justification, objectives, products, participants, overall costs, and duration. The TNs currently being proposed are:

- Basic biodiversity infrastructure projects: Specimens, Species, Ecosystems
- Cross-cutting projects: Invasive Species, Pollinators, and Protected Areas.



This Project Implementation Plan (PIP) lays out the details for the implementation of IABIN, a \$35 million, 5-year effort of which \$6 million is requested from GEF. The PIP also describes the administrative and financial management of the project. The project will finance 3 IABIN Council meetings, in project years 1, 3, and 5, that will review project milestones and authorize changes to project design and implementation. For monitoring and evaluation, a series of quantitative performance indicators are established to assess project progress.

This PIP document is considered the Operational Manual for the GEF supported IABIN project. The World Bank PAD (Project Appraisal Document) is the official description of the project for the purposes of the GEF Secretariat and the World Bank.

## 1. THE PROJECT

### Background

A Preparatory Grant of US\$650,000 was awarded by the Global Environment Facility (GEF) to develop a potential IABIN GEF project. The Implementing Agency is the World Bank. The Executing Agency is the Organization of American States (OAS). The activities under this Grant were carried out in two phases by subregional specialists in each of seven established sub regions:

- Subregion 1 – Andean: Bolivia, Colombia, Ecuador, and Peru
- Subregion 2 – Brazil
- Subregion 3 – Southern Cone: Argentina, Chile, Paraguay, and Uruguay
- Subregion 4 – Venezuela, Guyana, Suriname, and Trinidad and Tobago
- Subregion 5 – Caribbean less Trinidad and Tobago (includes Netherlands Antilles, Martinique and Guadeloupe)
- Subregion 6 – Central America: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama
- Subregion 7 – North America: Canada, United States of America, and Mexico

The subregional analysis methodology allowed for a more comprehensive and systematic view of available data resources and infrastructure in each sub-region.

The subregional reports may be found on [www.iabin.net](http://www.iabin.net) and summarize the following:

1. An inventory of biodiversity informatics users and providers in each subregion.
2. Biodiversity informatics Project Networks in each subregion.
3. Key institutions and data providers in each of the Project Networks.
4. Memoranda of Understanding (MOU) between the key biodiversity informatics organizations in the subregion, according to the implementation plan, which includes:
  - A five-year plan for development of the thematic network as a IABIN pilot project
  - A chronogram of activities
  - A financial plan including co-financing and parallel financing
5. Detailed information about the biodiversity informatics databases to be incorporated in the Project Networks, or the nature of the metadata to be incorporated in the catalog system from the identified data provider institutions in the subregion.
6. An analysis of the data providers' infrastructure, standards, and protocols.
7. Recommendations for an IABIN Gateway architecture based on IABIN standards for data, communications, and interoperability.

### 1.1 Summary of Project Development Objectives

The Americas house eight of the world's top 25 Biodiversity Hotspots: the Tropical Andes, the Caribbean, the Atlantic Forest Region of South America, Mesoamerica, the Brazilian Cerrado, Chocó-Darién-Western Ecuador, the California Floristic Province, and Central Chile. Of the top ten countries identified as mega-biodiversity countries, five (Brazil, Colombia, Ecuador, Peru, and Mexico) are found in the Americas. To give two examples, Ecuador's tropical forests



contain over 15,000 plant species and Mesoamerica, with 0.5% of the world's land surface, has 8% of the world's biodiversity.

By supporting the development of the Inter-American Biodiversity Information Network (IABIN), the project development objective is to: (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 of biodiversity, and (iii) provide a mechanism in the Americas to exchange information relevant to conservation and sustainable use of biological diversity, thus promoting and facilitating technical and scientific cooperation to help fulfill the mandate of the Clearing-House Mechanism (CHM) of the Convention on Biological Diversity (CBD).

The project will implement IABIN at a regional level through:

- Assessing the information needs of the biodiversity community in the region;
- Concurring on a set of standards, protocols, tools, and methodologies that will enhance the ability to integrate information across the network;
- Implementing tools to allow network-wide searching and retrieval of relevant biodiversity data, information, and knowledge including georeferenced data, quantitative and qualitative data, information, and knowledge;
- Exchanging scientific expertise through collaborative projects and other efforts to build capacity in human and technological resources;
- Engaging and training data providers in the implementation of the network;
- Assessing the state of collections of specimens of the Americas in Western Hemisphere and European collections and identifying non-electronic data of interest;
- Producing value-added information such as studies and analyses;
- Supporting national CHM nodes to help provide the clearing-house functions mandated in the CBD and in subsequent Conference of the Parties (COP) decisions;
- Develop an IABIN node of GBIF, according to the IABIN-GBIF MOU; and
- Digitizing relevant data held in non-electronic forms, thereby increasing the amount of biodiversity information accessible through the network.

The benefits are numerous. IABIN will:

- Promote access to information useful to decision makers to improve biodiversity conservation and sustainable development;
- Improve regional cooperation for biodiversity management through sharing of knowledge and expertise;
- Support the development of a common biodiversity conservation and sustainable use of resources agenda for the region by facilitating the cross-fertilization of ideas;
- Provide the capacity to address critical issues — invasive species, migratory species, amphibian declines, and the spread of diseases, among others — at a regional level;



- 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; and
- Provide monitoring tools for protected areas and natural habitats.
- Help the CHM fulfill its mandates from the Parties to the CBD through scientific and technical cooperation and the exchange of data and information relevant to the Convention.
- Contribute to the development of GBIF through helping to organize the specimen data of the Americas through and IABIN GBIF node.

## 1.2 Global 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...*

Through the support provided to the CBD, IABIN also promotes better decision-making in other sectors of interest to the GEF, including such as the UN 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 Convention on Wetlands, the Convention on Migratory Species, and the UNESCO Man and Biosphere program.

The development of IABIN is complementary to and consistent with the Convention on Biological Diversity (CBD). IABIN will facilitate the development and implementation of the Clearing-House Mechanism (CHM) which the Convention is establishing to promote and facilitate technical and scientific cooperation (Article 17(3)). 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
- Article 18 on technical and scientific cooperation

IABIN's objectives are also entirely consistent with the WSSD Plan of Implementation, and in particular with:

- 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
- 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.

IABIN 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. However, at present, IABIN works hand-in-hand with the CHM (Clearing-House Mechanism) of the Convention on Biological Diversity (1992). This has been the subject of a comprehensive Memorandum of Understanding (MOU) with the CHM. The activities proposed for the implementation of IABIN will help fulfill, at the regional level, CHM's goals of exchange of biodiversity information and exchange of scientific and technical expertise. The CBD Secretariat has been an invited participant in IABIN consultations since the first experts' meeting in December 1997, and IABIN Focal Points are commonly the CHM Focal Points for their respective countries. 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
- Develop the necessary human and technological network

Specifically IABIN directly supports various goals of The Convention on Biological Diversity as defined in Article 16 (Access to and Transfer of technology), Article 17 (Exchange of Information), and Article 18 (Technical and Scientific Cooperation). Additionally, IABIN experts are linked to facilitate joint work programs. For example, the IABIN Invasive Species Information Network (ISIN) collaborates with the Global Invasive Species Programme (<http://Globoalecology.Stanford.edu/DGE/Gisp>) and with the Convention's scientific body to develop a joint scientific initiative on invasive alien species. IABIN, like the CHM strives to link human resources with cutting-edge scientific initiatives to create a mutually supportive and beneficial approach to problem solving. IABIN's Thematic Networks support the thematic work programs and cross-cutting issues of the CHM. In the short term, IABIN will provide tools and services useful to the CHM in the following Thematic Programs: Dry and Sub-humid Lands Biodiversity, Forest Biodiversity, Inland Waters Biodiversity, and Marine and Coastal Biodiversity. In the area of Cross-Cutting Issues, IABIN will provide tools and services useful to CHM in: Invasive Alien Species, Ecosystem Approach, Global Strategy for Plant Conservation, Global Taxonomy Initiative, Indicators, Protected Areas, Public Education and Awareness, and Sustainable Use of Biodiversity.



IABIN is also complementary to the Global Biodiversity Information Facility (GBIF). IABIN is an Associate Member of GBIF. GBIF focuses on global specimen data, whereas IABIN focuses on broader biodiversity information in the Americas, of which specimen data is a part. 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. 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 the implementation of IABIN will in turn support the discovery and organization of, and increased access to, information in the Americas relevant to GBIF.

### **1.2.1 Main sector issues, hemispheric and government strategy**

A region-wide, coordinated effort, originating from the countries in the region, to allow better access to and use of their biodiversity information will improve the quality, and perhaps expand the quantity, of biodiversity conservation activities globally. Presently, repatriation of data is an important interest in the region.

There is increasing recognition that many environmental issues are not national in character, and addressing them requires the development of regional and global perspectives. Species migrate across geopolitical borders. Watersheds and ecosystems frequently cut across national borders. International travel and transportation facilitate the introduction of species in geographic areas far beyond their native ranges, often with a negative impact. Actions taken in one country affect another country'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.

The effective conservation of biodiversity depends upon good science based on credible data. Decisions concerning biodiversity management must be informed by the lessons learned from others' experiences. Recognition of potential region-wide threats begins with an understanding of isolated data points. It is for these reasons that information sharing is considered a critical component of sustainable development and the conservation of biodiversity.

In the early 1990s, various countries of the Americas were concerned about the need to share biodiversity information across national borders. Several countries were establishing national biodiversity information infrastructures to 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 the information needs of the biodiversity community. 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. Furthermore, two workshops in the early 1990s sponsored by the United Nations Environment Program (UNEP) and the Brazilian



government as part of the Biodiversity Information Network—Agenda 21 (BIN21) initiative called for the implementation of a clearinghouse for biodiversity.

IABIN was officially mandated 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.*

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, all 34 member States of the OAS have done so (see complete list [http://www.iabin.net/PDF/IABIN\\_Matrix\\_2003.pdf](http://www.iabin.net/PDF/IABIN_Matrix_2003.pdf)). IABIN was considered officially launched when the OAS Inter-American Committee on Sustainable Development (CIDS) endorsed IABIN, in a resolution passed on October 15, 1999. IABIN was also 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 2001 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 the objectives and the implementation of the Convention on Biological Diversity and the UN Convention to Combat Desertification.*

To date, IABIN implementation has progressed in three areas: (1) development of [www.iabin.net](http://www.iabin.net), which includes all IABIN documents and points to all IABIN documents archived at [www.iabin-us.org](http://www.iabin-us.org) and which leads users to principal biodiversity informatics web pages and gives indicators as to the information available through each web page ; (2) the initiation of specific projects to address biodiversity issues (e.g., invasive species), network standards (e.g., metadata), and tools (e.g., a distributed database search engine); and (3) the development of a consultative process to encourage the participation of individuals and institutions from public and private sectors in the countries of the Americas. Discussions within



the community have resulted in the definition of a vision for IABIN, the selection and implementation of a governance structure, the initiation of Thematic Networks, and consensus on basic network standards. Reports on legal, technical, and institutional issues impacting information sharing have been completed.

Through a regional initiative, individual countries in the Americas can share resources available for network building and can more effectively build partnerships between what might otherwise be isolated national implementations. IABIN seeks to promote the adoption of network-wide practices and ensure that the interoperability within IABIN extends to the other CHM nodes worldwide, as well as to other regional and global efforts, especially GBIF.

To meet hemispheric information-sharing needs, the project addresses the implementation of IABIN, initially proposed by the Summit of the Americas. IABIN is the best instrument to achieve regional networking goals because of its integration with the CHM and GBIF, and the tremendous support the initiative has received by governments and civil society organizations, particularly non-governmental organizations (NGOs).

### **1.3 Overall Project Description**

#### **1.3.1 Components**

The following is a description of the proposed project components (see also Annex 1 for Logical Framework). Budget amounts are as indicated in Annex 3 of the PAD.

Component 1 (\$1,720,000 from GEF and \$7,040,000 co-financing), **Interoperability and Access to Data**, will develop the basic network and institutional infrastructure that will allow the users to search and access biodiversity data and information through the IABIN Catalog Service and the Thematic Networks.

Component 2 (\$2,465,000 from GEF and \$10,710,000 co-financing), **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 from GEF and \$3,750,000 co-financing), **Tools for Decision Makers**, will provide tools for analysis and synthesis of data such as mapping and modeling tools to improve the usability of the data in the decision making process.

Component 4 (\$913,600 from GEF and \$6,430,000 co-financing), **Sustainability of IABIN**, includes the formation and maintenance of the IABIN Secretariat (Operational Sustainability), Partnerships and Communications, (communication products, such as the IABIN Gateway, publications, meetings, etc.).

Component 5 (\$400,000 from GEF and \$1,000,000 co-financing), **Administration**, covers strictly administrative costs of the Executing Agency (contracting, procurement, disbursements, audits, etc.).



### 1.3.2 Key policies supported by the project

At a global and hemispheric level, mandates and policies are in place to allow the project to succeed; these include CBD, GBIF, and Summit of the Americas mandates, and resolutions of the OAS CIDS (see Annex 2). Under the project, IABIN will support advances to national institutional policies concerning data sharing and data access, but are not considered prerequisites to the implementation of IABIN.

### 1.3.3 Lessons learned from previous projects

Previous biodiversity informatics projects lend credence to the belief that IABIN should be a facilitator—not a controller—of the network. It serves the collective interest that includes the stimulation of bilateral and multilateral efforts of its network members. The details of the architecture of the IABIN network will be developed in the context of this managed network model.

The lessons from UNEP's Biodiversity Data Management (BDM) Project suggest that the project design take into account limited in-country expertise, low technical capacity, and weak institutional arrangements. It is thus advisable to avoid centralized network models, which resulted in some problems for this project.

UNEP's evaluation also showed that the BDM project faced major implementation problems because of the difficulty of ensuring the availability of key government personnel in the work. In countries like Ghana, the suitable focal persons were already overloaded with day-to-day duties. In such cases, the staff concerned simply accepted the extra UNEP project activities but never really gave them priority, or simply abandoned them. IABIN as a demand-driven, decentralized network based on voluntary web-based sharing of data using IABIN-compatible standards does not *require* participation of any given country or institution but rather will build gradually on the participation of interested partners.

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 [www.iabin.net](http://www.iabin.net) 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 of the PAD 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.

### 1.3.4 Project costs

Table 1 summarizes the estimated project costs and indicates the approximate amount of co-financing committed to the implementation of IABIN. All figures are in U.S. dollars.

**Table 1. Project Costs and Co-Financing**

<b>Summary Budget of GEF grant matched with Co-financing</b>				
<b>Component 1 Interoperability/data access</b>	<b>GEF support</b>	<b>Percentage</b>	<b>Co-Financing (millions)</b>	<b>Total financing (millions)</b>
Catalog Services	0.220			
Specimen TN	0.200			
Species TN	0.200			
Ecosystem TN	0.250			
Invasive Species TN	0.200			
Pollinators TN	0.180			
Protected Area TN	0.230			
Thematic Network Technical Specialist	0.240			
<b>Subtotal</b>	<b>1.720</b>	<b>29%</b>	<b>7.04</b>	<b>8.76</b>
<b>Component 2 : Data Content Creation</b>				
Metadata Content Program	0.300			
Specimen Content Program	0.400			
Species Content Program	0.400			
Ecosystem Content Program	0.400			
Invasive Species Content Program	0.280			
Pollinator Species Content Program	0.270			
Protected Area Content Program	0.175			
Data Content Manager	0.240			
<b>Subtotal</b>	<b>2.465</b>	<b>41%</b>	<b>10.71</b>	<b>13.17</b>
<b>Component 3 : Value Added applications</b>				
<b>Subtotal</b>	<b>0.500</b>	<b>8%</b>	<b>3.75</b>	<b>4.25</b>
<b>Component 4: Sustainability of IABIN</b>				
IABIN Secretariat	0.455			
Partnerships and Communications	0.460			
<b>Subtotal</b>	<b>0.915</b>	<b>15%</b>	<b>6.43</b>	<b>7.35</b>
<b>Component 5: Project Administration</b>				
<b>Subtotal</b>	<b>0.400</b>	<b>7%</b>	<b>1.00</b>	<b>1.40</b>
<b>Total</b>	<b>6.000</b>	<b>100%</b>	<b>28.93</b>	<b>34.93</b>

## 2. INSTITUTIONAL ARRANGEMENTS

Organizations responsible for the project include the Implementing Agency, an Executing Agency, the IABIN Council and the IABIN Executive Committee (IEC), the Coordinating



Institutions (CIs) of the Thematic Networks, the IABIN Focal Points, and the governments and institutions of the Americas who are both data-providers and information users. The functions of these organizations have been grouped into:

- "executing" functions, roles that the organization will be directly responsible for, and
- "coordinating" functions, in which the organization will primarily coordinate or facilitate actions undertaken by other organizations.

Annex 3 provides an overview of the functions of each of these major players and the following chart and texts further elaborate their roles.



## IABIN Project Institutional Structure & Responsibilities

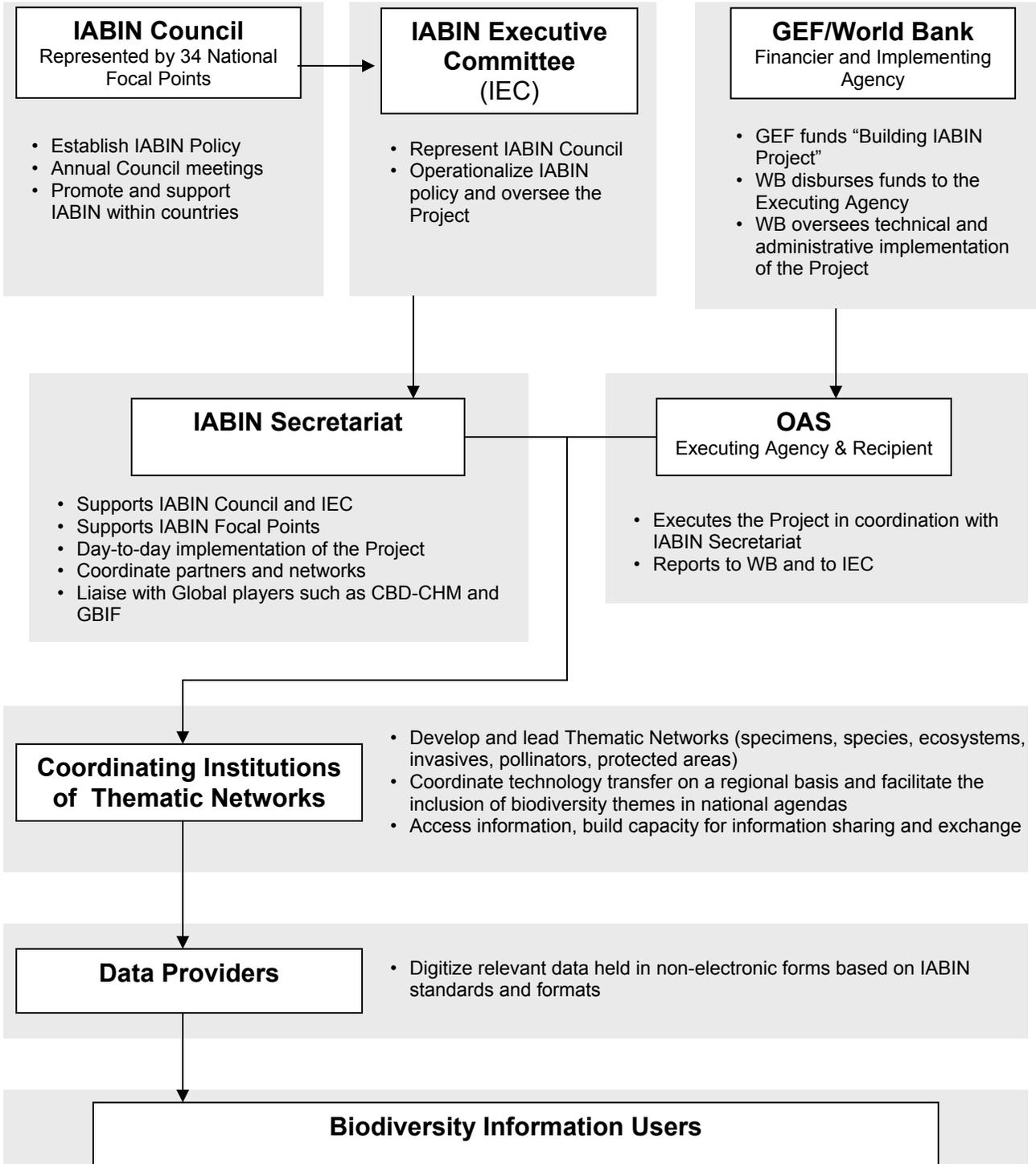


Chart showing the lines of authority, responsibility, interrelationships among participants and the IABIN Network in accordance with various decision making process (policy, financial and technical procedures).

## 2.1 Implementing Agency

GEF funds can only be channeled from the GEF through a handful of potential Implementing Agencies, including the World Bank (WB), UNDP, and UNEP. In the case of this project, the World Bank receives the project funds from the GEF and is responsible to the GEF Council for the use of the funds and the oversight and implementation of the 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 project support co-funding from other donors including governments, NGOs, foundations, and the private sector. The total Bank-managed biodiversity portfolio is 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.

The Bank will also be able to bring to the project substantial parallel financing from its other projects in the region (and from Bank-managed resources), as well as to 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 data integration and mapping tool, The 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).

Specifically, the following are some of the key functions of the World Bank in project implementation and supervision:

- The GEF IABIN Project was approved by the GEFSEC and World Bank Board in June 2004. The PAD has been completed and Grant Legal Agreement was signed in June 2004.
- Disbursement of funds to the Executing Agency should occur in August 2004, upon receipt of proof of disbursement for eligible expenses

As per the terms of the legal agreement, the Bank will:

- oversee the procurement, financial management, disbursements, and audits of the Executing Agency
- Carry out technical supervision of the Project, ensuring it is being implemented in accordance with the project design
- Provide specialized technical assistance to the Recipient upon request and when possible
- Carry out regular reporting to the GEF and to WB management
- Ensure coordination with other WB projects in the region and to the degree possible with other major donor-financed projects



It should be noted that the WB manages an internal preparation and supervision budget received directly from the GEF and none of the Bank's costs are charged to the IABIN Project budget.

## 2.2 Executing Agency

The choice of the executing agency and determining its exact role required IEC guidance and approval. The IEC carried out a consultative process to select the Executing Agency. The process was discussed and agreed upon in the August 2003 Cancun Council Meeting and subsequently, the precise characteristics and functions of the Executing Agency were agreed with all the IABIN Focal Points and there was an open call made for proposals to be submitted to the IEC.

As a result, the OAS General Secretariat (GS/OAS) Unit for Sustainable Development and Environment has been chosen by the IEC to be the Executing Agency. Note that the Executing Agency will play a very different role from the IABIN Secretariat. In essence, the Executing Agency will be administering the GEF grant, responsible for procurement, contracting, disbursements, auditing, and evaluation of project effectiveness. The Executing Agency will be legally responsible for the technical execution of the project, whereas the Secretariat will be coordinating the day-to-day operations of the network.

The functions of the Executing Agency are:

1. Comply with World Bank procurement, legal, and financial management activities.
2. Work closely with the IABIN Council, guaranteeing the effective execution of project funds.
3. Prepare and furnish to the Bank financial monitoring reports, in form and substance acceptable to the Bank, which:
  - sets forth sources and uses of funds for the project, both cumulatively and for the period covered by said report, showing separately funds provided under the GEF Trust Fund Grant, and explains variances between the planned and actual uses of such funds; and
  - describes physical progress in project implementation, both cumulatively and for the period covered by said report, and explains variances between actual and planned project implementation.
  - tracks co-financing.
  - evaluates Secretariat performance on the GEF project, based on time bound quantitative indicators (see Annex 1).
4. Submit a first Financial Management Report to the Bank not later than 45 days after the end of the first calendar semester after the project's effective date, covering the period from the first expenditure under the project through the end of such first calendar semester; thereafter, each Financial Management Report shall be furnished to the Bank not later than 45 days after each subsequent calendar quarter, and shall cover such calendar quarter.



5. Meet World Bank auditing requirements, including providing copies of its audit reports to the Bank for such year as so audited, along with such other related information as may be reasonably requested by the Bank's representatives with respect to questions arising from the audit report.
6. Comply with conditions as established in the Grant Agreement, and prepare financial reports in a format acceptable to the Bank, adequate to reflect the operations, resources and expenditures related to the proposed GEF supported project.
7. By virtue of the status of the Executing Agency, all expenditures (contracts, purchases and operating expenses) of the Project are exempt from taxation in all potential beneficiary countries. The World Bank by its charter cannot cover taxes, so in the absence of such tax-exempt status, the Executing Agency would be required to compensate the Bank for tax costs, approximately 10% of the final project amount.

The choice of the OAS as the Executing Agency has been approved by the World Bank after an evaluation of its administrative and technical capacity to manage the Project.

### **2.3 IABIN Council and IABIN Executive Committee (IEC)**

IABIN operates through a membership assembly called the IABIN Council that comprises:

- National Focal Points from the thirty-four countries in the Hemisphere that have designated IABIN Focal Points through their Permanent Missions to the OAS (the latter serving as the diplomatic host of IABIN);
- Representatives from organizations, centers, institutions, or initiatives concerned with biodiversity conservation and biological informatics of global or international scope;
- A representative of the CBD CHM;
- A representative of the Secretariat Host; and
- A representative of the Diplomatic Host organization (GS/OAS).

The Council meets about once per year, or as determined by the Council, and makes all decisions regarding IABIN.

The IABIN Executive Committee 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:

- The Council Chair (presently the U.S.) and Vice-Chair (presently Jamaica);
- Six additional governmental representatives elected at large (presently Antigua & Barbuda, Argentina, Brazil, Costa Rica, Ecuador, and Peru);
- One representative from an inter-governmental or non-governmental institution (presently GBIF).



Elections to the IABIN Executive Committee have, to date, been by consensus. A nominating committee, appointed by the Council Chair, caucuses with the Council participants, and, based on those discussions, proposes a slate of nominees that are agreeable to all. So far, each proposed slate has been elected by acclamation, by the Council as a whole.

The GEF and the World Bank consider the GEF-eligible countries of the Americas, whose GEF Focal Points have endorsed the project in writing, to be the recipients of this proposed Grant. The IABIN Council and its IEC are the most obvious representatives of this group of countries and therefore for practical reasons, we can consider the IEC to represent the Grant beneficiaries. However, as neither the IABIN Council nor the IEC have a legal status nor can manage funds, they have chosen an Executing Agency be the formal Grant recipient.

Nevertheless, during the implementation of the project, the IABIN Council and IEC will continue to play a major decision-making role. Their main functions are summarized as:

Oversight/guidance/review functions under Interoperability and Access to Data:

- Facilitate the development of the network (e.g., assess capacity, identify areas for restructuring or investment, seek support)
- Seek agreements on the use of standards and protocols to ensure compatibility of diverse data sources within the region
- Monitor the needs of the user community

Providing guidance to others under Interoperability and Access to Data:

- Coordinate activities with the CHM, and academic institutions and other partners, such as the development of a biodiversity informatics directory that documents each institution's functionality, interoperability, and content
- Implement policies for the use of information (Intellectual property rights and code of ethics on access and data sharing)

Oversight/review functions under Data Content Creation:

- Determine data content creation priorities
- Provide guidance on quality control and validation of information

Oversight/review functions under Tools for Decision Makers:

- Identify the specific needs for value-adding tools, such as decision support systems, visualization techniques, etc.

Oversight/review functions under Sustainability of IABIN:

- Facilitate understanding of and commitment to the network's goals (e.g., issues being addressed, users to be served)

Providing guidance to others under Sustainability of IABIN:



- Promote cooperation amongst the network’s partners through meetings, workshops, newsletters, etc.
- Target indigenous peoples as a group requiring improved information access.
- Facilitate access to data (e.g., through custodianship, data access agreements, Memoranda of Understanding, implementation of standards)
- Brief the network’s partners on new opportunities, plans and progress (e.g., newsletters, email)

Oversight/review functions under Administration:

- Review and comment on quarterly project administration reports
- Monitor and evaluate project effectiveness
- Review and evaluate Secretariat performance
- Review and evaluate Executing Agency performance

## 2.4 IABIN Focal Points

In response to an invitation by the OAS, the diplomatic host of IABIN, individual governments that are members of the OAS nominate IABIN Focal Points (FPs). Within each country, the IABIN FP represents the interests of the country in terms of biological informatics. They are expected to be in contact with their constituents (government ministries, museums, universities, NGOs, etc.). They attend the IABIN Council meetings and, as Council members, have the ultimate say in determining the policies and actions of IABIN.

The IABIN Focal Points also play a key role in helping the Executing Agency to monitor the amount of co-financing provided by institutions, which have submitted letters of intent to IABIN committing co-financing to the GEF project. The Focal Point in each country will receive a list of national institutions that have pledged co-financing and a form letter to be filled out and signed by the director in each institution. The letter will state the amount of co-financing provided to IABIN during the year in different categories by the institution. The signed letters should be sent by each Focal Point to the IABIN Director, at the Secretariat.

## 2.5 IABIN Participating Countries

Countries that have submitted the required GEF Endorsement of the Full IABIN Project are called “Participating Countries”. Participating countries are those that are eligible to receive GEF funding through the World Bank. The GEF and the World Bank have agreed to accept GEF Focal Point Endorsements of the Project even after it has begun. As a result, Countries that have not endorsed the GEF project will not be eligible to have their IABIN Focal Point reimbursed for travel expenses to attend the IABIN Council meetings.

## 2.6 IABIN Secretariat



The IABIN Network is envisioned as a highly decentralized partnership between governments and organizations but participants agree that it still needs a small Secretariat to provide a physical home for the Network and for a small number of key staff to champion the Network and promote its development.

Within the context of the GEF Project, it has been determined that the responsibility for day-to-day physical implementation of the project best resides with the Secretariat. The functions of a Secretariat of IABIN have been discussed and described in various fora and documents over the last several years. The Second Council Meeting in Miami in 2001 defined certain characteristics, these were discussed again at the Third Council Meeting in Cancun in 2003 and they have been further defined as part of the process of preparing a GEF project to support IABIN. (All Governance documents can be found at [www.iabin.net](http://www.iabin.net).)

The Secretariat has functions and responsibilities as the coordinating organization of the IABIN Network and also has a role in coordinating many aspects of the implementation of the GEF World Bank-implemented project. In the short term, the Secretariat is focused on the implementation of the GEF Project, as it is the only major instrument currently available for channeling financial support to the network. In the future however, as other funding sources replace a reliance on GEF funds, the more general coordinating role of the Secretariat will assume greater importance. It is expected that additional sources of funding will become available to sustain the Secretariat.

The Secretariat will be physically located in a Host organization. The IEC has chosen the City of Knowledge in Panama City, an NGO, as the Host organization for the IABIN Secretariat. While the Host will not receive or manage any GEF funds, the Host could conceivably obtain funding from other sources. GEF project funds will be managed by the Executing Agency, which will contract project-funded Secretariat staff and disburse other funds as needed to support the project.

In summary, the Secretariat will be responsible for the day-to-day management of the IABIN project and will be in charge of running the IABIN network. It will report to the OAS (Executing Agency) concerning GEF project implementation and to the IABIN Council on all aspects of its activities. The specific activities of the Secretariat include:

Operational/leadership functions under Interoperability and Access to Data:

- Supervise the operation of the basic network infrastructure: IABIN Catalog Service and Thematic Networks
- Facilitate the development of the network (e.g., assess capacity, identify areas for restructuring or investment, seek support)
- Manage data on the status and availability of the network's capacity
- Provide network and user support, possibly including a help desk
- Seek agreements on the use of standards and protocols to ensure compatibility of diverse data sources within the region

- Implement policies for the use of information (Intellectual property rights and code of ethics on access and data sharing)
- Monitor the needs of the user community
- Develop a biodiversity informatics directory in conjunction with CHM, academic institutions and other partners that documents each institution's functionality, interoperability, and content
- Create the Expert Committees for the Catalog Services and Thematic Networks

Operational/leadership functions under Data Content Creation:

- Coordinate quality control and validation of information
- Coordinate digitization of biodiversity data
- Determine data content creation priorities
- Host data

Operational/leadership functions under Tools for Decision Makers:

- Identify the specific needs for value-adding tools
- Provide visualization and data integration tools to improve the usability of data in the decision making process

Operational/leadership functions under Sustainability of IABIN:

- Seek sources of funding for the operation of the Secretariat and other activities (e.g., IABIN Council meetings)
- Help coordinate the IABIN Foundation
- Support the IABIN Council, Executive Committee, ad hoc working groups, and particularly National Focal Points
- Promote cooperation amongst the network's partners through meetings, workshops, newsletters, etc
- Facilitate understanding of and commitment to the network's goals (e.g., issues being addressed, users to be served)
- Prepare strategic plans for product development and services
- Serve as liaison to Development Gateway
- Target indigenous peoples as a group requiring improved information access.
- Implement strategic plans (e.g., through formation of multi-partner teams)
- Facilitate access to data (e.g., through custodianship, data access agreements, Memoranda of Understanding, implementation of standards)
- Brief the network's partners on new opportunities, plans and progress (e.g. newsletters, email)
- Handle inquiries about the network's activities, referring to individual partners as appropriate
- Maintain copies of the network's products and services for distribution to users
- Consolidate IABIN partners throughout the Hemisphere and coordinate with other regional biodiversity networks, GBIF and CHM.

- Maintain the IABIN Gateway

Operational/leadership functions under Administration:

- Develop TORs for consultants and requests for proposals
- Coordinate evaluation of proposals and consultants
- Report to donors
- Prepare quarterly inputs for IEC review
- Monitor and evaluate project effectiveness
- Track Co-financing

## 2.7 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 in most cases will be competitively chosen during project implementation and which in some cases have been pre-designated. Based on the TN priorities of the project, a competitive bidding process will be undertaken to choose the CI. The Request for Proposals (RFP) will include a letter of invitation, terms of reference, and the proposed contract based on World Bank and OAS guidelines. Proposed CIs must bring significant co financing resources to implement the TN. These technical and financial resources will be presented with each proposal that will also be evaluated on methodology, quality of key staff proposed, and relevant experience for the assignment. The contracted CI would agree to provide detailed quarterly co-financing information according to cost guidelines established by the Secretariat. The co-financing information should be documented and should be open to potential audits.

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.

Operational/leadership functions under Interoperability and Access to Data:

- Supervise the operation of the basic network infrastructure: Thematic Networks
- Develop the basic infrastructure necessary to operate the TNs
- Operate and maintain the TNs
- Seek agreements on the use of standards and protocols to ensure compatibility of diverse data sources within the region
- Develop and adapt tools for data content creation
- Development of training packages

Operational/leadership functions under Data Content Creation:

- Quality control and validation of information
- Carry out or coordinate training
- Digitization of biodiversity data
- Determine data content creation priorities



- Data Hosting

## 2.8 Other Partner Organizations

IABIN is envisioned as a distributed system in which the countries and diverse governmental and civil society organizations play a key role in the development and maintenance of the information content of the network. Other than country membership in the IABIN Council, there is no formalized definition of “membership” in IABIN.

During the preparation phase of this project, potential contributors to IABIN were identified and letters of interest, including co-financing information, were received. As of this writing, co-financing of \$28.9 million has been identified from 76 regional or national institutions and programs. 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 and 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; submission of a letter of support, similarly, does not guarantee privileged access to any project funds.

## 2.9 Monitoring and Reporting Arrangements

The Executing Agency will submit semester (semi-annual) reports in Spanish and English that document project progress to the IABIN Council and to the World Bank. These semester 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 semester reports will be posted on [www.iabin.net](http://www.iabin.net) and distributed to the IABIN Council.

Monitoring and evaluation of the project will be the responsibility of the Executing Agency, with the assistance of the IABIN Secretariat, the CI, the World Bank, and other participants as appropriate. Relative to monitoring of co-financing, the Executing Agency, in conjunction with the Secretariat, will produce 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.

### 3. DESCRIPTION BY COMPONENT

Project components are described in detail in the following text.

#### 3.1 Component 1: Interoperability and Access to Data

This component will create the network infrastructure necessary for users to search and access biodiversity data and information. For this to happen, IABIN will seek to develop regional consensus on network-wide practices, promoting interoperability not only within IABIN, but also 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 this is a universal concern 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 CBD framework), which may simply be adopted after appropriate consultation. Annex 4 includes a discussion of protocols and standards suggested for IABIN adoption.

IABIN's approach to biodiversity information access will be through the development of the IABIN Catalog Service and Thematic Networks. IABIN will form partnerships with institutions in the Americas as its network evolves. These partnerships will lay the foundation for providing access to the tremendous amounts of biodiversity related data and information contained within its' partner network. As IABIN is maturing as a network, capabilities to provide seamless access to this vast amount of information will be necessary. Therefore, the requirements arise for the creation of an IABIN Catalog Service, designed to provide access to IABIN partner data and information. The IABIN Catalog Service is described in Section 3.1.1, below.

IABIN will also 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 and promote standards and protocols specific to the TN
- Develop interoperability of data and information 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.



## Selection of TNs

The following criteria were established for the prioritization of potential 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
- Network leverages other funds

Using the above information and criteria, the following six TNs have been identified as a priority for IABIN:

- Specimen Network
- Species Network
- Ecosystems Network
- Invasive Species Network
- Pollinators Network
- Protected Areas

Additional TNs could be developed in the future, if additional funding becomes available.

Each TN will be coordinated by an institution, which will be selected by the Executing Agency in consultation with the IEC on a competitive basis and supported by a Technical Committee of Experts constituted by specialists from across the region, chosen by the Secretariat. The Coordinating Institution (CI) is responsible for organizing the development of the TN, including recommendations on standards and protocols. 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. Where appropriate, CIs should be a consortia of organizations with a good representation of all geographic areas of the Americas.

The process for choosing the Coordinating Institution is as follows:

1. The Secretariat with IEC input prepares detailed terms of reference (TORs) for the activities of a CI.
2. The work is contracted out by the Executing Agency in accordance with World Bank procurement procedures. These procedures define the kinds of competitive procurement procedures to be followed, as a function of the size and type of the contract, and could exceptionally include sole-sourcing procedures.



3. A Technical Selection Committee convened by the Executing Agency, and acceptable to the Secretariat and the IEC will evaluate detailed proposals.
4. The procurement process and final selection of a CI is subject to World Bank no-objection, as defined in the legal agreement.

The TORs for the activities of the CI will require co-financing, and should specify that maintenance of the TNs must be co-financed.

A Thematic Network Coordinator will oversee the implementation of the Thematic Networks. In the budget, under Component 1, \$240,000 is assigned to this position.

The TNs to be established are described in Sections 3.1.2 through 3.1.7, below.

### **3.1.1 IABIN Catalog Service**

#### **3.1.1.1 Description**

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 IABIN Catalog Service will 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 can be accessed or downloaded, if the data provider chooses to make the data available.

Several features and requirements are summarized below that the IABIN Catalog Service must meet to support data integration, interoperability, decision making, and sustainability of the IABIN network.

#### **Overall Requirement: Integrated Search**

The ability for IABIN users to access a central gateway to all IABIN information, regardless of where it is housed, is paramount to providing value to the end user and customers of IABIN. An Integrated Search interface requires the development of a multi-browser supported interface that can be accessed throughout the IABIN network. This multilingual interface must facilitate both “simple” searching and “advanced” searching due to the variety of users IABIN intends to



support. The interface must also allow for the integration of all of the appropriate sources of data and information that IABIN intends to make available throughout its network.

- *Availability of Different Types of Information:* Information such as technical reports, projects, expertise lists, IABIN country web sites, and existing country FGDC-based metadata Clearinghouses, all should be available through the IABIN Integrated Search interface or IABIN Catalog Service. These diverse data sources vary in formats, content, data owners, and complexity.
- *Use of Existing Standards:* An integral component of making data and information available through a single gateway is the use of appropriate data and information standards. Metadata standards such as the FGDC for geo-referenced data, and the Dublin Core for bibliographical data are well developed and have been adopted by the IABIN Council (see Annex 4). These standards are widely used by the biodiversity community in the region.

#### Technical Infrastructure Requirements – Hosting, Security, Archival, and Help Desk Support

Several infrastructure requirements will help ensure that IABIN data and information are available to all appropriate consumers, are properly maintained, and can be accessed in an instantaneous manner. All of these components are grouped under IABIN Infrastructure requirements and described below.

- *IABIN Partner Data Hosting:* The ability to Host data and information for IABIN partners who currently do not have the capability is a requirement of the IABIN Catalog Service. To insure that all IABIN partners' data and information is available through the IABIN network, the IABIN Catalog Service lead organization may also have to host various IABIN country data holdings on an interim basis.
- *Security Processes and Procedures:* Due to the importance of IABIN data and information, high vulnerability of information on the Internet, and IABIN's goal of providing access to data and information 24x7, proper security policies, practices, and tools need to be implemented within the IABIN network and Catalog Service. These requirements ensure that the proper use, availability, and protection of IABIN information exist into the foreseeable future.
- *Archival and Mirroring of Data:* As the IABIN network evolves over the next several years, archiving of IABIN metadata, any hosted information, and other IABIN documents will be a requirement of the IABIN Catalog Service lead organization. The ability by the IABIN Catalog Service organization to also mirror selected IABIN partner data holdings to improve connectivity and access to information is also a requirement of the IABIN Catalog Service.



- *High-Speed Network Access and Bandwidth:* The organization providing the IABIN Catalog Service is required to provide at a minimum T1 to T3 connectivity to its servers. This is important due to the fact that as users access IABIN information throughout the distributed network, bottlenecks and slow response times do not occur at the central IABIN gateway or Catalog Service level.
- *Help Desk and User Support:* The ability to provide technical help desk support when upgrades and/or downtime are required is a requirement of the IABIN Catalog Service Host organization.

#### Requirement: Technical Coordination

To ensure the IABIN network provides access to all appropriate information, leverages existing capabilities by IABIN partner organizations, and evolves the IABIN network technical infrastructure into the future, a Technical Working Group is required. The IABIN Catalog Service Coordinator will provide leadership to this Group. The Catalog Services Coordinator will also be expected to represent IABIN on other existing international and national biodiversity network technical working groups. IABIN's active participation within these other technical working groups allows IABIN standards, capabilities, and tools to be implemented within those networks, but also allows IABIN to leverage other networks' investments in training, tool development, standards development, and other technical biodiversity capabilities.

#### **3.1.1.2 Implementation**

IABIN has begun developing 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 (NBII), utilizing the existing infrastructure developed for the NBII Clearinghouse (<http://metadata.nbii.gov>). This functionality is being provided via the IABIN web site ([www.iabin.net](http://www.iabin.net)) as well as the U.S. site for IABIN ([www.iabin-us.org](http://www.iabin-us.org)).

Under the existing partnership with IABIN, NBII 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 into the implementation of a Metadata Program (Component 2). Because of this background, NBII has been chosen as the Catalog Services Coordinator (CI).

The following activities will be carried out under this component:

1. Creation of the Catalog Technical Working Group by the Secretariat staff.
2. Three meetings of the Technical Working Group.

3. Development of metadata creation tools in multiple languages. These tools exist in English. A consultant, contracted competitively, will carry out this activity.
4. Modification of existing multi-lingual user interfaces as necessary. A consultant, contracted competitively, will carry out this activity.
5. Develop multi-lingual training materials.
6. Maintenance and Operations (provided as co-financing by NBII).

**Table 1 Pilot catalog service of biodiversity data timeframe**

Activity	Year 1	Year 2	Year 3	Year 4	Year 5
Creation of Technical Working Group					
Meetings of Technical Working Group					
Develop metadata creation tools					
Develop multi-lingual training materials					
Modify user interfaces					
Maintain and operate catalog system					

### 3.1.1.3 Products

- Multi-lingual (English, Spanish, French and Portuguese) catalog services implemented, providing higher-level access to the biological information of the Americas.
- Multi-lingual metadata creation tools developed
- Multi-lingual training materials developed
- Ongoing maintenance and support

### 3.1.1.4 Costs

GEF Support: \$220,000

**Table 2 Pilot catalog service of biodiversity data costs (000 US\$)**

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Meetings of Technical Working Group	15		15		15	45
Develop metadata creation tools	25					25
Develop multi-lingual training materials	25					25
Modify user interfaces	25	25	25	25	25	125
<b>TOTAL</b>	<b>90</b>	<b>25</b>	<b>40</b>	<b>25</b>	<b>40</b>	<b>220</b>



### 3.1.2 Specimens Thematic Network

#### 3.1.2.1 Description

The goal is to implement an electronic and institutional network dedicated to specimen records from the Americas. Some of the specimen data of any given country resides in its own museums and herbariums, although a significant part of the data resides in museums outside the country or hemisphere. Repatriation of specimen data will be an important consideration in the implementation of the TN for Specimens. In coordination with other TNs, the ultimate objective is to allow the user to consult the specimens, species and ecosystems networks in an integrated manner.

Objective:

Define and implement the architecture, tools, standards and protocols to access specimen information located in institutions throughout the region, by using distributed access standards (probably those defined by GBIF and adapted to the necessities of IABIN).

#### 3.1.2.2 Implementation

**Table 3 Specimens Thematic Network Timeframe**

Activity	Time									
	Year 1		Year 2		Year 3		Year 4		Year 5	
	1	2	1	2	1	2	1	2	1	2
1. Define information use policies										
2. Discuss and adopt the architecture, protocols and standards required for distributed searches in specimen databases available in the region and world-wide										
3. Develop data entry tools										
4. Install a website allowing searches and access to the information available										
5. Adapt and implement software for data providers, national partners and a central server for the implementation of the distributed specimen information network										
6. Develop training materials										
7. Establish, develop and implement standards, protocols and tools in order to integrate the specimen network with the species and ecosystem networks										
8. Hold five meetings of the Specimen Technical Committee										
9. Operate and maintain the specimen information network										

A Coordinating Institution will coordinate these activities. The Coordinating Institution will be contracted out competitively as indicated in section 3.1

### 3.1.2.3 Products

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

### 3.1.2.3 Costs

GEF Support: \$200,000

**Table 4 Specimen Thematic Network Costs (000 US\$)**

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Meetings of the Specimen Technical Committee	10	10	10	10	10	50
Development of data entry tools	20					20
Development of training materials		20				20
Development of search and access software		50				50
Development of website		20				20
Develop of software to integrate specimen network with species and ecosystems			40			40
<b>TOTAL</b>	<b>30</b>	<b>100</b>	<b>50</b>	<b>10</b>	<b>10</b>	<b>200</b>

### 3.1.3 Species Thematic Network

#### 3.1.3.1 Description

Species are the most widely used classification unit of biodiversity, and are the typical level of biodiversity that is protected by laws (e.g., CITES, endangered species legislation, IUCN Red Lists). Beyond the basic need to classify species (taxonomy), decision makers require information about the status of species (imperiled or abundant), individual species requirements



(natural history and phenology), and the best practices for managing populations, especially for vulnerable species.

Thematic Network Goal:

The goal of this Thematic Network is to implement an electronic and institutional network dedicated to information on the species that constitute the biodiversity of the Americas. 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).

Objectives:

1. Enhance the usefulness of species information for decision makers in government and civil society.
2. Evaluate and begin implementing the standards and protocols needed to guide the development and sharing of species information that is distributed among different institutions of the region. Standards should consider associated information such as natural history, indicators, distribution, and management.
3. Implement an information system to disseminate species information not currently available or presently managed within incompatible systems.
4. Integrate species information with specimen and ecosystem information from other IABIN thematic networks.
5. Maintain the species information Thematic Network

Key Issues:

The following issues represent the main challenges to IABIN in achieving the goals related to species information:

- A variety of competing standards for species information need to be reconciled and brought into alignment.
- Many countries lack the tools to make existing information widely available
- Conceptual models for linking specimen, species and ecosystem information must be established

**3.1.3.2 Implementation**

**Table 5 Species Thematic Network Timeframe**

Activity	Time									
	Year 1		Year 2		Year 3		Year 4		Year 5	
	1	2	1	2	1	2	1	2	1	2
1. Evaluate the information needs of decision makers (e.g., natural history, indicators, distribution, management and conservation status) and set priorities for the development of species data.										
2. Assemble a Technical Advisory Group to evaluate and adapt										



GBIF architecture, standards and protocols required for searching the species databases available in the region.																				
3. Achieve consensus on information use policies for species information.																				
4. Collaborate with other IABIN Thematic Networks to develop tools to integrate species information with the information available on specimens and ecosystems																				
5. Develop a mechanism for information distribution.																				
6. Develop Web services and user interfaces for integrated searches of ecosystem, species and specimen information.																				
7. Operate and maintain the species information system (license updates, consultation improvements)																				
8. Coordinate communications with Network participants regarding advances and changes in protocols and tools																				
9. Create and maintain a species expert database and directory																				

These activities will be organized by a Coordinating Institution and the Technical Committee of Experts. The Coordinating Institution will be contracted out competitively as indicated in section 3.1.

**3.1.3.3 Products**

1. 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)
2. Technical Advisory Group workshop on GBIF standards and protocols as they apply to IABIN information priorities
3. Recommendations for the architecture and protocols documented and distributed to the focal points and data providers
4. Documentation for the cross-cutting Thematic Networks on how to use the species standards and protocols.
5. Tools for entering species data
6. Policies for the use of species information accepted and documented
7. Web site on a central server that provides access to species data using distributed access tools adapted from GBIF
8. Prototype tools for integrated searches of ecosystem, species and specimen information
9. Training program for web administrators.
10. On-line help system to report and explain advances and changes in protocols and tools
11. Processes in place to ensure sustainability of the information system
12. Species expert database and directory

### 3.1.3.4 Costs

GEF support: \$200,000

**Table 6 Species Thematic Network Costs (000 US\$)**

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Evaluate the information needs of decision makers (e.g., natural history, indicators, distribution, management and conservation status) and set priorities for the development of species data.	20					20
2. Assemble a Technical Advisory Group to evaluate and adapt GBIF architecture, standards and protocols required for searching the species databases available in the region.	20					20
3. Develop multi-lingual tools to create species information		30				30
4. Develop a mechanism for distributed information access.		40				40
5. Develop multi-lingual training materials		25				25
6. Develop Web services and user interfaces for integrated searches of ecosystem, species and specimen information.			15	15		30
7. Operate and maintain the species information system (license updates, consultation improvements)						0
8. Coordinate communications with Network participants regarding advances and changes in protocols and tools					25	25
9. Create and maintain a species expert database and directory	10					10
<b>TOTAL</b>	<b>50</b>	<b>95</b>	<b>15</b>	<b>15</b>	<b>25</b>	<b>200</b>

### 3.1.4 Ecosystems Thematic Network

#### 3.1.4.1 Description

The ecosystem is the fundamental unit of resource management. Ecosystem maps are 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.



### Thematic Network Goal:

The objective of this 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).

### Objectives:

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

### Key Issues:

The following issues represent the main challenges to IABIN in achieving the goal related to ecosystem information:

- Lack of widely accepted standards for ecosystem classification inhibits comparison of information from one region to another.
- Ecosystem information exists at multiple scales and resolutions
- Inadequate geo-referencing of specimen and observation data to develop understanding of relationships between ecosystems and species distributions
- Relatively little existing support for international collaboration on ecosystem data standards.
- Few existing tools that support analysis and interpretation of ecosystem data for decision-making.



### 3.1.4.2 Implementation

**Table 7 Ecosystems Thematic Network Timeframe**

Activity	Time									
	Year 1		Year 2		Year 3		Year 4		Year 5	
	1	2	1	2	1	2	1	2	1	2
1. Host workshop to analyze and prioritize ecosystem information requirements from representative user groups.	█									
2. Assemble a Technical Advisory Group to evaluate and adopt standards for ecosystem metadata and tools for cataloging ecosystem data sets.	█	█								
3. Establish expert teams to create an ecosystem reference standard to allow cross-referencing of existing data at different scales.	█	█	█	█						
4. Achieve consensus on information use policies			█	█						
5. Develop Web services and user interfaces for integrated searches of ecosystem, species and specimen information					█	█	█	█	█	█
6. Operate and maintain the ecosystem information system (license updates, consultation improvements)							█	█	█	█
7. Evaluate selected regional projects to validate the usefulness of the ecosystem information system for decision making processes							█	█	█	█
8. Coordinate communications with Network participants regarding advances and changes in protocols and tools		█	█	█	█	█	█	█	█	█
9. Create and maintain an ecosystems expert database and directory		█	█	█	█	█	█	█	█	█

These activities will be organized by a Coordinating Institution and the Technical Committee of Experts. The Coordinating Institution will be contracted out competitively as indicated in section 3.1

### 3.1.4.3 Products

1. A prioritized, annotated list of user types and their requirements
2. Evaluation of ecosystem information system in the context of ongoing regional projects, and recommendations for improvements to the information system
3. Metadata standards for ecosystem data adopted
4. Tools for entering ecosystem data sets implemented by IABIN participants
5. Policies for the use of information accepted and documented
6. Online system for cross-referencing different ecosystem classifications.
7. Prototype tools for integrated searches of ecosystems, species and specimen information implemented
8. Training program for web administrators.
9. Processes in place to ensure sustainability of the ecosystem information system

10. On-line help system to report and explain advances and changes in protocols and tools
11. Ecosystems expert database and directory

#### 3.1.4.4 Costs

GEF Support: \$250,000

**Table 8 Ecosystems Thematic Network Costs (000 US\$)**

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Host workshops to analyze and prioritize ecosystem information requirements from representative user groups.	40					40
2. Assemble a Technical Advisory Group to evaluate and adopt standards for ecosystem metadata and tools for cataloging ecosystem data sets.	40					40
3. Establish expert teams to create an ecosystem reference standard to allow cross-referencing of existing data at different scales.	25	25				50
4. Develop tools for entering ecosystems data			20			20
5. Develop Web services and user interfaces for integrated searches of ecosystem, species and specimen information			30			30
7. Operate and maintain the ecosystem information system (license updates, consultation improvements)						0
8. Evaluate selected regional projects to validate the usefulness of the ecosystem information system for decision making processes				20		20
9. Coordinate communications with Network participants regarding advances and changes in protocols and tools					20	20
10. Create and maintain an ecosystems expert database and directory	10					10
11. Develop training material			20			20
TOTAL	115	25	70	20	20	250

#### 3.1.5 Invasive Species Thematic Network

The IABIN Invasive Species Information Network (I3N) was initiated by USGS/BIO in 2001. IABIN will build upon the the I3N efforts. Fourteen countries, covering most of the terrestrial area of the hemisphere, are in various stages of implementing I3N; three new participants signed up in August 2003. I3N has been recognized by CBD and 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 XML and on serving data on the internet, fact sheets, contact information, sample XML output, and all pilot project documents.

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 invasive species program of the USGS Biology discipline contributes to invasive species databases targeted for research and monitoring.

The work of the invasive species thematic network will be a direct contribution to the implementation of CBD decisions related to exchange of information. The CBD promotes development of an inventory and synthesis of relevant databases, including taxonomic and specimen databases, and the development of an interoperable distributed network of databases for compilation and dissemination of information on alien species.

### **3.1.5.1 Description**

The Invasive Species Thematic Network will encourage the creation and standardization of national and sub-national databases, promote their interoperability, and create value-added products.

#### Key Justification Facts:

- Invasive species pose increasing risks to human health, native species, ecosystems, and national economies.
- The exchange of information across national borders is key to the detection and management of this threat.
- Interoperable national and sub national databases provide the basis for information exchange.
- The Invasive Species Thematic Network provides direct access to databases currently scattered and inaccessible.

#### General Objective:

Expand the IABIN Invasive Species Information Network to all IABIN member countries. Increase the usability, content, and value of the network.

Expected coverage: Regional (all IABIN countries)



Potential Participating Institutions:

Universidad Nacional del Sur	Argentina
Ministry of Agriculture & Fisheries	Bahamas
Ministerio de Desarrollo Sostenible	Bolivia
Centro de Referência em Informação Ambiental (CRIA)	Brazil
Instituto Horus	Brazil
Comisión Nacional del Medio Ambiente, CONAMA	Chile
Instituto de Investigación de Recursos Biológicos Alexander von Humboldt	Colombia
Secretaría de Estado de Medio Ambiente y Recursos Naturales	Dominican Republic
Centro de Información Ambiental (CIAM)	Ecuador
Ministerio de Medio Ambiente y Recursos Naturales	El Salvador
Oficina Técnica de Biodiversidad (OTECBIO)	Guatemala
Ministère de l'Environnement	Haiti
Institute of Jamaica	Jamaica
Comisión Nacional de la Biodiversidad (CONABIO)	Mexico
Centro de Datos para la Conservacion (DGPCB)	Paraguay
Consejo Nacional del Ambiente (CONAM)	Peru
Dirección Nacional de Medio Ambiente	Uruguay
National Biological Information Infrastructure (NBII)	USA
Ministerio de Ambiente y los Recursos Naturales	Venezuela
AndinoNet	Regional
Center for Applied Biodiversity Science at Conservation International	Regional
NatureServe	Regional

**3.1.5.2 Implementation**

- Tools and standards: Establish technical working group on standards and content. Develop data input, output, conversion, search, and serving tools. Work in coordination with the Species Thematic Network.
- Collaboration and Communication: Support activities of technical working group. Interact with IABIN Focal Points.
- Develop value-added products: Possible products include GIS data layers for particular species; search capabilities; taxonomic identification keys; fact sheets on particular species; maps; and case studies of impacts and successful control.
- Maintenance and operations: The TN will be maintained and operated by the TN participants, pending availability of funds.

**Table 9 Invasive Species Network Timeframe**

Activity	Year 1	Year 2	Year 3	Year 4	Year 5
Creation of Technical Working Group					
Meetings of Technical Working Group					
Develop data entry tools					
Search and retrieval tools develop					



Develop value added products					

The Coordinating Institution will coordinate these activities and draft TORs in coordination with the IABIN Secretariat and Executing Agency. If GEF project funds are used for particular activities, then the consultants or firms that will carry out these activities will be contracted out competitively as indicated in section 3.1

### 3.1.5.3 Products

- Standards adopted
- Value-added products developed
- Search and retrieval tools developed
- Data entry tools developed
- TN operating

### 3.1.5.4 Costs

GEF Support: \$ 200,000

**Table 10 Invasive Species Network Costs (000 US\$)**

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Meetings of Technical Working Group	10	10	10	10	10	50
Develop data entry tools and training materials	40					40
Develop search and retrieval tools	30					30
Develop value added tools		30	30	20		80
<b>TOTAL</b>	<b>80</b>	<b>40</b>	<b>40</b>	<b>30</b>	<b>10</b>	<b>200</b>

### 3.1.6 Pollinators Thematic Network

#### 3.1.6.1 Description

The action of pollinators ensures, for many sexually reproducing species, plant reproduction and the maintenance of genetic variability that plant populations need to survive and continue to evolve. There are hundreds of thousands of pollinators such as beetles, flies, birds, bats, wasps, ants, etc. Bees, however, are the most important pollinators of wild and cultivated plants.

Taxonomic information on pollinators 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.



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 ITIS.

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

- Development of an online directory of experts;
- 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.

### **3.1.6.2 Implementation**

These activities will be organized by a Coordinating Institution and the Technical Committee of Experts. The Coordinating Institution will be contracted out competitively as indicated in section 3.1.



**Table 11 Pollinators Thematic Network Timeframe**

Activity	Year 1	Year 2	Year 3	Year 4	Year 5
1. Evaluate the information needs of decision makers and set priorities for the development of the pollinators network.	█				
2. Assemble a Technical Advisory Group to evaluate and adapt architecture, standards and protocols required for searching and accessing pollinator databases available in the region. This activity should be in coordination with the Species Thematic Network.	█				
3. Install a website allowing searches and access to the Bee Catalog		█			
4. Install catalog of experts	█				
5. Install a website allowing searches and access to the Pollinator Catalog			█		
6. Design and implement tools in order to integrate the Pollinator Catalog with the specimen, species and ecosystem networks			█	█	
7. Maintain the pollinator information network			█	█	█
8. Develop multi-lingual data entry tools		█	█		
9. Develop multi-lingual training materials		█	█		

**3.1.6.3 Products**

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

**3.1.6.4 Costs**

GEF Support: \$180,000

**Table 12 Pollinators Thematic Network Costs (000 US\$)**

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Evaluate the information needs of decision makers and set priorities for the development of the pollinators network.	30					30
Assemble a Technical Advisory Group to evaluate and adapt architecture, standards and protocols required for searching and accessing pollinator databases available in the region. This activity should be in coordination with the Species Thematic Network.	30					30
Develop multi-lingual search and access software		30				30
Develop multi-lingual data entry system		20				20
Develop multi-lingual training materials		20				20
Expand New World Bee Catalog to other pollinators and allow searches in coordination with other TNs			20	20		40
Develop On-line Directory of Experts	10					10
<b>TOTAL</b>	<b>70</b>	<b>70</b>	<b>20</b>	<b>20</b>		<b>180</b>

### 3.1.7 Protected Areas Thematic Network

#### 3.1.7.1 Description

Statistics from the report *World Resources 2001-2002: People and Ecosystems* indicate an overwhelming human dependence on rapidly deteriorating ecosystems, the systems that support all life on earth. One out of every six humans depends on fish for protein needs, yet 75 percent of the world's fisheries are over-fished or fished at their biological limit. Nearly forty-one of every 100 people live in water-stressed river basins. Some 350 million people are directly dependent on forests for their survival, yet global forest cover has declined by 46 percent since pre-agricultural times. Protected areas are critical to supporting these ecosystems. They support livelihoods, protect the supply of fresh water, harbor an untold wealth of genetic diversity, support a burgeoning industry in recreation and tourism, and enhance fisheries in surrounding waters. They also protect cultural monuments and sites of spiritual value to indigenous peoples and local cultures.

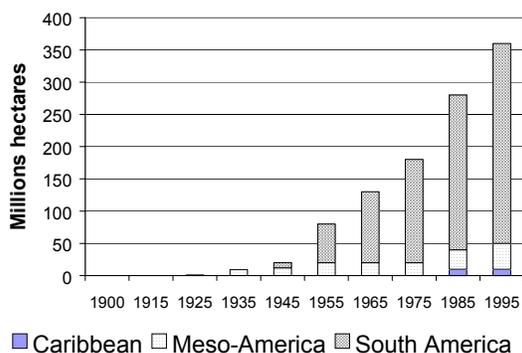
While total area protected in national parks and other protected areas in Latin America and the Caribbean has increased at an impressive rate (see Figures 1 and 2), unmet needs remain. Recently, for example, much emphasis has been placed on the need for ecological corridors – strips of intact habitats that connect larger habitat fragments and ecosystems, helping to maintain species movements necessary for reproduction and survival. One corridor project in progress is the Yungas Andinas Biological Corridor that, once completed, would extend from Southern Bolivia to the Northern Tucuman Province in Argentina. Another ambitious corridor project is



EcoAmericas, that is consolidating the core areas and buffer zones of the 36 World Heritage Sites and Biosphere Reserves located in the fifteen countries from Mexico to Argentina.<sup>1</sup> Another biological corridor, the Mesoamerican Biological Corridor is being developed through the Central American Isthmus.

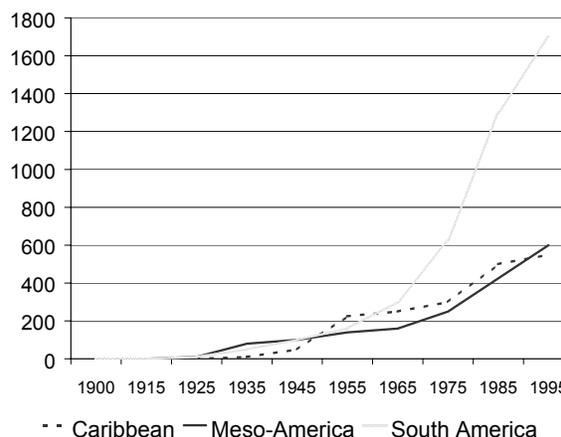
**Figure 1**  
Protected Areas Established from 1900 to 1995

(million hectares)



Source: GEO-2000

**Figure 2**  
Number of Protected Areas Established from 1900 to 1995



Source: GEO-2000

Protected areas offer the Earth’s biota its “first line of defense” against encroaching human populations, play an essential role in the conservation of species and habitats, and are essential for our own survival. Protected areas face numerous threats, including global climate change, habitat loss and fragmentation by roads, rising sea levels, 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 the disproportionate coverage of non-productive areas, including those at high elevation, which consist primarily of rock and ice, and the lack of marine protected areas.

Previous IABIN Council meetings have emphasized the need for a protected areas thematic network. 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, as well as provide a comprehensive information network where data on protected areas could be easily located, queried, accessed for management and scientific needs.

<sup>1</sup> IUCN World Commission on Protected Areas

### 3.1.7.2 Implementation

The objective of the Protected Areas Thematic Network will be 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 through close collaboration with the IUCN World Commission on Protected Areas and the UNEP World Conservation Monitoring Centre.

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) program (on Biosphere Reserves), various other international agreements and programs on protected areas and a range of internationally active non-governmental organizations.

The Information Center for the Environment (ICE) at the University of California, Davis, is collaborating to provide access to and technical support for biological inventory data derived from protected areas to add to the Biological Inventories of the World's Protected Areas databases, the world's largest repository of standardized, documented biological inventories. The PA Thematic Node will engage ICE and with numerous additional collaborators, including the Man and the Biosphere (MAB) program of the United Nations Educational, Scientific, and Cultural Organization (UNESCO), the IUCN's World Database on Protected Areas (WDPA) Consortium and a host of taxonomic institutions, to produce a publicly available protected area information system. This information system will include general site descriptions (size, geographic coordinates, date and history of establishment, management activities, etc.), as well as descriptions of human populations and uses of the area, a relative assessment of management effectiveness, and documented, taxonomically harmonized species inventories of plants and animals.

Existing work in the region includes a cooperative agreement among the NBII, the Information Center for the Environment, the Smithsonian Institution's Monitoring and Assessment of Biodiversity (MAB) program, The Instituto Nacional de Biodiversidad (INBio) in Costa Rica, and the Missouri Botanical Garden. As a result of this cooperation, the ICE Biological Inventory Databases currently (as of 12/03) contain over 17,000 plant and over 2,400 animal records representing 32 Costa Rican protected areas. As part of this collaboration, INBio has provided in excess of 17,000 documented occurrence records from 30 protected areas in Costa Rica. The IABIN Protected Areas Thematic Network seeks to expand this kind of partnership to include the entire Hemisphere. At present, existing data are not standardized on either structure or content, so there will be numerous benefits derived from the PA thematic network, including the accumulation, documentation, and standardization of much existing information followed by the dissemination via the Internet of these data. Through our activities, these data, may more effectively contribute to local, regional, and global conservation efforts.



A second activity will be to facilitate access to ranking systems that are used to assess protected area management effectiveness. For example existing systems include those of WWF and TNC (The Nature Conservancy). The overall objective is to provide the tools by which countries can assess the effectiveness of their protected area system and to share best practices and lessons learned. Four indicators of management effectiveness include:

- (1) basic on-site protection activities;
- (2) long-term management capacity;
- (3) long-term financing for basic site management; and
- (4) a supportive local constituency for the site with emphasis on affected indigenous and rural communities and stakeholders.

**Table 13 Protected Areas Thematic Network Timeframe**

Activity	Year 1		Year 2		Year 3		Year 4		Year 5	
	1	2	1	2	1	2	1	2	1	2
1. Assemble a Technical Advisory Group to evaluate protected area information.										
2. Host workshop to analyze and prioritize protected areas information requirements from national protected areas systems.										
3. Disseminate tools for analyses (e.g. 1) the software, 2) support (taxonomic, programming – database and web), and 3) Internet databases to disseminate information and to allow for specific queries.										
4. Achieve consensus on information use policies										
5. Develop Web services and user interfaces for integrated searches of protected areas information										
8. Coordinate communications with Network participants regarding advances and changes in protocols and tools										
9. Create and maintain a protected areas expert database and directory										

These activities will be organized by a Coordinating Institution and the Technical Committee of Experts. The Coordinating Institution will be contracted out competitively as indicated in section 3.1.

### 3.1.7.3 Products

Expected products are:

1. A prioritized and annotated assessment of the users of protected areas data at national and international levels, and the data required.
2. Adoption by IABIN of protocols and standards for protected area data, and their promotion within the region.
3. Dissemination of any necessary further guidance on the application of the IUCN protected area management categories within the region.

4. Recommendations on means for assessing and reporting on protected areas management effectiveness.
5. Prototype tools for integrated searches of protected areas also cross referenced with ecosystems, species and specimen information.

### 3.1.7.4 Cost

GEF support: \$230,000

**Table 14 Protected Areas Thematic Network Costs (000 US\$)**

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Host workshops to analyze information requirements from representative user groups.	40	40				80
2. Develop tools for accessing protected areas data	35	35				70
3. Develop Web services and user interfaces for integrated searches of protected areas, ecosystem, species and specimen information		20	10	20		50
4. Operate and maintain the protected areas information system						0
5. Coordinate communications with Network participants regarding advances and changes in protocols and tools		20				20
6. Create a protected areas expert database and directory	5	5				10
TOTAL	80	120	10	20	0	230

## 3.2 Component 2: Data Content Creation

### 3.2.1 Description

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 to access data and information through the IABIN Catalog Services and five 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.
- Data and metadata quality control.



Recipients of training and of grants will be chosen by an evaluation committee as agreed upon by the IABIN Executive Committee and the OAS through a competitive funding mechanism 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
- Commitment to public access
- Sub regional balance

### 3.2.2 Implementation

Consultants, chosen competitively as indicated in section 3.1, 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 all the Thematic Networks and the Catalog system.

**Table 15 Component 2 Timeframe**

Activity	Year 1	Year 2	Year 3	Year 4	Year 5
<b>Carrying out training sessions on the use of data creation tools.</b>					
Metadata					
Specimen data					
Species data					
Ecosystem data					
Invasive species data					
Pollinator data					
Protected Areas					
<b>Providing Grants to institutions</b>					
Metadata					
Specimen data					
Species data					
Ecosystem data					
Invasive species					
Pollinator data					
Protected Areas					
<b>Data and metadata quality control.</b>					
Metadata					
Specimen data					
Species data					
Ecosystem data					
Invasive species data					



Pollinator data					
Protected Areas					

### 3.2.3 Products

- Trained personnel throughout the hemisphere
- Newly prepared metadata
- Newly digitized data
- Newly created data and metadata available for access through the IABIN network

### 3.2.4 Cost

GEF support: \$2,465,000

**Table 16 Component 2 Costs (000 US\$)**

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Total
<b>Management</b>						
Data Content Manager	48	48	48	48	48	240
Subtotal	48	48	48	48	48	240
<b>Training sessions on the use and of data creation tools</b>						
Metadata	30	30	30			90
Specimen data			40	35	35	110
Species data			40	35	35	110
Ecosystem data			40	35	35	110
Invasive species data		30	30	30		90
Pollinator data		30	30	30		90
Protected Areas		25	25	25		75
Subtotal	30	115	235	190	105	675
<b>Providing Grants to institutions with high quality data to support institutional efforts to make data available through the network.</b>						
Metadata	20	40	40	40	40	180
Specimen data		65	65	65	65	260
Species data		65	65	5	65	260

Ecosystem data		65	65	65	65	260
Invasive species data	40	40	40	40		160
Pollinator data		40	40	40	30	150
Protected Areas		25	25	25	25	100
Subtotal	60	340	340	340	290	1,370
<b>Quality Control</b>						
Metadata		10	10	10		30
Specimen data			10	10	10	30
Species data			10	10	10	30
Ecosystem data			10	10	10	30
Invasive species data		10	10	10		30
Pollinator data			10	10	10	30
Protected Areas						0
Subtotal	0	20	60	60	40	180
<b>TOTAL</b>	<b>138</b>	<b>523</b>	<b>683</b>	<b>638</b>	<b>483</b>	<b>2,465</b>

### 3.3 Component 3: Tools for Decision-Making

#### 3.3.1 Description

An important ultimate objective of IABIN is to make biodiversity information useful to decision-makers in the public and private sectors. The IABIN Gateway will host a series of value-added applications that will demonstrate to decision makers how data and information can be effectively used in the decision making process. These tools could be as simple as producing a specialized report for a select group of biological data or as complex as the species prediction capabilities of LifeMapper (<http://lifemapper.org>).

Specifically, this component will address the need for 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 sub-component socio-economic data relevant to biodiversity issues will be identified, and tools will be provided through the IABIN Gateway that will allow users to access socio economic and biodiversity data in an integrated manner. An example of socio-economic data relevant to biodiversity issues is land-use databases.

- Visualize and analyze data and information

The use of GIS for visualization and spatial analysis of data is well documented. Many information products have been developed that allow users to perform a variety of functions on biodiversity and remote sensing data. These functions include predictions of spatial distribution, changing distributions according to key variables, three dimensional visualization, and time-series animation (fly-through).

Under this sub-component IABIN will identify and demonstrate tools at the regional level that would allow users to visualize data and information in an interactive, as well as non-interactive manner. A simple example of a visualization product could be a dynamic map showing actual and predicted spread of some invasive species across several countries.

Another example of a visualization product has been developed for the Central America sub-region by the CCAD in coordination with NASA and the World Bank. This product allows the user to fly through Central America, viewing the 3-dimensional landscape. An added-value product relevant to biodiversity could be built on the existing NASA/CCAD product, by overlaying an ecosystems map on the existing landscape.

- Utilize data with models to develop scenarios (options and consequences) for decision makers.

This sub-component will demonstrate how data can be used as input to models. The output of these models will allow the user to build scenarios, with options and consequences that will help them make an objective decision.

An example will be used to illustrate what we mean by the use of models to support the decision making process. Assume that limited funds are allocated for re-vegetation of an area in order to eliminate soil loss. The decision to be made is where to carry out the re-vegetation in order to optimize the use of the funds and minimize soil loss. Two models will be used to help us decide where to carry out the re-vegetation: a model based on the Universal Soil Loss Equation and an economic model.

The Universal Soil Loss Equation allows one to calculate the amount of soil loss in units of weight/surface area/year. The inputs to the model are: rainfall erosion index, soil erosion factor, slope length and slope gradient factor, vegetation cover factor, and agricultural practice factor. In order to obtain a map of the existing soil loss conditions, the area to be considered can be divided into pixels, the size of which are determined by the spatial resolution of the input data; the soil loss can thus be calculated for each of these pixels.



A modified conditions scenario can be calculated by changing the vegetation cover factor in the pixel where the re-vegetation is planned. The modified conditions scenario will provide the change in soil loss due to re-vegetation. Different modified condition scenarios can be calculated assuming the re-vegetation will be carried out in different locations. In this fashion, one can calculate where the re-vegetation will be most effective in reducing soil loss.

The economic model can be very simple, calculating the cost of re-vegetation per pixel considering two factors: slope and the existence of roads. Combining the output of the economic model with the soil loss for each of the modified scenarios calculated above, one could then choose objectively where to carry out the re-vegetation, by choosing the scenario with maximum reduction in soil loss/unit cost.

### 3.3.2 Implementation

- Solicit proposals for the development of value-adding tools in the three areas mentioned above.
- Specific value-added applications will be undertaken with IABIN partners chosen on a competitive basis. These projects should be based on the extension of existing information tools or systems, requiring a small investment to make them available for decision makers.

**Table 17 Component 3 Timeframe**

Activity	Year 1	Year 2	Year 3	Year 4	Year 5
Solicit proposal					
Carry out valued added products implementation					

### 3.3.3 Products

Value-added tools are made available to decision makers through the IABIN Gateway in each of the specific areas indicated in the description of this component.

### 3.3.4 Cost

GEF Support: \$500,000

**Table 18 Component 3 Costs (000 US\$)**

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Develop and/or implement value-adding tools	0	125	125	125	125	500
TOTAL	0	125	125	125	125	500

### 3.4 Component 4: Sustainability of IABIN

#### 3.4.1 IABIN Secretariat

The IABIN Secretariat, in consultation with the pertinent technical working groups, will be responsible for defining an overall architecture for the network that will be presented for approval by the IEC and Council. A similar process has been implemented with success by the Biosafety Clearing House. The Secretariat will oversee the development of the network products and services, promote the network, and attract resources for the network's activities. The Secretariat will facilitate the preparation of strategic plans, production of tools and services, and access to essential datasets. It may need to develop a capacity to manage a limited number of datasets, but overall data management remains with individual data providers.

In particular, the IABIN Secretariat needs to know where capacities are located in the network, how readily they can be mobilized for specific tasks, where essential datasets are located, and where financial and other support can be obtained to drive the network's development. Three distinct data services will be managed by the Secretariat: all IABIN documents, the IABIN Gateway, and the directory of web pages that provide biodiversity information.

The IABIN Secretariat staff comprises a Director (Partially GEF Funded) and one secretary (provided by the Host Organization). The GEF project will contract two additional technical staff who will be co-located with the Secretariat. Each professional should be multi-lingual, with English and Spanish being functional languages. The scope of duties of the Director includes increasing awareness of IABIN throughout the biodiversity community, raising funds, coordinating the implementation of the network, and supervising the Secretariat staff. The two professionals to be hired by the GEF project are the Thematic Networks Coordinator (see Component 1) and the Data Content Manager (see Component 2). The scope of duties of the Content Manager includes increasing the biodiversity information and data content available through IABIN by developing and nurturing partnerships with data and information providers, other biodiversity network initiatives, and users. The scope of duties of the Thematic Networks Coordinator includes providing technical guidance to participants and coordinating informatics technologies required to link network resources.

Proposals were solicited and reviewed in late 2003 by the IEC from institutions willing to host the Secretariat. The IEC chose the City of Knowledge Foundation (Fundación Ciudad del Saber) in Panama City, an NGO, as the Host organization for the IABIN Secretariat. Co-financing provided by the Host institution, the City of Knowledge Foundation may be found in the Letter



of Agreement between The IABIN Executive Committee and the City Of Knowledge Foundation concerning establishment of The Secretariat of the Inter-American Biodiversity Information Network (IABIN) signed March 19, 2004.

An evaluation of the Secretariat will be conducted in year 4. It should be noted that the GEF contribution to the Director's salary will be 80%, 60%, and 40% in year 3, 4, and 5. The unfunded portion of the Director's salary will need to be covered by other funds.

### **3.4.2 Partnerships and Communications**

#### Partnerships

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 and two IEC/technical meetings during the lifetime of the project,
- Negotiating agreements with key organizations and initiatives,
- Collaborating with CHM national focal points,
- Participating in other global and regional biodiversity informatics initiatives, such as GBIF, and
- Targeting better information access to indigenous people.

The IABIN Council meetings will be scheduled in coordination with CHM meetings. It is expected that IABIN will cover the costs of the IABIN Focal Points attending the first meeting. Subsequent meetings, however, will be only partially covered by GEF funds and it is expected that the participating countries will begin to cover the participants travel cost.

#### **3.4.2.1 The IABIN Gateway**

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 Gateway, on the web 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 Gateway 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 Gateway 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 Gateway will serve as an online access point for the Americas and a coordination center for IABIN partners and users.



The major components of the IABIN Gateway are:

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

A schematic showing the contents of the IABIN Gateway is presented in Figure 1. The general requirements for the IABIN Gateway include the following:

***Open, web-based technical architecture.*** The Gateway will be based on an open, broadly supported web based technical architecture capable of supporting the needs of IABIN users for several years. The technical architecture will be extensible, scalable, and cost effective. Interoperability, the ability to share information with other systems, is a high priority. Moreover, the architecture will incorporate broadly supported technologies and system design methodologies so that system support and is readily available and affordable.

***Multilingual.*** The Gateway will be multilingual, initially Spanish, English, and Portuguese and ideally, French. The Gateway will have an inherent capability to manage multilingual presentation layers. Properly designed, the web Gateway should provide a “data driven” approach to language management where adding a new language or enhancing content is managed without requiring restructuring of the Gateway. It is anticipated that the Gateway will need to manage three to four presentation languages. A goal of the IABIN Gateway is to have the Gateway contents, documents, databases, publications, etc., in as many of the official languages of IABIN participants as possible, given the resources required for translation.

***Controlled access through user login.*** Controlled access to specific areas of the Gateway (e.g., administration modules, areas containing privileged information, or modules that offer specialized functionality that may require user customization, etc.) should be managed through a typical username/password security system. The Gateway will be organized to offer an enhanced experience or additional features for users that login into the site. By having users login, IABIN will be able to better track how the Gateway is being used by and to maintain closer contact with its user community. Furthermore, delivery of selected customized information will result, thereby reducing information overload.

***Mapping interfaces for select pages or modules.*** Although established as a low priority at this time, it is recognized that it would be beneficial to have mapping interfaces used within some areas of the Gateway. These interfaces would be implemented through stand-alone components available in the public domain or through functionality provided via third party sites. Dedicated Internet based mapping functionality is not required for the Gateway at this time, although the

Gateway design should consider that this functionality could be required in the future.

**Automated dynamic content.** Providing news and updated biodiversity information to IABIN users is a priority. The web site architecture will have an inherent ability to quickly update web site content in specific areas of the site and to provide capabilities for automated links to information located on other web sites. This information should be delivered through the web directly to users' email upon request.

**Documentation.** The Gateway architecture and design will include detailed system administration documentation that addresses maintenance and operation of the system, as well as detailed system developer documentation for the system code base.

**Access to IABIN Thematic Networks.** The IABIN Gateway will be an entry point to the TNs established by IABIN partners. TNs may require multi-theme search capabilities (i.e., search across different TNs) that would impact the specific requirements for the core Gateway architecture. Therefore, development of TNs will include technical coordination with those developing the Gateway, and ongoing discussions with IABIN TN partners will identify TN requirements that impact the Gateway architecture.

**General information resources and tools.** The Gateway will provide ready access to general information and tools, including:

- Catalog Service(s)
- Mapping resources (e.g., regions, priority areas, protected areas)
- Software and tools
- Discussion group facilities
- IABIN and partner documents
- Web site links

The Gateway will manage an extensive list of resources and data within these areas.

### 3.4.2.2 The Development Gateway

The Development Gateway is an interactive site sponsored by the Development Gateway Foundation for information on sustainable development and poverty reduction and provides a space for communities to share experiences on development efforts. It serves the needs of a broad array of stakeholders, including developing countries, the donor community, civil society, the private sector, and other key partners. It assists these stakeholders by providing links to ideas and good practice, information about development activities and trends, funding, and commercial opportunities. Relative to the Biodiversity in the Americas/IABIN link on the Development Gateway, local government in developing countries, community representatives, and NGOs are expected to play a vital enabling and intermediary role in keeping this Gateway up-to-date with unpublished gray literature and important developments.

- Gateway services include online training modules, research findings, best practices and ideas, case studies, procurement services, information on development projects, funding, commercial opportunities, product reviews, news, jobs, and directories. Specific to IABIN, a “Biodiversity in the Americas” Gateway has been established ([www.developmentgateway/IABIN](http://www.developmentgateway/IABIN)) where users are able to access information, resources, and tools, and into which they will be able to contribute their own knowledge and experience. The Development Gateway creates a common platform for shared material, dialogue, and problem-solving that is easy to access and navigate. This will enable those in the biodiversity field to share information, easily communicate, and build communities of practice around significant development challenges. The Development Gateway is being utilized for the following services:
  - Capacity building and education resources
  - Contacts and partner profiles
  - Project information
  - Calendar of events

### 3.4.2.3 Products

#### Partnership Products

Council meetings, IEC Meetings, support to IABIN Focal Points, coordination with key partners such as CHM, GBIF, etc.

#### Communication Products

Communication products include brochures, the Gateway, publications, meetings, optimization of our Gateway on the Development Gateway, etc.

### 3.4.2.4 Cost

**Table 19 Partnership Product Costs (000 US\$)**

Activity	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Council Meetings	65		65		65	195
IEC technical meetings		20		20		40
Communication Tools, newsletters, brochures	10	10	10	10	10	50
Meetings, workshops	25	25	25	25	25	125
Specialized Consultancies: e.g., Indigenous people	10	10	10	10	10	50
TOTAL	110	65	110	65	110	460

### 3.4.3 Financial Sustainability



To date, IABIN has been supported by grants from the U.S. Geological Survey, 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 funding can kick-start or top-off projects. IABIN 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.

To provide stability to the network's operational structure, it has been recommended that the funding strategy for IABIN be a mix of activities. Because there is a very low probability of obtaining all financial resources from a single source, the financial sustainability of IABIN will be achieved by a combination of several strategies directed at different types of funding sources.

It is recommended that an evaluation of the project be carried out during its fourth year of execution in order to determine potential areas of expansion of the project that could be used as a baseline to fund raising campaigns.

#### **3.4.3.1 The IABIN Foundation**

The most promising strategy for IABIN sustainability in future years, beyond the GEF funded program, is to use professionals to seek and acquire support to: 1) capitalize an endowment (using the associated interest for fund development), and (depending on the type and restrictions associated with new funds) 2) inform potential donors about the benefits of IABIN and conduct related fund development activities. The fund development initiative for IABIN sustainability would be administered by an IABIN foundation, established within an experienced, biological-informatics focused, fund-raising, private non-profit organization. IABIN specific funds would be placed in a separate and dedicated account within this organization. IABIN related sustainability activities/expenditures would require coordination with and approval of the IABIN Executive Committee. The International Bioinformatics Foundation (IBF), an existing, bioinformatics fund-raising focused, not-for-profit organization, has been identified as one possible organization that would serve as the IABIN Foundation.

Sources of funding for IABIN sustainability will initially be sought by the Executing Agency, IABIN Secretariat, IEC, IABIN partners, and the World Bank. Primary targets for funding will be governments, foundations, partner organizations, and the private sector (i.e., corporate sponsorships from information technology companies).

### **3.5 Component 5: Project Administration**

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.

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 national offices, to carry out and manage its procurement in an orderly and well established manner. Its financial management information systems OASES or the OAS Enterprise System, is a tightly integrated set of Oracle Applications that allows the Organization to manage the entire cycle from quota or donors receivables to project management to supplier payment.

#### **3.5.1 Financial Flows**

Following is a detailed explanation of how funds flow from the donor, through the executing agency, and to the final recipient.

##### **3.5.1.1 Process Prior to Receiving Funds**

1. OAS and the World Bank sign a Grant Agreement. Before opening an Award in the OAS Enterprise 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 of executing the funds, the USDE in the case of IABIN, prepares a template and sends a request to DFS to open a Project Account, specific for the project, identifying the source of funds (Award).
4. DFS opens the Project Account, with a unique number that identifies the project, and defines a specific Project-Award combination.

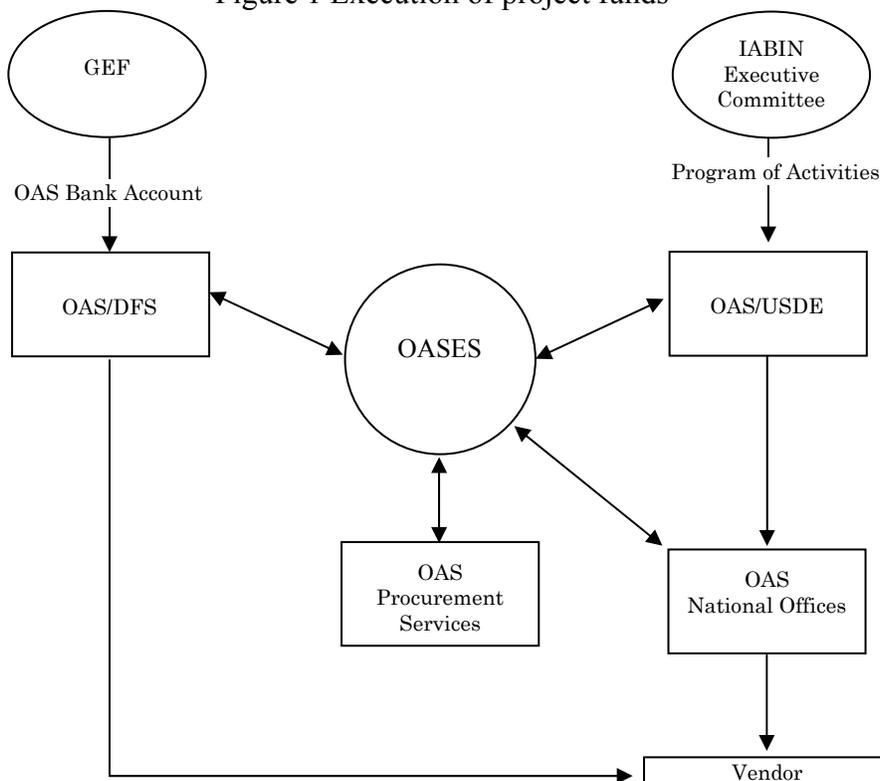


5. After the Bank receives evidence satisfactory to it that the Project Account has been duly opened, it deposits a contribution in the OAS' Bank of America account equivalent to the authorized allocation stipulated in the Grant Agreement.
6. DFS enters an installment amount in the Award to reflect the payment received from the donor and delimits the maximum amount of funds that the project can receive from this award.
7. DFS gives budget to the specific Project-Award combination (project funds can be executed).

### **3.5.1.2 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 OASES to record a future purchase, contract, or travel expense.
3. OAS departments (legal, procurement, and DFS) verify purchasing and contracting procedures and 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 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 Account. Account information at the Award and Project level is updated on a daily basis.
7. Payments out of the Project Account shall be made exclusively for eligible expenditures in accordance with the provisions stipulated in the Grant Agreement.

Figure 1 Execution of project funds



### 3.5.2 Disbursement Arrangements

**3.5.2.1 Operating Account (Project Account)** - The GS/OAS will deposit the World Bank’s contributions in a commercially accredited bank on terms and conditions satisfactory to the World 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) and tracked by Award (opened for every contributor) and Project (opened for every activity). The OASES is a tightly integrated set of Oracle Applications that allows the GS/OAS to manage the entire cycle from quota receipts to donors’ receivables, to project management to supplier payment. The Award/Project structure allows total segregation of funds and allows tracking of all financial transactions.

**3.5.2.2 Withdrawals** – The authorized first allocation to the Operating Account will be up to \$600,000. Replenishment of funds will be made on evidence of satisfactory utilization of the previous advance(s), exclusively for eligible expenditures in accordance with the GEF Trust Fund Agreement, as evidenced by the documentation submitted to the Bank. Transaction-based withdrawals will be made under the traditional Statements of Expenditures (SOE) and Direct Withdrawal Applications (DWA) only as alternative to report-based disbursements in case the project will request so. In the case of the latter, 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. For all other expenditures, withdrawals from the GEF Trust Grant Account will be made on the basis of SOE: (a) under contracts for goods estimated to cost less than \$150,000 equivalent per contract; (b) under contracts for non-consultant technical services estimated to cost less than \$250,000 equivalent per contract; (c) under contracts for the employment of consulting firms estimated to cost less than \$100,000 equivalent per contract; (d) under contracts for the employment of individual consultants estimated to cost less than 50,000 equivalent; and (e) under Training and Operating Costs as set forth in the GEF Trust Fund Grant Agreement.

All consolidated SOE documentation and all records (contracts, orders, invoices, bills, receipts, and other documents) will be retained by OAS for post-review and audit purposes, until at least one year after the end of the fiscal year in which the last withdrawal from the GEF Trust Fund Grant Account was made.

### **3.5.3 Procurement**

Procurement and financial management responsibilities will be vested in the GS/OAS, which has the necessary infrastructure and human resources, both at headquarters and country national offices, to carry out required activities in an orderly and efficient manner. The GS/OAS has experience in executing projects financed by various other external sources, some of which call for particular procurement requirements, such as the GEF Project for the Environmental Protection and Sustainable Development of the Guaraní Aquifer System.

Procurement for the proposed project will be carried out in accordance with the World Bank's "Guidelines: Procurement Under IBRD Loans and IDA Credits" (Guidelines) 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 GEF Trust Fund Grant Agreement.

Prior to the issuance of any invitations to bid for contracts, the Bank will review and approve the Project's Procurement Plan.

With respect to the first contract for goods and the first contract for non-consultant technical services, the OAS will provide to the Bank, (i) prior to requesting quotations from suppliers under shopping procedures, the document requesting quotations which shall indicate the description and quantity of the goods as well as the delivery time and place; and (ii) prior to the selection of any supplier under shopping procedures, a report on the comparison and evaluation of quotations received.

**3.5.3.1 Goods:** The proposed project would finance contracts for the purchase of goods (category 1 in the GEF Grant Agreement) such as computer equipment, software, photocopier, office supplies, and miscellaneous for the establishment of the IABIN Secretariat. Eligible institutions

that may receive grants may also purchase goods necessary to carry out IABIN activities (category 4 in the GEF Grant Agreement). Goods will be procured in accordance with the provisions of Section I of the Guidelines and following the provisions set in the Grant Agreement. Goods estimated to cost less than \$150,000 equivalent per contract, may be procured under contracts awarded on the basis of international or national shopping procedures in accordance with paragraphs 3.5 and 3.6 of the Guidelines.

**3.5.3.2 Non-Consultant Technical Services:** expenditures related to the logistics arrangements involving various meetings of the technical working groups, the IABIN Council, the IABIN Executive Committee, and other outreach events, in addition to the design and distribution of communication tools such as newsletters and brochures. These services will be procured in accordance with the provisions of Section I of the Guidelines and following the provisions set in the Grant Agreement. Services estimated to cost less than \$250,000 equivalent per contract, may be procured under contracts awarded on the basis of international or national shopping procedures, in accordance with the provisions of paragraphs 3.5 and 3.6 of the Guidelines.

**3.5.3.3 Consultants' services:** contracts for the development and maintenance of the IABIN Internet-based Gateway; consultancies to improve interoperability among network information sources; development of analytical tools to facilitate access to and use of network content; implement a communications and partnership strategy; and personnel of the IABIN Secretariat to administer and supervise the regional implementation of the initiative.

Consultants' services will be procured in accordance with the provisions of Section V of the "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" (the Consultant Guidelines) published by the Bank in January 1997 and revised in September 1997, January 1999, and May 2002 and the provisions stipulated in the GEF Trust Fund Grant Agreement.

Consultants' services under the Project estimated to cost less than \$100,000 equivalent per contract may be procured under contracts awarded in accordance with the provisions of paragraph 3.1 and 3.7 of the Consultant Guidelines.

With respect to each contract for the employment of consulting firms estimated to cost the equivalent of \$100,000 or more, the procedures set forth in paragraphs 1, 2, 3, and 5 of Appendix 1 to the Consultant Guidelines will apply.

Contracts may be awarded to individual consultants for assignments that meet the requirements set forth in the first sentence of paragraph 5.1 of the Consultant Guidelines in accordance with the provisions of paragraphs 5.2 through 5.3 of the Consultant Guidelines.

With respect to each contract for the employment of individual consultants estimated to cost the equivalent of \$50,000 or more, the OAS will furnish to the Bank for its prior review and approval, the report on the comparison of the qualifications and experience of candidates, the qualifications, experience, letter of justification for sole source and draft contract (if applicable),

terms of reference and terms of employment of the consultants. Contracts will be awarded only after the Bank has given its approval. The provision of paragraph 3 of Appendix 1 to the Consultant Guidelines will also apply to such contracts.

Individual consultants may be selected on a sole-source basis with due justification under the circumstances described in paragraph 5.4 of the Consultant Guidelines, subject to prior approval by the Bank.

#### **3.5.3.4 Goods and/or Consultants' services under IABIN Subprojects (Matching Grants).**

Under component 2 of the project, a total \$1,370,000 will be awarded as matching grants to Eligible 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 criteria listed under section 3.2.1. A call for proposals will be published in IABIN's website and a selection committee of experts in the field, approved by the IEC, will rate the proposals to determine which institutions will receive the award (see Annex 12). The Committee will review all proposals for matching grants with a view towards striking a sub regional balance. The selected institutions will sign an agreement (IABIN Subproject Agreement), with the GS/OAS, on terms and conditions acceptable to the Bank, defining the terms of collaboration. The selection committee will be formed with input from the IEC, and will always have on it the GS/OAS and the IABIN Secretariat Director. Other specialists will be added to the selection committee based on the expertise needed to review the proposal allowing an independent expert evaluation. Once the analysis has been completed all proposal evaluations, selection committee participants, and selection committee criteria will be placed on [www.iabin.net](http://www.iabin.net). (Note only the winning bids will be posted while the losing bids will be posted without actual ratings.) Grants will be in the range of 10-15k/year and may be multi-year. But can be smaller and only for one year. Efforts will be made to invite specialists from the CIs or those receiving a matching grant to be on the selection committee. It is hoped that serving on the selection committee will be considered prestigious, much like serving as a peer reviewer for a Journal article.

**3.5.3.5 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. Training expenditures will finance reasonable transportation costs and per diem of trainees and trainers (if applicable) and rental of training facilities and equipment.

**3.5.3.6 Operating Costs:** reasonable recurrent expenditures that would not have been incurred by the OAS absent the Project, for transportation and per diem costs of its staff, project administration costs, operation and maintenance of office equipment, and non-durable goods, all needed for the implementation of the project.



Any interest earned by the GS/OAS on project funds advanced or reimbursed against authorized project expenditures will accrue to the project and be utilized exclusively for budgetary purposes of the project.

Annex 13 provides the total amounts for each expenditure category and programmed expenditures for the first year separated by semesters. Also, detail information about contract packages and consulting assignments following international and national shopping.

### 3.5.4 Use of Financial Monitoring Reports (FMR)

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 Executing Agency will submit semi-annual reports that document project progress to the IABIN Council and to the World Bank. These FMR will be summaries of progress reports compiled by the IABIN Secretariat and financial reports from the OAS.

The first FMR will be furnished to the Bank not later than 45 days after the end of the first calendar semester after the project's effective date, covering the period from the incurrence of the first expenditure under the project through the end of such first calendar semester; thereafter, each FMR shall be furnished to the Bank not later than 45 days after each subsequent calendar semester, and shall cover such calendar semester.

FMR will include the following items:

- Sources and uses of funds for each semester and cumulative including a forecast for the next six months. The format will reflect the receipts and payments, and the net available cash.
- Uses of funds by project component, subcomponent, and expenditure category based on the project cost description approved for the operation.
- Physical progress report for each semester, 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.
- Status of procurement under the Project.
- A subsidiary ledger to allow the identification of all the receipts and expenditures related to the project, including the accounting bank account.
- A yearly statement of changes in fund balance of the project, certified by the Treasurer of the OAS, 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.

Annex 14 shows FMR templates approved by the World Bank Financial Management Specialist.

### 3.5.5 Counterpart Funding

Cofinancing of \$28.9 million dollars from seventy-eight regional or national institutions and programs has been identified (see Annex 8). This amount of cofinancing is well in excess of the suggested amount of cofinancing (2:1) that was originally proposed by the GEF. Consistent with GEF guidelines, much of the cofinancing represents parallel cofinancing 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 cofinancing is not indispensable for the implementation of critical project activities.

In contrast, we have identified “core” cofinancing that is considered essential to implement certain critical parts of the project. These include the following:

- Cofinancing (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;
- Cofinancing (at least 2:1) from the institutions that will be under contract to develop new information tools in Component 3;
- Cofinancing from the City of Knowledge in Panama for the costs of the Secretariat (Component 4);
- Cofinancing 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
- Cofinancing from the OAS as a contribution to the management and administration of IABIN (Component 5).

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

	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Total
<b>GEF Financing</b>	<b>1.72</b>	<b>2.47</b>	<b>0.50</b>	<b>0.91</b>	<b>0.40</b>	<b>6.00</b>
<b>Co-financing Assured by Agreement</b>						
Coordinating Institutions (CI)	2.96		1.00			3.96
Secretariat				0.25		0.25
Grants		2.22				2.22
US Government	1.50	3.25	0.7	0.9		6.35
OAS					1.00	1.00
<b>Total Assured co-financing</b>	<b>4.46</b>	<b>5.47</b>	<b>1.70</b>	<b>1.15</b>	<b>1.00</b>	<b>13.78</b>

The OAS will be responsible for tracking cofinancing, 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 finalized before project implementation setting value benchmarks for various types of cofinancing such as personnel, physical infrastructure, and connectivity. Such forms will facilitate the tracking of cofinancing by project components.

The core cofinancing is substantiated by various instruments, which will also facilitate its tracking:

- Cofinancing of Coordinating Institutions and from institutions receiving grants (Eligible Institutions) will be documented in contractual agreements.
- The cofinancing from the USGS is documented in a signed letter of support. It does not represent a legal contract 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 type of support is evidenced in letters of commitment and support received from other leading informatics institutions.

- The cofinancing 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, 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. OAS is the diplomatic host of IABIN and their long-term commitment to IABIN is very firm.

The in-kind values that the Coordinating Institutions and the Eligible Institutions will provide to the Project will be assessed initially in the proposals that such institutions will submit as part of the process to compete for contracts and/or grants. Requests for Proposals (RFP) will clearly stipulate that proposals must include in detail the cofinancing that the institutions will provide for the activity under each of the given categories, and that under a signed agreement with the OAS, institutions will commit to maintain adequate records and accounts, report at least every six months their cofinancing values via the established mechanism, and make available such documentation to the OAS, and any other information that the Organization may request in order to comply with its obligations under article IV of the GEF Grant Agreement.

The real cofinancing values will be obtained from the institutions via an Internet questionnaire that all institutions will commit to fill out at least every six months. Once the screens are published in the Project Website, and the institutions fill out the information, the answers will arrive to the OAS and or IABIN Secretariat via e-mail (not directly to a database due to security reasons). OAS will be responsible for making an assessment of the cofinancing values provided by the institutions. For this purpose an initial list of benchmark values or methodology to assign a value for the different possible cofinancing categories has been designed. This list will increase as necessary, consistent with the information provided by the participating institutions. OAS will register the cofinancing values in an access database designed specifically for the project. The database will include a defined cost center for each country and separate accounts for each participating institution, separating cofinancing by component. The structure of the database has been designed as to facilitate the reporting of counterpart funding by country, institution, and project components.

Specific methods for tracking cofinancing are under discussion and will be submitted as a separate annex to this document.

The OAS will request the assistance of the IABIN Focal Points in contacting the representatives of institutions in their countries responsible for providing cofinancing values.

A simple guide on how to fill out the questionnaire will be designed before project implementation. IABIN Focal Points will receive via e-mail the list of participating institutions and their contact information, along with the guide for information. Participating institutions will be clearly informed on how to fill out the questionnaire and the type of information that must be provided at the signing of the agreement and will also receive a guide for reference.

### **3.5.6 Auditing 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.

### **3.5.7 Reporting to Donors**

Not later than November 30 of each year of Project implementation, starting in the year 2004, the OAS will prepare and furnish to the Bank an annual work program, acceptable to the Bank, containing the Project activities to be carried out during the calendar year following the date of presentation of said program to the Bank, and a timetable for the completion of Project activities during the year in question.

As established in the Grant Agreement, in assistance of the IABIN Secretariat and the Coordinating Institutions, the OAS will furnish to the Bank not later than 45 days after the end of the first calendar semester after the Effective Date, and after each subsequent calendar semester, a report integrating the results of the monitoring and evaluation of the Project activities performed, the progress achieved, and setting out the measures recommended to ensure the efficient carrying out of the Project and the achievement of the objectives thereof during the following six-month period.

These reports will be integrated with the FMR mentioned in section 3.5.4, and used as reporting tools to the GEF as well as all participating countries.



**Annex 1 - Project Design Summary**

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



<b>Hierarchy of Objectives</b>	<b>Key Performance Indicators</b>	<b>Data Collection Strategy</b>	<b>Critical Assumptions</b>
<b>Sector-related CAS Goal:</b>	<b>Sector Indicators:</b>	<b>Sector/ country reports:</b>	<b>(from Goal to Bank Mission)</b>
To develop enabling frameworks for sustainable environmental management	- 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.	- National reports - Independent evaluation	
<b>GEF Operational Program:</b>	<b>Outcome / Impact Indicators:</b>		
To create an enabling environment for conservation and sustainable use of biodiversity in the Americas	- 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)	- National Reports - CBD Analyzer - Governmental reports - External evaluation	- Effective management of biodiversity information is a significant factor in sustainable development
	- Majority of major internationally funded projects involving use and conservation of biodiversity, starting in Year 4, using the above mechanisms in project design	- Development Gateway listings of projects - CBD Analyzer - Independent assessments	
<b>Global Objective:</b>	<b>Outcome / Impact Indicators:</b>	<b>Project reports:</b>	<b>(from Objective to Goal)</b>
To develop an Internet-based, decentralized network to provide access to biodiversity information currently existing in individual institutions and agencies in the Americas	- 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)	- Project reports by the Secretariat - TN reports - Survey with selected participating institutions/ users - User feedback (web forms)	- Decisions concerning conservation and sustainable use of biodiversity are significantly influenced by availability of good information
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	- Starting in Year 3, IABIN-developed or IABIN-supported information management tools being downloaded and demonstrably used in decision making		



Output from each Component:	Output Indicators:	Project reports:	(from Outputs to Objective)
<p><b>Component 1: Interoperability and access to data</b></p> <p>1.1 IABIN Catalog                      1.2 Species Thematic Network                      1.3 Specimens Thematic Network                      1.4 Ecosystems Thematic Network                      1.5 Invasive Thematic Network                      1.6 Pollinators Thematic Network                      1.7 Protected Areas Thematic Network</p>	<p>1.1                      - 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</p> <p>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</p>	<p>- Project reports by the IABIN Secretariat                      - Indicator monitoring system                      - Web statistics                      - Surveys to IABIN Focal Points</p>	<p>- Key catalog partnership with USGS maintained                      - Data providers willing to provide adequate metadata to the Catalog.                      - Sufficient coordination can be assured between TNs to allow development of interoperability between them</p>
<p><b>Component 2: Data content creation</b></p> <p>2.1 Data content creation                      2.2 Technical training</p>	<p>- 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</p>	<p>- Indicator monitoring system                      - Data Content Manager's report                      - Analysis of Catalog content                      - Surveys with IABIN FPs</p>	<p>- 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</p>



	particular addressing known data gaps) - At least 100 people trained per year		
<b>Component 3: Information tools for decision-making</b> 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
<b>Component 4: Sustainability of IABIN</b> 4.1 Project Coordination  4.2 Partnerships and Communications	- 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) - Collaborative agreements established with at least two international initiatives and/or networks each year - IABIN Council Meetings and/or IEC meetings held every year - 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 - Key partnerships with GBIF and CHM can be further strengthened
<b>Component 5: Project administration</b> 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 (PSRs)	- The IEC is able to provide effective oversight of the Executing Agency
<b>Project Components / Sub-components:</b>	<b>Inputs: (budget for each component)</b>	<b>Project reports:</b>	<b>(from Components to Outputs)</b>
<b>Component 1</b> 1.1 IABIN Catalog 1.2 Species Thematic Network	US\$ 1.72 million	- Disbursements and audit reports	- Implementation of interoperability standards and prototypes is feasible



1.3 Specimens Thematic Network 1.4 Ecosystems Thematic Network 1.5 Invasive Thematic Network 1.6 Pollinators Thematic Network 1.7 Protected Areas Thematic Network			
<b>Component 2</b> 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
<b>Component 3</b> 3.1 Information tools for decision-making	US\$ 0.50 million	- Disbursements and audit reports	- Multi-sectoral nature does not impede implementation because of lagging standards implementation in non-biological sectors
<b>Component 4</b> 4.1 Project Coordination 4.2 Partnerships and Communications	US\$ 0.91 million	- Disbursements and audit reports	- Financial sustainability does not prove elusive.
<b>Component 5</b> 5.1 Project Administration	US\$ 0.40 million	- Disbursements and audit reports	



## **Annex 2 - OAS/CIDI/CIDS RESOLUTION**

Resolution passed at the OAS General Assembly in Bridgetown, Barbados, on June 2002.

### **Organization of American States CIDI/Inter-American Committee on Sustainable Development (CIDS)/RES. 5 (III-O/02)**

#### **Inter-American Biodiversity Information Network**

THE INTER-AMERICAN COUNCIL FOR INTEGRAL DEVELOPMENT,

RECALLING Initiative 31 of the Plan of Action of the Summit of the Americas on Sustainable Development, which called on the governments of the Hemisphere to take actions to establish an Inter-American Biodiversity Information Network (IABIN);

RECALLING that IABIN was 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 2001 Québec Presidential Summit Plan of Action.

*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;*

RECOGNIZING that the project Building the Inter-American Biodiversity Information Network (IABIN) has been approved by the Global Environment Facility (GEF) Council for a project preparation grant in collaboration with the Clearing-House Mechanism (CHM) under the Convention for Biological Diversity (CBD) to improve the enabling environment for biodiversity conservation and sustainable use in the Americas, to provide the infrastructure and biodiversity information content required by the countries of the Americas, and to facilitate better decision-making;

NOTING the action plan prepared at the IABIN Council meeting of January 14-15 2002 in Miami;

RESOLVES:

1. To support, in accordance with the funds allocated in the program-budget and other resources, IABIN's work to promote access to and exchange of biodiversity information and technology.
2. To request the General Secretariat of the OAS to continue to give the necessary support for the operation of the IABIN.



3. To request the General Secretariat of the OAS through its sectoral unit USDE to support the countries by lending technical assistance and expertise when solicited and to support countries in preparing projects on transboundary and ecological corridor biodiversity projects.
4. To encourage the General Secretariat of the OAS, the IDB and the World Bank to give all possible support to the implementation of IABIN within the resources available and to request that the Unit for Sustainable Development and the Environment (USDE) enhance efforts to raise funds in support of IABIN.
5. To request that the OAS/USDE regularly inform the permanent missions of the member states to the Organization regarding the activities of IABIN.
6. To assist IABIN, through the IABIN focal points, in preparing its work program.



**Annex 3 - RESPONSIBILITY MATRIX FOR THE EXECUTING AGENCY, SECRETARIAT, IABIN FOCAL POINTS, COORDINATING INSTITUTIONS, AND DATA PROVIDING INSTITUTIONS**

Responsibility Matrix -- C=Coordinates EX=Executes	Executing Agency	Secretariat	IABIN Focal Points	CI	Data Providing Institutions
<b>1. Interoperability and Access to Data,</b>					
Supervise the operation of the basic network infrastructure: IABIN Catalog Service and Thematic Networks		c		ex	
Facilitate the development of the network (e.g., assess capacity, identify areas for restructuring or investment, seek support)		c	ex		
Develop the basic infrastructure necessary to operate the IABIN Catalog and the TNs				c	
Operate and maintain the IABIN Catalog and the TNs				c	
Manage data on the status and availability of the network's capacity		ex			
Provide network and user support, possibly including a help desk		ex			
Seek agreements on the use of standards and protocols to ensure compatibility of diverse data sources within the region		c	ex	ex	
Implement policies for the use of information (Intellectual property rights and code of ethics on access and data sharing)		ex	ex		ex
Monitoring the needs of the user community		ex	ex		
Develop a biodiversity informatics directory in conjunction with CHM, academic institutions and other partners that documents each institution's functionality, interoperability, and content		ex	ex		



Create the Expert Committees for the Catalog Services and Thematic Networks		ex			
<b>2. Data Content Creation</b>					
Develop and adapt tools for data content creation				ex	
Development of training packages				ex	
Quality control and validation of information		c	ex	ex	ex
Carry out or coordinate training				ex	
Digitization of biodiversity data		c	c	c	ex
Determine data content creation priorities		c	ex	c	x
Data Hosting		c		c	ex
Submit proposals for data creation and participation in training					ex
<b>3. Tools for Decision Makers</b>					
Identify the specific needs for value-added Tools		c	ex		
Provide visualization and data integration tools to improve the usability of data in the decision making process		c			
<b>4. Sustainability of IABIN</b>					
Seek sources of funding for the operation of the Secretariat and other activities (e.g., IABIN Council meetings)		ex			



Manage the 501 c 3 US		c			
Support the IABIN Council, Executive Committee, ad hoc working groups, and particularly National Focal Points		ex			
Promote cooperation amongst the network's partners through meetings, workshops, newsletters, etc		ex	ex		
Facilitate understanding of and commitment to the network's goals (e.g., issues being addressed, users to be served)		ex	ex		
Preparation of strategic plans for product development and services		ex			
Liaison to Development Gateway		ex			
Target better information access to indigenous peoples		c	c		
Implementation of strategic plans (e.g., through formation of multi-partner teams)	c	ex			
Facilitate access to data (e.g., through custodianship, data access agreements, Memoranda of Understanding, implementation of standards)		c	c		
Brief the network's partners on new opportunities, plans and progress (e.g. newsletters, email)		ex	ex		
Handle inquiries about the network's activities, referring to individual partners as appropriate	c	ex			
Maintain copies of the network's products and services for distribution to users		ex			
Consolidate IABIN partners throughout the Hemisphere and coordinate with other regional biodiversity networks, GBIF and CHM.		ex			



Maintain the IABIN Gateway		ex			
<b>5. Administration</b>					
Development of TORs for consultants and requests for proposals	ex	c			
Coordinate evaluation of proposals and consultants	ex	c			
Working on contract, procurement, disbursements, and audits, etc.	ex				
Be responsible for compliance with Bank procurement and disbursement procedures.	ex				
Financial Monitoring Reports (FMR)	ex				
Reporting to donors	ex	c			
Prepare semester inputs for IEC review	ex	ex			
Monitor and evaluate project effectiveness	ex	ex	ex		

Note: c = Coordination role, ex = Execution role.

## Annex 4 - PROTOCOLS AND STANDARDS FOR IABIN

The goal of the IABIN Gateway is to provide tools for searching of electronic data originating from heterogeneous sources located throughout the region, at the same time, to conceal (from the user's perspective) variations in data format and technologies used by the network participants. To achieve interoperability between the disparate systems and technologies that are used by network participants and data providers, contributors to the network must adhere to a minimum set of data standards and communication protocols that allow the systems, connected via the Internet, to "talk to each other".

This annex provides a basic set of data standards and communications protocols that will provide connectivity and interoperability within the IABIN network. These standards and protocols provide biological information consumers the capability to query multiple, distributed data sources from a single user interface and provide access to network holdings, including data and information, as well as those of other agencies regardless of its location within the IABIN network.

The standards presented herein are an initial set, and IABIN's protocols and standards will always be subject to evolution and constant review. Some of the information presented within this section has been taken from sources cited in Section A7.13.

### Guiding Principles

IABIN has adopted 11 guiding principles for interoperability formats, standards and protocols:

1. Seamless access to all types of IABIN data and information regardless of where it resides and interoperable with both CBD-CHM and GBIF;
2. Open, widely supported, non-proprietary standards;
3. Compatibility with emerging standards of key regional, global and national biological information networks;
4. Minimization of technology restrictions imposed by the network architecture;
5. Phased, incremental development;
6. Scalability, so that standards will be usable and applicable at different network scales;
7. Inclusion (e.g. facilitate local-language queries) in the design of applications;
8. Expertise and capabilities are shared throughout the network;
9. Respect for Intellectual Property Rights and cross boundary issues;
10. Future extensibility and backward compatibility;
11. Minimization of cost while ensuring reliable user services.

### System Architectures



System architectures define the structure and configuration of the computer networks that are needed to deliver data originating with data providers and network participants located throughout the hemisphere. The IABIN network is envisioned as a distributed system in which IABIN partners play a key role in the development and maintenance of the network, while IABIN plays the role of facilitator and architect. In most cases, data providers will store and maintain source data, and be responsible for releasing only data that they acknowledge will be offered freely throughout the network. In addition, IABIN's data retrieval services will be provided through a series of networks, each implemented to support a specific area of interest or theme (e.g. Invasive Species, Biological Collections, etc.).

System architectures adopted by IABIN will be based on flexible, widely supported software standards in web-based software development, and have an inherent capability to support the requirements for a distributed system. IABIN system architectures will be applied to the IABIN Gateway and to the design of Project Networks accessed by the Gateway. The intent is to minimize the number of technology restrictions that are imposed on data providers while establishing a limited number of standards that ensure interoperability. For example, users and participants of the IABIN network should have the freedom to choose operating systems, database management systems, web servers and programming tools according to local conditions. To supply data to the network, data providers will be required to implement system interfaces developed to specifications defined by the IABIN network architecture. Given the collaborative nature of the IABIN networks, architectures used by IABIN must support component-based software development methodologies that will allow geographically dispersed groups to independently develop system components according to standards documented by the architecture, and using locally supported software tools.

Given the system architectures options available, IABIN endorses the *Web Services* network architecture. The Web Services model is currently the architecture of choice for implementation of broad, distributed networks like IABIN. This architecture offers the greatest degree of technological separation between different data providers because all communications between systems are based on XML document interchanges. This model is being rapidly adopted as a standard within the e-Business and e-Commerce communities, but also within the biological informatics community. As an example, GBIF has adopted this architecture to support its global network. More information on the Web Services architecture is available at [www.w3c.org](http://www.w3c.org).

IABIN will also support Z39.50 based network architectures. This is due primarily to the broad utilization of this technology in existing networks, including the Species Analyst project and the FGDC Metadata Clearinghouse that contains relevant IABIN information. In general, the biodiversity community is moving away from Z39.50 in favor of more open, XML based architectures. It is expected that continuing activities to integrate XML with the Z39.50 data retrieval standard may provide the means to more easily migrate existing Z39.50 networks into the Web Services model. IABIN will provide support for Z39.50 based models, but will encourage its partners to implement the more open and flexible XML-based Web Services model.



### Data Transport

As the underlying technologies of the Internet, data transport on the IABIN network will be standardized on the TCP/IP and HTTP protocols.

### Presentation Language

The IABIN network will deliver web page content to users within standard web browser software using HTML 4 as a presentation language.

### Data Encoding

The eXtensible Markup Language (XML) provides a clear direction for improved interoperability, and is the foundation for data transfer within the Web Services architecture. XML is a computer platform independent language for exchanging and validating data between heterogeneous systems. The Web Services model uses XML extensively to describe data structures in a form that can be freely exchanged between different platforms and to describe computer interfaces and networks. XML and other technologies in the XML family are well supported in most mainstream software development tools and have a proven track record in mainstream cross-platform system applications. More information on XML can be obtained at [www.w3c.org](http://www.w3c.org).

IABIN will adopt XML as its standard for data encoding and sharing.

### System Access Protocols

System access protocols are used to develop interfaces between systems that exchange data, instructions, requests or responses. The Simple Object Access Protocol (SOAP) is an open standard with wide acceptance in the software development community that is designed for exchange of information in a decentralized, distributed environment and is ideal for exchanging messages between different computer systems. SOAP is XML-based. More information on SOAP is available at [www.w3c.org](http://www.w3c.org).

DiGIR (Distributed Generic Information Retrieval) is an access protocol initiative adopted by the TDWG/CODATA Biological Collections Data Subgroup, GBIF and NBII, and is managed as an open-source project (<http://digir.sourceforge.net>). DiGIR, designed to be a successor to the z39.50 based protocols used in Species Analyst and other projects in the biodiversity community, uses XML documents to define and handle federated search requests based on any chosen data exchange schema. It is in use today by projects such as the MaNIS (Mammal Networked Information System, <http://elib.cs.berkeley.edu/manis/>) in conjunction with the Darwin Core (specimen collections) metadata format (see Section 3.7 below). Although its roots are in biological informatics, the DiGIR protocol can be used with other data formats to develop networks for other applications.

IABIN will support both SOAP and DiGIR for its distributed networks. SOAP is expected to continue achieving broad acceptance within the general software development community. DiGIR is expected to develop a significant following within the biological informatics community and may provide advantages for biological applications. GBIF is supporting both

protocols for the development of its global network. It is also anticipated that several relevant museum collections of interest to IABIN and the Species Analyst will be migrated to DiGIR standards and protocols. As a result, the data available within these projects can be integrated into the IABIN network through the adoption and application of these protocols.

### System Interface Descriptions

Before an external system can utilize a web service, it requires information on how to access and communicate with the service. Web Services Definition Language (WSDL) addresses this need by defining an XML grammar for describing network services as collections of communication endpoints capable of exchanging messages. WSDL allows Web Service interface descriptions to be stored as XML documents for distributed systems and serve as a recipe for automating the details involved in applications communication. Tools or systems can access the XML documents and subsequently understand how to access and utilize the service.

GBIF supports WSDL for web service interface descriptions, and IABIN will adopt it as a standard.

### Registry Services

Registry Services provide a central point to allow users to locate web service providers. Universal Description, Discovery and Integration (UDDI) is one of the more widely accepted Registry Services and is supported by a broad array of software development tools. UDDI creates a standard interoperable platform that enables users and applications to quickly, easily, and dynamically find and use Web services over the Internet. More information on UDDI is available at [www.uddi.org](http://www.uddi.org).

IABIN, like GBIF, supports UDDI for Registry Services. Specifics as to who will operate the registry, how will the registry be maintained, what roles will IABIN countries fulfill with respect to the registry will all be defined in further IABIN architecture implementation documents.

### Information Standards & Metadata Formats

The following are metadata formats adopted as IABIN standards:

#### Bibliographic Data

- **Dublin Core:** Dublin Core is a standard that defines a basic set of metadata elements that may be used to describe resources. A majority of the time, Dublin Core is used to describe digital resources. These resources can include web sites, databases, publications, images, etc. Dublin Core catalogs a resource by applying 15 elements (i.e. Title, Author, Description, etc.) to a resource to aid in the discovery and retrieval of information. For more information see <http://www.dublincore.org>.

#### Specimen Collections and Observations

- **Darwin Core:** The Darwin Core (DwC) is a metadata profile describing the minimum set of standards for search and retrieval of natural history collections and observation databases. It includes only the core data elements that are likely to be available for the vast majority of

specimen and observation records. This standard is utilized within both the Species Analyst and REMIB networks, among others. DwC is also a GBIF approved data standard for specimen collections and observations data. More information on Darwin Core is available at: [http://tsadev.speciesanalyst.net/DarwinCore/darwin\\_core.asp](http://tsadev.speciesanalyst.net/DarwinCore/darwin_core.asp)

- **ABCD Schema:** The Access to Biological Collections Data (ABCD) Schema is the product of a joint TDWG and CODATA initiative to develop a standard for distributed data retrieval from specimen collection databases. The schema supports data exchange for all kingdoms, and for both specimen and observation records. The ABCD Schema is a GBIF approved data standard that incorporates DwC elements. More information on ABCD Schema is available at:  
<http://bgbm3.bgbm.fu-berlin.de/TDWG/CODATA/Schema/default.htm>

#### Spatial Data

- **CSDGM (ISO 19115):** The Content Standard for Digital Geospatial Metadata (CSDGM) was developed by the Federal Geographic Data Committee (FDGC) to provide a common set of terminology and definitions for the documentation of digital geospatial data. The standard was developed by the Federal Geographic Data Committee, an agency in the United States representing a 19 member interagency committee composed of representatives from the Executive Office of the President, Cabinet-level and independent agencies. The FGDC has developed the National Spatial Data Infrastructure (NSDI) in cooperation with organizations from State, local and tribal governments, the academic community, and the private sector. The NSDI encompasses policies, standards, and procedures for organizations to cooperatively produce and share geographic data. Several “profiles” have been developed to support domains applying geographic data. The FDGC standard is utilized extensively throughout the Western Hemisphere with enhancements to support local terminology. More information is available at [www.fgdc.gov](http://www.fgdc.gov).

#### General Biological Resources

- **CSDGM with Bio Profile (NBII):** The purpose of this standard is to provide a user-defined or theme-specific profile of the FGDC Content Standard for Digital Geospatial Metadata to increase its utility for documenting biological resources data and information. Included in this standard, is the ability to fully document associated species level information within a particular dataset, study area, or geographic region. This standard supports increased access to and use of biological data among users on a national (and international) basis. It also helps to broaden the understanding and implementation of the FGDC metadata content standard within the biological resources community. This standard also serves as the metadata content standard for the National Biological Information Infrastructure (NBII) and the IABIN catalogue services related to “datasets”. More information on this metadata standard is available at: [metadata.nbii.gov](http://metadata.nbii.gov).

#### Taxonomic Nomenclature and Standards

- ***CSDGM with Bio Profile (NBII)***: The purpose of this standard is to provide a user-defined or theme-specific profile of the FGDC Content Standard for Digital Geospatial Metadata to increase its utility for documenting biological resources data and information. Included in this standard, is the ability to fully document associated species level information within a particular dataset, study area, or geographic region. This standard supports increased access to and use of biological data among users on a national (and international) basis. It also helps to broaden the understanding and implementation of the FGDC metadata content standard within the biological resources community. This standard also serves as the metadata content standard for the National Biological Information Infrastructure (NBII) and the IABIN catalogue services related to “datasets”. More information on this metadata standard is available at: [metadata.nbii.gov](http://metadata.nbii.gov).

#### Other Data Themes

- It is recognized that specific metadata standards will be required for other biological themes supported by IABIN (e.g., species, protected areas, neotropical flora, etc.). For many of these themes, predominant or emerging standards do not exist. As one of its primary functions IABIN will facilitate the development of new standards or adoption of existing standards (e.g. standards adopted by TDWG, [www.tdwg.org](http://www.tdwg.org)) through consensus building processes that involve the major players within the theme of interest. The first step in this process is to have the IABIN stakeholders identify the priority themes of interest and pertinent players.

#### Geoprocessing

It is recommended that IABIN adopt the emerging standards for geoprocessing from the Open GIS Consortium (OGC). OGC is an international industry consortium of 258 companies, government agencies and universities participating in a consensus process to develop publicly available geoprocessing specifications. Open interfaces and protocols defined by OpenGIS® Specifications support interoperable solutions that "geo-enable" the Web, wireless and location-based services, and mainstream Information Technology, and empower technology developers to make complex spatial information and services accessible and useful with all kinds of applications. Several efforts, including the NBII, are applying OpenGIS® standards and protocols to aid in interoperability of web-mapping applications throughout a distributed network.

#### Document Formats

Documents exist in multiple formats throughout the world. To the exchange of information between IABIN partners and organizations, it is recommended that the network endorse non-proprietary document formats. However, document exchange between individual IABIN countries may still consist of sharing information within its native format (i.e. MS Word, PDF, etc.). Therefore, when appropriate, IABIN will support both making availability the original document format and a non-proprietary format such as HTML or ASCII text.

#### Network Security



An important component of the network is the capability to limit access to certain data sets and information for a period of time or to those that are not available to all network consumers. In cases where data and information are considered sensitive, and may be available only to specific and limited audiences, the IABIN architecture will facilitate secured access to that data by only those approved by the owners and maintainers of the data. All IABIN servers will maintain proper security updates, patches, backups, and policies to insure that the IABIN network is fully functional.

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## Annex 5 - BIODIVERSITY IN THE AMERICAS

### Biodiversity in the Americas

“There will be winners, and there will be losers among nations as the world moves into the next century. The next century will be the ‘Age of Biology’, just as this one has been an age of physics and astronomy. Specifically, those countries who best know how to correlate, analyze, and communicate biological information will be in the leading position to achieve economic and scientific advances.”

*Professor Sir Robert May*, Chief Scientist of the UK, The Australian Academy of Science Conference on Biological Informatics, July 6-8, 1998.

### Bridging the Digital Divide through better access to biodiversity information

In the Americas Hemisphere, there has long been an "*information gradient*" that runs North to South that has prevented the equitable repatriation of data largely collected in the megabiodiversity countries of the neotropics. However, with the ascendancy of the World Wide Web, while a layer of technological complexity and cost has been added to the international information regime, information can be cheaply and efficiently transferred and repatriated. Investment that leads to improved biodiversity information on the internet is cost-effective, empowering improved decision-making at the local level, promoting ownership. Making high quality baseline and observed data available to low-income nations can help them make informed decisions that conserve their landscape ecology and endangered species. Biodiversity informatics as a contribution to bridging the digital divide through repatriation of data provides the cornerstone of conservation, as reflected in the “triple bottom line of the Convention on Biological Diversity (preservation of biodiversity, sustainable use of biodiversity and equitable distribution of benefits), and the “Benefits Beyond Boundaries” theme of the fifth World Parks Congress (Durban, 2003).

In 2003, the IABIN (Inter American Biodiversity Network) with support from the Global Environment Facility, the World Bank, and the OAS completed 7 subregional reports that analyzed the users and providers of biodiversity information. These reports highlighted that information has increasingly been treated as a commodity subject to new proprietary restrictions such as intellectual property rights. Referred to as the "second enclosure" movement (Boyle, 2003)<sup>2</sup>, even conservation NGOs are hesitant to make their data and information freely available given intense fundraising competition. Nevertheless, Moritz (2003)<sup>3</sup> asserts that "intellectual property rights" are incompatible with free, equitable and universal access to essential information and therefore data for all members of the biodiversity international community

<sup>2</sup> Boyle, James. The second enclosure movement and the construction of the public domain. <<http://www.law.duke.edu/pd/papers/boyle.pdf>>.

<sup>3</sup> [Thomas Moritz](#), T. 2002. Building the Biodiversity Commons. D-Lib Magazine. June 2002 Volume 8 Number 6

should remain in the open access domain. Moritz (2003) recommends the creation of a *Biodiversity Information Commons* that evaluates relevant data and is consistent with the Convention on Biological Diversity and World Intellectual Property Organization. The Commons would lay the guidelines for a traditional “fair use” equilibrium while building on the capacity of the new digital technology to distribute biodiversity data, information and knowledge globally for non-commercial research, education and conservation application. With respect to bio-medical information, recent developments demonstrate that civil society is fully prepared, for the public good, to make essential information universally and freely available (see for example: <http://www.publiclibraryofscience.org/>; <http://www.pubmedcentral.nih.gov/>; <http://www.biomedcentral.com/info/> ; <http://freemedicaljournals.com/> ).

IABIN is envisioned as a distributed system in which the 34 countries of the Americas Hemisphere play a key role in the development and maintenance of a biodiversity informatics network, while IABIN plays the role of facilitator. IABIN is working to create an Internet portal, implemented through [www.iabin.net](http://www.iabin.net) that will be 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. Through the use of standards, it will provide ready access to information throughout the region stored in: relational databases, different types of documents, images, mapping products and other data sources. The portal will serve as a centralized online biodiversity resource directory for the Americas and a coordination center for IABIN partners and users.

#### The IABIN Framework.

IABIN, conceived in 1996 at the Bolivian Presidential Summit on Sustainable Development, took note that:

- The Americas has five of the top ten biodiversity countries;
- The biodiversity informatics domain, despite its complexity, has significant potential to improve cost effective decision-making.
- There is an urgent need to form partnerships and standardize protocols in order to increase interoperability and access to critical information because at present biodiversity and ecosystems information is neither readily accessible nor fully useful.
- The hemispheric approach to problem solving presents efficiencies allowing rapid dispersal of technologies and capacity building opportunities by promoting the utilization of local and regional expertise.
- IABIN can and should contribute to building regional cooperation in implementing the Convention on Biological Diversity, assisting eligible countries in fulfilling their obligations under the CBD.

#### The Biodiversity Informatics Audience.

CHM (Clearinghouse Mechanism of the Convention on Biological Diversity), GBIF (Global Biodiversity Information Facility) and IABIN work with their partners to link diverse, high-quality biological databases, regional information nodes, and analytical tools maintained by partners and other contributors in government agencies, academic institutions, non-government



organizations, and private industry. All three also work on new standards, tools, and technologies that make it easier to locate, integrate, and apply biodiversity information.

CHM, GBIF, and IABIN Synergies.

Both CHM and GBIF have a global reach, while IABIN is working towards the implementation in the Americas Hemisphere of the CBD and CHM principles as they pertain to biodiversity informatics. All three support:

- Biodiversity mainstreamed decision making leading to more effective implementation of sustainable development initiatives;
- National, regional and international cooperation and exchange of information and expertise and reduced duplication of related efforts;
- Transfer of technology and capacity building.

Information Technologies to Foster Technical and Scientific Cooperation.

CHM, GBIF, and IABIN have multi-governmental affiliations and utilize national in-country focal points or nodes to disseminate information. With the development of the World Wide Web (WWW) no other technology can reach so many people, in so many different regions, at so low a cost. Web-based technologies offer the CHM and IABIN Focal Points and GBIF Nodes increased opportunity to create interactive systems that are conducive to fostering technical and scientific cooperation. In addition, new web tools offer quick access to gray literature and the ability to form partnerships. For example the IABINfriends listserv, the two IABIN websites, [www.iabin.net](http://www.iabin.net) and [www.iabin-us.org](http://www.iabin-us.org), and the [www.developmentgateway.org/iabin](http://www.developmentgateway.org/iabin) foster collaboration and dialogue to the biodiversity informatics community.

#### **Academic Acknowledgement, Internet Publishing and Web Based Training.**

Most reliable biodiversity information is compiled in universities, research institutes and museums. Such institutions rely on national research funds to maintain their research programs. National research agencies require a steady flow of scientific productivity in recognized scientific publications. Thus, the publication of species lists, biogeographical analyses, and GIS in standard publications is seen as a more attractive option than publishing via the internet but has a long lag period of 2-3 years. Internet publishing is much faster and cheaper. IABIN could make a major contribution to biodiversity science by working with Governments and the OAS to look for ways to give academic credit to web-based published biodiversity information (Suggestion made by STAP Reviewer).

The IABIN Inventory of Users and Providers of Biodiversity Informatics in the Americas.

As part of project preparation, seven subregional specialists contacted 220 biodiversity-related institutions through surveys, telephone conversations, internet searches and personal visits. This survey process gave an overview of the different institutions, networks, and software applications as they pertain to biodiversity data collection and management. In addition to the CBD and GBIF discussed above, IABIN has compiled a list of useful webpages that contain biodiversity data <http://www.iabin.net/Biodiversity.htm> and has completed a Matrix Guide to hyperlinks of Biodiversity Informatics on Terrestrial and Freshwater issues through the WWW in



the Americas: <http://www.iabin.net/PDF/Bioinformatic%20Matrix%20v.1.0.xls> that evaluates which webpages supply different types of data.

Partnerships with NGOs with Global or Regional Databases.

Several NGOs have established field stations in several countries, for example, Conservation International with its Landscape Ecologist, Tropical Ecology, Assessment and Monitoring (TEAM) Initiative, Center for Applied Biodiversity Science and NATURESERVE with Conservation Data Centers established in 11 countries in LAC, 50 US States, and 4 provinces of Canada.

The Nature Conservancy, SIAM (Mesoamerican Environmental Information System), World Wildlife Fund, World Resources Institute, Smithsonian, Red Latinoamericana de Botanica (Brazil) are forging ahead with biodiversity informatics databases. NASA and the Central American Commission on Environment and Development (CCAD) have teamed up to cooperate in using remote sensing technology to map and monitor land cover of the Mesoamerican Biological Corridor (MBC). Other national databases include<sup>4</sup>:

- Belize Biodiversity Information System (BBIS)
- Brazilian Biodiversity Tropical Database (BDT)
- Canadian Biodiversity Information Network (CBIN)
- Colombia -- Humboldt Biological Resources Research Institute
- Costa Rican Instituto Nacional de Biodiversidad (INBio)
- Mexican Commission on Biodiversity (CONABIO)
- World Biodiversity Information Network (REMIB)

Indigenous Peoples Issues.

Indigenous peoples play an important role in the sustainable use of biodiversity. The Hemisphere has a rich cultural diversity, with some 40 million indigenous people making up about 8 percent of the total population. Cultural diversity is closely linked to biodiversity. Article 8(j) of the CBD is concerned with indigenous peoples and in situ conservation. The CBD Clearing House Mechanism works to ensure the participation of indigenous communities, whose unique knowledge are so important.

Indigenous groups today are struggling with the existing systems of intellectual property rights stating that they are inadequate to guarantee equity and protection but also undermine traditional knowledge by allowing private ownership that contrasts with indigenous peoples philosophy that emphasizes collective ownership of knowledge. This is a primary agenda item with the CBD also ironing out directives for access and benefit sharing. IABIN has developed an “Access to Information and Intellectual Property Regulation”

[http://www.iabin.net/PDF/IABIN\\_ipr\\_regulation.pdf](http://www.iabin.net/PDF/IABIN_ipr_regulation.pdf) as it pertains to biodiversity informatics.

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<sup>4</sup> See Stanley D. Blum: An Overview of Biodiversity Informatics. California Academy of Sciences. 2000 [http://www.calacademy.org/research/informatics/sblum/pub/biodiv\\_informatics.html](http://www.calacademy.org/research/informatics/sblum/pub/biodiv_informatics.html)



Governments, non-governmental organizations and academic institutions are currently investing a large amount of money and human resources in efforts to catalogue biodiversity. Strengthening taxonomy is certainly a critical step forward.

**Biodiversity Informatics assists policymakers**

Remedies for some environmental problems will require an understanding of the structure, function, and interactions of ecosystem dynamics. Ecologists are aware that biodiversity-poor landscapes will recover more slowly from floods, droughts or fire; and that they will be less able than biodiversity-rich ones to resist invading species or the spread of emerging diseases.

The challenge to policymakers is to design effective measures to maximize ecosystem services in a sustainable way. Pollination, the production of clean water, and productive fisheries and forests are example. Policies that support sustainable fisheries by focusing on commercially important species and aquaculture often involve the introduction of alien species at a cost to biodiversity. Limiting fishing and banning invasive species are, at times, not viable options – particularly for developing countries.

Tropical forests may be converted to oil palm, requiring clear cutting, or may grow shade coffee that preserves at least part of the forest canopy. Which best sustains humankind generally and the surrounding communities locally are important decisions that policies can encourage through incentives. National parks and protected areas can preserve biodiversity, but not without alternative livelihoods presented to the people that have traditionally used these areas. The fundamental challenge then, of IABIN, is to encourage behavior that promotes information exchange and its use for improved decision making.

**Incentives to promote sharing in biodiversity informatics**

	Environmental	Social	Economic	Other/mixed
Overall	Protection of biodiversity	Knowledge Credibility Visibility Transparency	Avoid duplication of effort—investment, data collection, tool development	Community building (users and providers) that sets common goals  Sustainable development
Data providers	Better science	Getting credit for one’s work Links to society Leadership Access to other information Demand load	Financial “Certification” for fund raising  Leveraging	Decision makers support  Loss of control over data  Bureaucracy/slow down change
Primary data users	Simplifying access to multiple sources		Reduce collection costs (including data repatriation)	



Data integrators			Reduce integration costs Tool sharing	
Educators/ students				
Civil society	Journalists Birders			
Land managers	Data for science-based decision making  Better information of systems managed		Greater likelihood of sustainable use based on knowledge	
Policy makers	CBD/NBSAP implementation	Better access and relationship with data providers  Increased access to info—information overload  Information may lead to criticism		

Status of Biodiversity Informatics in the Americas.

Despite significant efforts mentioned above, there is little information systematized (less than 10% on average of the major collections) and the information is difficult to access. Two checklist examples stand out -- (ITIS and Species 2000) are attempting to engage members of the systematics community to act as compilers and "curators" of taxonomic information on an on-going basis. ITIS is building a centralized database, whereas Species 2000 is creating a federation among distributed and independently managed databases.

As indicated in the subregional reports and confirmed by (Stanley Blum, pers.comm ), taxonomists first want a simple list of appropriate material held by an institution -- i.e., "What do you have that I need to study?" (Finding the relevant material is an initial step in every original taxonomic or biodiversity study.) Beyond that, a taxonomist wants to see everything known about that material -- a complete dump, in readable form. Many researchers then want to get specimen/species/ecosystems data and value added products e.g. pollinators or invasive species data in structured form so they can use their computers to sort, count, and plot distributions. There are a couple of important points to make about the uses of data in structured form. First, these uses treat a museum catalog as a data set, not as a text document or an index for finding specimens. Second, a user with these purposes in mind is not really concerned about data from a particular museum -- he or she wants all the relevant data, from all the different museums. The fact that retrieving all the relevant data will require 10-50 different museums to be queried presents insurmountable odds, particularly to a user with a slower dial-up internet connection.

Some of the biggest challenges facing the systematics community concern collection data. One is getting all collections computerized so that the data are simply accessible in electronic form. To give an example, the New York Botanic Garden has over 7 million specimens. They are attempting to digitize (photograph and give metadata) about 5% of these a year. With additional collections being made each year, this would require over 20 years to get digitized. However, offering the user metadata about this immense collection through a metadata cataloguer could happen quickly – but there is some resistance to such a cataloguer, because it is most effective (quicker for the user) as a centralized database. Major museum and botanic garden collections therefore prefer the Distributed Generic Information Retrieval (DiGIR), that collects information “on the fly”.

Networked Information Retrieval System.

A networked information retrieval system makes all collections accessible from a single interface and will return structured data (not just free text) as an integrated data set (not as n data sets in n different structures). As a separate part of the digitizing effort, each specimen needs to be associated with a geo-referenced locality -- i.e., a collection locality expressed as a latitude-longitude. (Most specimen localities were originally recorded as a textual description.) Progress is being made on networked information retrieval systems but much work remains to be done.

Using botanical records as an example, there is a pervasive tendency for each collection to develop its own collection cataloging application. This trend may be getting stronger as generic data management tools become more accessible and deliver more capability to people with little or no programming background. The issue driving most individuals in their choice of software appears to be control and the assurance of long-term support. Their concerns are commonly expressed in the questions: 1) "Can I make the system do what I want it to?", and 2) "Is the software going to be maintained and updated, or will I be left with an obsolete system?"

The goal of the IABIN portal is to provide tools for searching of electronic data originating from heterogeneous sources located throughout the region, at the same time, to conceal (from the user's perspective) variations in data format and technologies used by the network participants. To achieve interoperability between the disparate systems and technologies that are used by network participants and data providers, contributors to the network must adhere to a minimum set of data standards and communication protocols that allow the systems, connected via the Internet, to “talk to each other”.

As a result, IABIN has tabled a document that provide a basic set of data standards and communications protocols that will provide connectivity and interoperability within the IABIN network. (See <http://www.iabin.net>) These standards and protocols provide biological information consumers the capability to query multiple, distributed data sources from a single user interface and provide access to network holdings, including data and information, as well as those of other agencies regardless of it's location within the IABIN network.

Distributed information retrieval system.

The unmanaged, organic spread of information technology through natural history collections has also resulted in a large degree of heterogeneity among database systems; nearly every

collection database has a different underlying structure even though each collection keeps roughly the same core information. The heterogeneity makes information integration difficult but not impossible, at least on a modest scale. For example, The Species Analyst (TSA) is “distributed information retrieval system” that can query multiple collection databases at the same time and return data in a simple, tabular format. It has been in prototype for 4 years. Fishnet is a "distributed information system" that uses Z39.50 and XML protocols to link together the specimen records of museums and other institutions in a seamless information-retrieval system. Using Fishnet and The Species Analyst (TSA), anyone with access to the Internet can query the databases of Fishnet Partners and obtain a variety of information about the fishes that are in the database. Since all partners are natural history museums, each record is associated with one or more fish specimens. (See Species Analyst - <http://habanero.nhm.ukans.edu> and Fishnet - <http://habanero.nhm.ukans.edu/Fishnet>).

### What role could IABIN play:

IABIN helps to fulfill the objectives of the Convention on Biological Diversity:

- *Article 5. Co-operation* - Each Contracting Party shall ... co-operate with other Contracting Parties ...
- *Article 7. Identification and Monitoring* - Each Contracting Party shall ... identify components of biological diversity, ... monitor the components of biological diversity, ... maintain and organize, by any mechanism data, derived from identification and monitoring activities ...
- *Article 8. In-situ conservation* - Each Contracting Party shall ... develop guidelines for the selection, establishment and management of protected areas ... promote the recovery of threatened species, *inter alia*, through the development and implementation of plans or other management strategies
- *Article 9. Ex-situ conservation* - Each Contracting Party shall ... establish and maintain facilities for *ex-situ* conservation of and research on plants ... adopt measures for the recovery and rehabilitation of threatened species ... regulate and manage collection of biological resources from natural habitats for *ex-situ* conservation purposes ... co-operate ... in the establishment and maintenance of *ex-situ* conservation facilities in developing countries
- *Article 12. Research and Training* - The Contracting Parties shall ... establish and maintain programs for scientific and technical education and training in measures for the identification, conservation and sustainable use of biological diversity ... and provide support for such education and training for the specific needs of developing countries ...
- *Article 17. Exchanges of information* - Each Contracting Party shall ... facilitate the exchange of information ...
- *Article 18. Technical and Scientific Co-operation* - The Contracting Parties shall ... promote international technical and scientific co-operation ... special attention should be given to the development and strengthening of national capabilities, by means of human resources development and institution building ...



IABIN is an efficient method to assist with implementation of the both CBD and GEF Operational Strategy because it coordinates and releases untapped potential building on the existing infrastructure and human resources in the region. GEF funding will act as a stimulant and catalyst to create the critical mass of indigenous expertise needed to reap the potential of existing national commitments and to provide for global benefits. A relatively small investment from GEF and other key partners, adds to the existing national commitments and results in very significant gains.

The IABIN/NBII BioBot Search interface.

The above mentioned justification indicates that there is a great need for a catalogue system that enhances the infrastructure and tools necessary to organize information derived from biological collections and associated biodiversity enterprises into a maximally accessible form to meet the needs of society and science. So a short term goal (2-3 years) then would be to facilitate the metadata dissemination of existing and future collections data and information from the Hemisphere's biodiversity for use by policy makers, environmental managers, the public and the scientific and educational communities. For this reason, IABIN has teamed up with USGS National Biological Information Infrastructure (NBII) to create the IABIN/NBII BioBot Search interface. This interface allows for the seamless access to NBII (and eventually IABIN web content through the IABIN Thematic Networks) including all of the NBII Nodes throughout the country. This includes FGDC Biological Profile based Metadata, currently served via the NBII BioBot interface and published literature citations.

To accomplish this mission, the IABIN/NBII catalogue utilizing BIOBot will:

- Assist institutions with biological collections to compile their metadata with information management solutions, support, and training;
- Build and support tools for managing systematic, biogeographic and ecological databases in a distributed and interoperable environment;
- Assist biological collections with managing technological change;
- Integrate biological collections-based data with other databases, modeling tools and geographic information systems;
- Foster the process of full international access to biological collections information;
- Reduce the technical, political and social barriers to the free interchange of biodiversity information;
- Support initiatives, such as "smart systematics," using technology and information science to improve the efficiency, quality and impact to society of biodiversity science;

Long-term goals will:

- Provide quality information on biodiversity to science educators from K-12 and the university system; and
- Advocate the support of systematics, inventories, and taxon-focused research to assure an institution's ability to generate and maintain accurate specimen-based data.

Demand analysis of the IABIN subregional reports completed in 2003.



The subregional reports summarized the following requirements for IABIN:

- IABIN works best when it unites existing sub-regional networks that represent national networks -- clear example is Central America where SIAM is already in development.
- Projects established have to respond to a real need; not just a scientific effort but responsive to development efforts of participating countries.
- Small countries especially the SIDS have special requirements for capacity building.
- IABIN needs to be country driven and continually endorsed as a national and regional priority by the countries of the hemisphere.
- IABIN should work towards reducing risk from scientific uncertainty by increasing and improving environmental information to support decision making and action.

#### Summary by Subregion.

In the *North America subregion*, a total of 120 biodiversity information projects were identified. Within the list of identified projects, 92 distinct institutions/organizations were identified as primary project supporters. Many of the projects involve large, high quality datasets. North American based projects were also categorized according to their geographic coverage. A total of 13 projects were categorized as Subregional, 68 projects were categorized as National or Local Projects, and a total of 39 projects were categorized as Regional or Extra Regional projects.

In *Central America* a total of 125 biodiversity information providers were identified in the sub-region. In spite of the fact that most of the Central American organizations that participated in this study have an Internet connection, only 21% of them reported having experience in publishing data on the web, and 31% produce metadata, 14 of them using the FGDC standard. Bio-informatics and information systems were considered the priority regarding training necessities. In Central America, the creation of national environmental (and related) data and information networks is considered a priority, and most of the countries in the sub-region are trying to develop national environmental information systems and there are institutions, such as INBIO, who is a leader in the development of biodiversity information systems.

Environmental projects of regional character in Central America are usually coordinated by the CCAD (Comisión Centroamericana de Ambiente y Desarrollo), under the Sistema de Integración CentroAmericano (SICA), which provides the legal and institutional framework to progressively consolidate social and political solidarity in the region. El Sistema de Información Ambiental Mesoamericano (SIAM) was conceptualized by the Mesoamerican Biological Corridor in coordination with UNEP.<sup>5</sup> This distributed regional information system will be based on the infrastructure being developed at the national level by the SINIAs (National Environmental Information Systems) or their equivalent. The SIAM has been formalized, and the SIAM Technical Committee has been formed to oversee its development. The members of the

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<sup>5</sup> (Apoyo al Sistema de Gestión de Información sobre la Biodiversidad, Reporte Final, Vincent J. Abreu, August 2002).

Technical Committee are representatives from each of the national information systems being developed.

SIAM will be a distributed system, in which countries are encouraged to participate by sponsoring the development and maintenance of thematic data networks and a catalog system. The SIAM Technical Committee has identified the following thematic networks as having priority: 1) spatial data, 2) specimens, species, and ecosystems, and 3) environmental indicators. The spatial data thematic network, although of importance to IABIN, is already in development under a NASA/CCAD/World Bank agreement.

In order to avoid duplication of efforts, the Technical Committee established that SIAM should coordinate with IABIN in the implementation of this biodiversity thematic network. Coordination between IABIN and the SIAM/CCAD project is essential for a successful implementation of IABIN in Central America, given the framework that SIAM can provide for the implementation of IABIN in the subregion.

INBio is a leader in Central America in the development of information systems for the capture, administration and dissemination of specimen, species and ecosystems data. INBio is also a Center of Excellence for Outreach and Capacity Building in Central America, as appointed by the CCAD at the request of the ministers of the environment. One of the emphases of INBio's capacity building program is in biodiversity informatics. INBio's resumé also includes:

- Active participation in GBIF, chairing the GBIF scientific sub-committee on Outreach and Capacity Building, and sub chairing the NODES committee in charge of the implementation of the nodes participating in GBIF;
- Participating in REMIB as their largest specimen node;
- Developing an information system (ATTA) in which specimen, species and ecosystem information is captured, managed and disseminated. The information in the case of species and ecosystems is based on the UBI concept (Unidad Básica de Información). This system has been developed with the general user in mind, permitting the search of information by common names, as well as taxonomic names. INBio's information system allows the user to obtain and integrate information from all the three thematic areas (specimen, species and ecosystem).

The *Caribbean subregion* is complex in its natural composition and political aspect. The region in general is considered a hotspot. A total of 122 biodiversity information providers were identified as follows: 72 organizations and projects at the country/territories level, 35 organizations the regional level and 15 at the international level. At the country/territory level, in many cases information providers are government institutions.

In the *Andes region* there are 20 institutions that have contrasting differences in biodiversity informatics capacity and infrastructure. Colombia has a good institutional capacity and technical knowledge. Peru is actively building a participatory system through its National Biological Diversity Information System (SiNIDiB). Bolivia and Ecuador are increasing capacity on

biodiversity information systems. AndinoNET is strengthening curators of natural history collections and field biologists. BIOMAP (Venezuela, Colombia, Ecuador, Peru, Bolivia) promotes a partnership between the Instituto de Ciencias Naturales ICN (National University of Colombia) and Conservation International in compiling ornithological informatics data for Colombia. Missouri Botanical Garden through the MOBOT project (Ecuador, Peru, Bolivia) is also a curator training project. The W<sup>3</sup>Tropicos is a web based searchable database on regional flora. The *Corredor Vilcabamba-Amboro* project, a bi-national ecosystem initiative between Peru and Bolivia led by *Museo de Historia Natural Noel Kempf Mercado (MHN-NKM)* of Santa Cruz, Bolivia. The Darwin Initiative – between Ecuador and Peru also is an ecosystem initiative, is an effort in informing on conservation and sustainable development strategy of the critically threatened Equatorial Dry Forests (or Tumbesian Endemic Region) of SW Ecuador and NW Peru. Its objective is to develop a bi-national (Ecuador and Peru) Clearing House Mechanism based on this ecological region. NATURESERVE supports CDC's in 3 of the 4 countries.

In the Southern Cone, four biodiversity informatics efforts are particularly noteworthy. These are the Parques Nacionales site at [www.parquesnacionales.com.ar](http://www.parquesnacionales.com.ar), the Darwinion Botanical Institute, at [WWW.DARWIN.EDU.AR](http://WWW.DARWIN.EDU.AR), the Museo de Ciencias Naturales “Bernardino Rivadavia” at [www.macn.secyt.gov.ar](http://www.macn.secyt.gov.ar), and the biodiversity information provided by the University of La Plata and Museo at [www.fcnym.unlp.edu.ar/museo](http://www.fcnym.unlp.edu.ar/museo). TROPICOS by the Missouri Botanical Garden, WDB by BirdLife international, MNHL from the Museum of Natural History – London and Van from IATA and CITES are the main international initiatives that affect the Hemisphere. BINs in the region are poorly developed and most of them are very locally developed. Argentina has three important databases at the Museum of Natural History Bernardino Rivadavia, Darwinion Botanical Institution and La Plata Museum.

Key priorities and recommendations of the Hemisphere.

Key priorities based on the subregional reports include:

- **Outline legal and agency policy regarding data exchange:** Many Government agencies have not investigated and clarified their legal obligations and mandates for making mass quantities of information available electronically.
- **Formulate data standards:** Data standards may vary with the intent of each information sharing project. However, some basic guidelines for data standards should be developed to assist information managers in developing protocols and classifying their data.
- **Provide incentive framework for data sharing:** Although the benefits of collaborating on information exchange projects can be tremendous, they are often not highly visible to administrators or the public. Quite often, incentives such as financial, technical, or programmatic support can provide the mechanism to initiate new information exchange projects and leverage additional support from agencies.
- **Stabilize and improve funding:** Long-term financial sustainability of biodiversity informatics has meant that requests from outside networks such as CHM, GBIF, and IABIN for data add additional burdens on agency budgets that are often not met.

- **Recognize biodiversity informatics as a data management profession:** Hybrid informatics professionals evolved from other areas of technical expertise within agencies, such as biologists. With working on data systems, it was emphasized that investments in continuing education and training needed to be made to ensure that data management skills remained up-to-date. When personnel specifically trained in data management are employed by agencies, they are often removed from the program area where they are most needed (i.e., fisheries, wildlife, and so forth) and placed in overarching "IT" divisions serving a variety of customers. Emphasis needs to be placed on integrating these professionals directly with the customers (i.e., divisions) that they serve, and providing pay/promotional opportunities commensurate with skills to retain them within the agencies.
- **Improve agency leadership:** For biodiversity informatics to flourish, there is a need for stronger support for information management/sharing programs by Government administrators.
- **Improve communication between Government and provincial agencies:** Since provinces or states generally do not have mandates for interagency data exchange, requests from outside agencies that do not directly impact the state constituencies are often given lower priority. There is "paranoia about data sharing" that has developed due to lack of communication/understanding about the uses of shared data.
- **Promote activities such as the Towards Best Practices (TBP) eForum** that is a Web-based resource designed for those involved in studying and managing the complex interactions between life forms - including human populations - and the environment. The TBP eForum will be both an **archive** and a **public forum** where users can submit and access full-text publications describing Best Practices related to biocomplexity and conservation and participate in a moderated discussion of the posted Best Practices.
- **Utilize Development Gateway.** Development of the "Biodiversity of the Americas" content on the [Development Gateway Portal](#) is utilized by IABIN with over 70 documents and webpages being shared by dozens of contributors. It is particularly useful for gray unpublished literature where authors want to get feedback from a multi-disciplinary audience. This portal provides simple user interfaces for sharing knowledge, discussing issues, accessing projects and statistical databases, and registering and profiling users.
- **Keep current the Biodiversity informatics Matrix with Databases of the Americas (B-Matrix)** IABIN developed the B-matrix, a digital library-based on biodiversity informatic service. The B-Matrix is a comprehensive compilation of links providing internet-compiled information about biodiversity in the Americas. It contains pertinent current information on terrestrial, inland, and marine ecosystems and related themes. The B-matrix design helps biodiversity informatics users locate taxonomical, biological, ecological, spatial, and environment information.

Strengthening the Role of the CHM and IABIN Focal Points.

The CHM and IABIN National Focal Points are the governmental contacts that are legally responsible for the management and use of biodiversity. These agencies sometimes lack access

to the primary and secondary data sources needed to map and understand biodiversity. The national focal points for Bolivia and Venezuela have requested assistance to mount functional web pages, while several countries webpages offer general but static information (e.g., national list of endangered species). The deficiency of the information management infrastructure within several of the countries is highlighted by an absence of links to the providers of biodiversity information: universities and museums. Instead, one finds links to other governmental agencies (e.g., Ministry of Mines in Ecuador), international organizations that sponsor them (e.g. CHM and IABIN), or international non-governmental organizations and initiatives dealing with biodiversity (e.g., BIONET, Global Taxonomic Initiative, etc.).

Unfortunately, the current dynamic of institutional development does not favor the development of a network of strategic institutions linked by the Internet. Governments tend to spend their scarce resources on national ministries. University budgets have been squeezed by a prolonged economic crisis and their priorities are to provide educational services to a growing populace. Natural history museums, most of which are linked to universities, are in a even more critical situation; although they are the central repository for biodiversity data (as dictated by law), budgetary priorities and tradition have conspired to cause them to focus on the collection and management of specimens, rather than on the utilization and diffusion of biodiversity data.

Coordinating a strategy for implementing common formats.

Usually, common formats refer to a standardized way to organize and present information. Indeed, recommendations for harmonization of national reporting (see: Synthesis of Information Contained in National Reports on the Implementation of the Convention, UNEP/CBD/COP/4/11) recommended the use of common formats so that data and information found in national reports:

- Are complementary (non-overlapping), so that information is provided only once and in one consistent format;
- Serve the needs of more than one Convention;
- Form a subset of national biodiversity information management products (i.e., part of the input to national planning and policy development);
- Are produced in a cycle which suits national requirements and that is in harmony with the reporting cycles of the conventions.

NBII in a leadership role.

A recently released report from the *Performance Institute* titled *Creating a Performance-Based Electronic Government* features the NBII as an example of how citizen-centered E-Government initiatives in federal agencies are employing information technology to enhance the value of information for their users. The NBII is referred to as "the nation's living library," providing reliable scientific information to scientists, planners, educators, policy-, law-, and decision-makers, and the general public. IABIN has prospered from NBII, most notably from the IABIN Invasives Information Network (I3N). Some estimates calculate the costs of invasive species in the United States alone at \$137 billion/year.

The I3N pilot effort was completed in 2002. Inventory of invasive species initiated by seed grants from the U.S. State Department in 11 countries of the Americas continue to bring a variety of benefits to the participants. The I3N pilot project assist these Countries make available, via the Internet, catalogs of invading species names, projects, experts, and relevant data sets documented during the inventory. The catalogs compiled by the participants are available either on the participants' Web sites or on the I3N Project Web site, <[http://www.iabin-us.org/projects/i3n/i3n\\_project.html](http://www.iabin-us.org/projects/i3n/i3n_project.html)> (the Project Web site includes links to participants' Web sites). While the catalogs were the expected products of the project, the final reports from the participants listed a wide variety of additional benefits accruing during the effort. These benefits included the creation of the first listing in the country of species and specialists, to the discovery of possible invasive events, to the increased interest of the country's scientific community in invasive species. Jamaica produced an educational brochure on invasives and El Salvador developed species profiles/fact sheets.

#### Time Bound Quantitative performance indicators

The advancement of biodiversity informatics presents a challenge to those who measure project progress. Clearly the most pertinent indicators pertain to measuring the direct impacts of the project at the level of conservation and sustainable use.

##### Year 1

1. 5 Thematic networks (specimens, species, ecosystems, invasives, and pollinators) established to aid in developing priority work programs (Linking/Interoperability, Digitation of Biodiversity Data, Catalogue of Names of Known Organisms.
2. Prioritization plan developed for IABIN Catalogue and digitization of data.
3. Initial “networking” by Secretariat staff to identify and solidify partnerships in priority work areas.
4. Curricula for biodiversity informatics training developed.

##### Year 2

1. Emerging standards for interoperability.
2. Two additional TNs established in protected areas and migratory birds.
3. Increased Specimen digitization efforts underway.
4. 10% Increase in rate of digitization of biodiversity data.
5. At least 50 biodiversity databases agree to affiliate with IABIN.
6. IABIN catalogue is online and hits increase at 20%/year.
7. Curricula for biodiversity informatics training under implementation.

##### Year 4

1. IABIN assists GBIF in its objective that the Electronic Catalogue of Names of Known Organisms contains 40 percent of all scientific names
2. IABIN users note significant increase in interoperability of biodiversity databases
3. Significant increases in amount of data available via IABIN
4. Biodiversity informatics training curricula evaluated and considered successful



#### Year 5

1. IABIN assists GBIF in its goal that 35% of natural history specimen data digitized and available via the Internet.
2. Internet connections to IABIN available throughout the Americas Hemisphere
3. Distributed biodiversity databases of all kinds (from genomic sequences to ecosystems) are available via IABIN.
4. Increased numbers of Biodiversity databases are analyzed and interoperable.
5. Metadata and number of hits in the IABIN Catalogue continues to grow by 10%.
6. IABIN data bases are utilized by interested parties such as biocontrol, nitrogen fixation, and mitigation of greenhouse gas emissions.
7. New systems track both the biological status of ecosystem services and the measurement of their economic value.

## Annex 6 - ACRONYMS OF INSTITUTIONS CONTACTED THROUGHOUT THE HEMISPHERE

ADEK UvS:	Anton de Kom Universiteit van Suriname
ADRON:	Albert van Dijk Rijst Onderzoekcentrum Nickerie
AMJB:	Asociación Mexicana de Jardines Botánicos
AMNH:	American Museum of Natural History
AndinoNET:	Rama Andina de BIONET
BBG:	Brooklyn Botanic Garden
BCH:	Biosafety Clearing House
BCIS:	Biodiversity Conservation Information System
BdD:	Base de datos
BEST:	Bahamas Environment, Science and Technology
BGCI:	Botanic Gardens Conservation International
BID:	Banco Interamericano de Desarrollo
BIN:	Red de Información sobre Biodiversidad
BIOe:	Corporación de Promoción de la Biodiversidad del Ecuador
BioMap:	Programa BioMap
BIONET:	Red de la Iniciativa Global Taxonómica
Biosis:	Biosciences Information Service
BIS:	Sistema de Información sobre Biodiversidad
BLM:	Bureau of Land Management
BNT:	Bahamas National Trust
BONAP:	Biota of North America Program
C.I.S:	Conservation International Suriname
CAF:	Corporación Andina de Fomento
CalFlora:	University of California, Davis
CaMPAM:	Caribbean Marine Protected Areas Managers
CAN;	Comunidad Andina de Naciones
CANARI:	Caribbean Natural Resources Institute
CARICOM:	Caribbean Community Secretariat
CARINET:	Caribbean Loop for BioNet-International
CARMABI:	Caribbean Management of Biodiversity
CATIE:	Centro Agronómico Tropical de Investigación y Enseñanza
CBCN:	Canadian Botanical Conservation Network
CBD:	Convention on Biological Diversity / Convenio sobre la Diversidad Biológica
CBF:	Colección Boliviana de Fauna
CCA:	Caribbean Conservation Association
CCOSNET:	Caribbean Community Ocean Sciences Network
CDB:	Caribbean Development Bank
CDC	Conservation Data Center
CDC-UNALM:	Centro de Datos para la Conservación - Universidad Nacional Agraria La Molina
CDMP:	Caribbean disaster Mitigation Project
CEC	(North American) Commission on Environmental Cooperation

CEHI:	Caribbean Environmental Health Institute
CELOS-NARENA:	Centrum landbouwkundig Onderzoek
CEP:	Caribbean Environment Programme
CEPNET:	Caribbean Environmental Program Network
CERN:	Caribbean Environmental Reporters' Network
CFCA:	Caribbean Forestry Conservation Association
CGDI:	Canadian Geospatial Data Infrastructure, Geoconnections
CHM:	Clearing House Mechanism del Convenio sobre la Diversidad Biológica
CI:	Conservation International
CIBIMA:	Centro de Investigaciones de Biología Marina (Dominican Republic)
CIDIAT:	Centro Interamericano de Desarrollo e Investigación Ambiental y Territorial
CIESIN:	Center for International Earth Science Information Network
CITES:	Convention on International Trade in Endangered Species
CMI:	Caribbean Meteorological Institute
CMInst:	Conservation Management Institute
CMRC:	Caribbean Marine Research Center
CNTI:	Centro Nacional de Tecnologías de Información
CODATA	Committee on Data for Science and Technology
CONABIO	Comisión nacional para el conocimiento y uso de la biodiversidad
CONAM:	Consejo Nacional del Ambiente
COP:	Colección Ornitológica Phelps
CPACC/RPIU:	Caribbean Planning for Adaptation to Climate Change/Regional Project Implementation Unit
CPACC:	Caribbean Planning for Adaptation to Climate Change
CREP:	Caribbean Regional Environment Program/Programme
CRIA	Centro de Referência em Informação Ambiental
CUMV:	Cornell University Museum of Vertebrates
CVA:	Corredor Vilcabamba-Amboro
CVC:	Corporación del Valle del Cauca
DI:	Iniciativa Darwin
DIREN:	Direction Régionale de l'environnement (French Antilles)
ECLAC/CDCC:	Economic Commission for Latin America and the Caribbean/Caribbean Development and Co-operation Committee
ECOSUR:	El Colegio de la Frontera Sur
EFJ:	Environmental Foundation of Jamaica
EMA:	Environmental Management Authority
EMLUP:	Environmental Monitoring Land Use Planning (Barbados)
ESDU:	Environmental and Sustainable Development Unit
FMNH:	Field Museum Collections Database System
FNA:	Flora of North America
FONACIT:	Fondo Nacional para la Ciencia, la Tecnología y la Innovación
GBIF:	Global Biodiversity Information Facility
GEF	Global Environment Facility
GINRIS:	Guyana Integrated Natural Resources Information System
GIS:	Geographic information system
GISP:	Global Invasive Species Program
GISSAT:	Geographical Information Systems Software and Training
GoTT:	Government of Trinidad and Tobago

GS/OAS	General Secretariat, Organization of American States
GTI:	Global Taxonomy Initiative
GTZ:	Deutsche Gesellschaft für Technische Zusammenarbeit
HMNH:	Harvard Museum of Natural History
IABIN:	Inter-American Biodiversity Information Network
IADB:	Inter-American Development Bank
IAvH:	Instituto de Investigaciones Biológicas Alexander von Humboldt
ICAE:	Instituto de Ciencias Ambientales y Ecológicas (ULA)
ICN:	Instituto de Ciencias Naturales
IFAD:	International Fund for Agricultural Development
IGVSB:	Instituto Geográfico de Venezuela Simón Bolívar
IIAP:	Instituto de Investigaciones de la Amazonía Peruana
INBio	Instituto Nacional de Biodiversidad
INRA:	Institut National de la Recherche Agronomique (French Antilles)
INSAT:	Information Network for Science and Technology
IRF:	Island Resources Foundation
ISIS:	International Species Information System
ITIS:	Integrated Taxonomic Information System
IUCN:	World Conservation Union
IVIC:	Instituto Venezolano de Investigaciones Científicas
JS-CDC:	Jatun Sacha - Centro de Datos para la Conservación
LIAS:	Botanische Staatssammlung München
LPB:	Herbario Nacional de Bolivia
MAAHF-Seed:	Ministerie van Landbouw, Veeteelt en Visserij - Afdeling Zaad Unit
MAB:	Man and the Biosphere Species Databases
MA-DGB:	Ministerio del Ambiente - Dirección General de Biodiversidad de Bolivia
MARN:	Ministerio del Ambiente y de los Recursos Naturales
MCT:	Ministerio de Ciencia y Tecnología
MHNLS:	Museo Historia Natural La Salle
MHN-NKM:	Museo de Historia Natural - Noel Kempf Mercado
MHN-UNMSM:	Museo de Historia Natural - Universidad Nacional Mayor de San Marcos
MHN-URP:	Museo de Historia Natural - Universidad Ricardo Palma
MIZA:	Museo del Instituto de Zoología Agrícola Francisco Fernández Yépez
MOBOT:	Missouri Botanical Garden
MSW:	National Museum of Natural History, Smithsonian Institution
NABCI:	North American Bird Conservation Initiative
NABIN:	North American Biodiversity Information Network
NBAP:	National Biodiversity Action Plan
NBII:	National Biological Information Infrastructure (USA)
NEPA:	National Environmental Planning Agency (Jamaica)
NGO:	Non-governmental organization
NIMOS:	Nationaal Instituut voor Milieu en Ontwikkeling
NOAA:	National Oceanic and Atmospheric Administration (USA)
NODC:	National Oceanographic Data Center
NSCAlliance:	Natural Science Collection Alliance
NServe:	NatureServe Explorer
NVDS:	National Virtual Data System
OAS:	Organization of the American States

OBIS:	Ocean Biology Information System
OECS:	Organization of Eastern Caribbean States
ONDIBIO:	Oficina Nacional de Diversidad Biológica
ONRS:	Bird Studies Canada
PASDA:	Pennsylvania Spatial Data Access system
PNUD:	Programa de las Naciones Unidas para el Desarrollo
PUCE:	Museo de Historia Natural de la Pontificia Universidad Católica del Ecuador
QCNE:	Herbario Nacional del Museo Ecuatoriano de Ciencias Naturales
REMIB:	The World Information Network on Biodiversity
SERC:	Smithsonian Environmental Research Center
SIAM:	Sistema de Información Ambiental Mesoamericana
SIAMAZONIA:	Sistema de Información sobre Biodiversidad y Ambiente de la Amazonía
SIB:	Sistema de Información sobre Biodiversidad
SIDNET:	Small Island Developing States Network
SIDS:	Small Island Developing States
SIETI:	Stichting Institute for Environmental Technology and Information
SPAW:	Specially Protected Areas and Wildlife in the Wider Caribbean Region
STINASU:	Stichting Natuurbehoud Suriname
STIPRIS:	Stichting Proeftuinen in Suriname
TABD:	Tropical Andes Botanical Database
TDWG	International Working Group on Taxonomic Databases
TNC:	The Nature Conservancy
TRAMIL:	Traditional Medicine for the Islands
TROPICO:	Asociación Boliviana para la Conservación TROPICO
TROPICOS:	Base de datos en línea del Missouri Botanical Garden.
TSA:	The Species Analyst
UASD:	Universidad Autónoma de Santo Domingo
UCMP:	University of California Museum of Paleontology
UCV:	Universidad Central de Venezuela
ULA:	Universidad de los Andes - Venezuela
UNA:	University of the Netherlands Antilles
UNAM:	Universidad Nacional Autónoma de México
UNCCD:	United Nations Convention to Combat Desertification
UNDP:	United Nations Development Programme
UNEP:	United Nations Environmental Programme
UNEP-GPA:	Global Program of Action
USAID:	United States Agency for International Development
USDE	OAS Unit for Sustainable Development and Environment
USGS:	United States Geological Survey
UWI:	University of the West Indies
UWICED:	University of the West Indies Centre for Environment and Development
UWICMS:	University of the West Indies Centre for Marine Sciences
vPlants:	A Virtual Herbarium of the Chicago Region
WCMC:	World Conservation Monitoring Center
WDCM:	World Federation for Culture Collections
WFCC:	World Federation for Culture Collection
WIDECAS:	Wider Caribbean Sea Turtle Conservation network
WRI:	World Resources Institute



WWF:

World Wildlife Fund

## Annex 7 - Project costs and parallel financing

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

### Summary Budget of GEF grant matched with Co-financing

	GEF support	Percentage	Co-financing (millions)	Total financing (millions)
<b>Component 1: Interoperability/data access</b>				
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			
<i>Subtotal</i>	<i>1.72</i>	<i>29%</i>	<i>7.04</i>	<i>8.76</i>
<b>Component 2 : Data Content Creation</b>				
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			
<i>Subtotal</i>	<i>2.47</i>	<i>41%</i>	<i>10.71</i>	<i>13.17</i>
<b>Component 3 : Information Tools for Decision Making</b>				
<i>Subtotal</i>	<i>0.50</i>	<i>8%</i>	<i>3.75</i>	<i>4.25</i>
<b>Component 4: Sustainability of IABIN</b>				
IABIN Secretariat	0.45			
Partnerships and Communications	0.46			
<i>Subtotal</i>	<i>0.91</i>	<i>15%</i>	<i>6.43</i>	<i>7.35</i>
<b>Component 5: Project Administration</b>				
<i>Subtotal</i>	<i>0.40</i>	<i>7%</i>	<i>1.00</i>	<i>1.40</i>
<b>Total</b>	<b>6.00</b>	<b>100%</b>	<b>28.93</b>	<b>34.93</b>

**Annex 8 - Parallel financing provided by each institution with its profile**

<b>Name of Co-financier (source)</b>	<b>Classification</b>	<b>Amount (US\$)</b>	<b>Comp. 1</b>	<b>Comp. 2</b>	<b>Comp. 3</b>	<b>Comp. 4</b>	<b>Comp. 5</b>
CaribHerp — Pennstate University (US-Caribbean)	Academic Institution	(letter support)					
Centro de Estudios Conservacionistas (CECON), Universidad de San Carlos (Guatemala)	Academic Institution	60,000		40,000		20,000	
Centro de Malacologia, Universidad Centroamericana de Managua (Nicaragua)	Academic Institution	24,000		24,000			
Consortium for Caribbean (MCZ Harvard University) (US-Caribbean)	Academic Institution	(letter support)					
Escuela Politecnica Nacional del Ecuador	Academic Institution	50,000		50,000			
Museo Entomologico de Leon (Nicaragua)	Academic Institution	(letter support)					
Universidad Austral (Chile)	Academic Institution	105,000		105,000			
Universidad de Concepción (Chile)	Academic Institution	(letter support)					
Universidad de los Andes (CVULA)	Academic Institution	150,000		100,000		50,000	
Universidad de los Andes (ULABG) (Venezuela)	Academic Institution	150,000		100,000		50,000	
Universidad de Panamá	Academic Institution	80,000	20,000	40,000		20,000	
Universidad Nacional de Tucumán (Argentina)	Academic Institution	30,000	10,000	20,000			
Universidad Nacional del Nordeste - Fac. Ciencias (UNNE) - Colección herpetologica Corrientes	Academic Institution	50,000		50,000			
University of California, Davis (Information Center for the Environment)	Academic Institution	120,000		120,000			
University of Suriname	Academic Institution	100,000	50,000	50,000			
<b>Subtotal (Academic Institutions)</b>		<b>919,000</b>	<b>80,000</b>	<b>699,000</b>		<b>140,000</b>	
Asociación Boliviana para la	NGO	20,000		10,000		10,000	

Conservación - TROPICO (Bolivia)							
BioNET International	NGO	1,050,000	350,000	400,000		300,000	
Bird Life International	NGO	400,000	100,000	100,000	100,000	100,000	
City of Knowledge Foundation (Panama)	NGO	250,000				250,000	
Colección Boliviana de Fauna (Bolivia)	NGO	50,000		50,000			
Comité Nacional Pro Defensa de la Flora y Fauna - Amigos de la Tierra (CODEFF) (Chile)	NGO	70,000		50,000		20,000	
CRIA (Brazil)	NGO	1,000,000	250,000	250,000	250,000	250,000	
Fundacion La Salle de Ciencias Naturales (FLASA) (Venezuela)	NGO	50,000		20,000		30,000	
Fundación de Historia Natural Félix de Azara (Argentina)	NGO	(letter support)					
Grupo de Conservación de Germoplasma ex situ de Raíces y Tuberosas Andinas (RTA's) (Andes)	NGO	(letter support)					
Fundacion Habitat y Desarrollo (Argentina)	NGO	(letter support)					
Guyra Paraguay	NGO	(letter support)					
Herbario Nacional de Bolivia	NGO	155,000	55,000			100,000	
Herbario Nacional de Ecuador	NGO	350,000	250,000	100,000			
IADIZA-CRICYT (Argentina)	NGO	280,000		100,000	100,000	80,000	
INBio (Costa Rica)	NGO	1,050,000	750,000	250,000		50,000	
Instituto Alexander von Humboldt (Colombia)	NGO	175,000	100,000			75,000	
Instituto de Botánica Darwinion (Argentina)	NGO	75,000		75,000			
Instituto Geografico de Venezuela	NGO	250,000	75,000		100,000	75,000	
Museo Argentino de Ciencias Naturales (MACN) (Argentina)	NGO	150,000		150,000			
Museo de la Plata -- Argentina	NGO	(letter support)					
Museo de Zoología, Universidad de Costa Rica	NGO	15,000		15,000			
Museo Nacional de Costa Rica	NGO	151,000	21,000	100,000		30,000	
Museo Nacional de Historia Natural (Chile)	NGO	325,000	100,000	225,000			
NatureServe (US)	NGO	2,500,000	600,000	800,000	600,000	500,000	
National Biodiversity Network	NGO	216,000	100,000	100,000		16,000	
Smithsonian (US)	NGO	(letter support)					
Smithsonian (Panamá)	NGO	120,000		100,000		20,000	
The Nature Conservancy	NGO	5,000,000	1,250,000	1,250,000	1,250,000	1,250,000	

					0		
West Indian Whistling-Duck	NGO	200,000		150,000		50,000	
<b>Subtotal (NGOs)</b>		<b>13,902,000</b>	<b>4,001,000</b>	<b>4,295,000</b>	<b>2,400,000</b>	<b>3,206,000</b>	
<b>SUBTOTAL (ALL NGOs)</b>		<b>14,821,000</b>					
Autoridad Nacional de Ambiente Panamá	Government	(letter support)					
WB Colombia Disaster Management Project (WB)	Government	(TBD)					
Conabio (Mexico)	Government	2,500,000	1,000,000	1,500,000			
Corporación Nacional Forestal (CONAF) (Chile)	Government	(letter of support)					
Env. SALs (WB) (Mexico, Brazil)	Government	(TBD)					
Honduras Disaster Vulnerability (WB: support to SINIA)	Government	200,000	50,000	50,000	50,000	50,000	
IABIN Focal Points of participating countries	Government	1,500,000				1,500,000	
MINAE (Costa Rica)	Government	100,000		100,000			
Ministerio de Ciencia y Tecnología de Venezuela	Government	110,000		60,000		50,000	
Ministerio del Ambiente y Recursos Naturales (MARENA) (Nicaragua)	Government	250,000		250,000			
Ministry of Environment (Haiti)	Government	40,000		20,000		20,000	
Ministry of Health and Env. (Bahamas)	Government	65,000	20,000	25,000		20,000	
MIZA (Venezuela)	Government	80,000	20,000	20,000		40,000	
Nicaragua Second Rural Municipality Project of WB (support to SINIA)	Government	400,000	100,000	100,000	100,000	100,000	
SERNA (Honduras)	Government	88,000	20,000	40,000		28,000	
Servicio Agrícola y Ganadero (Chile)	Government	50,000		50,000			
<b>SUBTOTAL (GOVERNMENT)</b>		<b>5,383,000</b>	<b>1,210,000</b>	<b>2,215,000</b>	<b>150,000</b>	<b>1,808,000</b>	
OAS	Recipient	1,000,000					1,000,000
Subtotal (Recipient)		1,000,000					
<b>SUBTOTAL (RECIPIENT)</b>		<b>6,383,000</b>					
Convenio Andres Bello (CAB) (Andes)	Multilateral Agency	1,000,000	250,000	250,000	250,000	250,000	
CCAD	Multilateral Agency	(letter of support)					
CIAT (Colombia)	Multilateral Agency	(letter of support)					



Commission For Environmental Cooperation (N. America)	Multilateral Agency	(letter of support)					
Development Gateway (WB)	Multilateral Agency	(TBD)					
Development Grant Facility (WB)	Multilateral Agency	(TBD)					
MBC/WB/Dutch Trust Fund	Multilateral Agency	250,000			250,000		
UNEP (GRID)	Multilateral Agency	62,000			50,000	12,000	
UNEP Caribbean CAR RCU	Multilateral Agency	70,000				70,000	
UNEP Mexico	Multilateral Agency	(letter of support)					
Subtotal (Multilateral Agencies)		1,382,000	250,000	250,000	550,000	332,000	
<b>SUBTOTAL (FOREIGN MULTILATERAL INSTITUTIONS)</b>		<b>1,382,000</b>					
I3N (NBII) (USGS)	US Government	2,900,000	750,000	1,500,000	500,000	150,000	
USGS/EROS Data Center	US Government	200,000			200,000		
USGS/NBII	US Government	3,250,000	750,000	1,750,000		750,000	
<b>SUBTOTAL (U.S. GOVT.)</b>		<b>6,350,000</b>	<b>1,500,000</b>	<b>3,250,000</b>	<b>700,000</b>	<b>900,000</b>	
<b>TOTAL PARALLEL FINANCING</b>		<b>28,936,000</b>	<b>1,500,000</b>	<b>3,250,000</b>	<b>700,000</b>	<b>900,000</b>	<b>1,000,000</b>



## Annex 9 – Financial Summary

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

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



**Annex 10 – Details of the Procurement Arrangement involving international competition.**

**1. Goods and non-consulting services.**

List of contract Packages which will be procured following International and National Shopping:

1	2	3	4	5	6	7	8	9
Ref. No.	Contract (Description)	Estimated Cost	Procurement Method	P-Q	Domestic Preference (yes/no)	Review by Bank (Prior / Post)	Expected Bid-Opening Date	Comments
			Shopping	No	No	Post Review		

**2. Consulting Services.**

(a) List of Consulting Assignments with short-list of international firms.

1	2	3	4	5	6	7
Ref. No.	Description of Assignment	Estimated Cost	Selection Method	Review by Bank (Prior / Post)	Expected Proposals Submission Date	Comments

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

(c) **Short lists composed entirely of national consultants:** Short lists of consultants for services estimated to cost less than \$200,000 equivalent per contract, may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

**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
<b>Total</b>	<b>1.41</b>	<b>1.56</b>	<b>1.37</b>	<b>1.26</b>	<b>0.40</b>	<b>6.00</b>

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

Consultant Services Expenditure Category	Selection Method							Total Cost <sup>1</sup>
	QCBS	QBS	SFB	LCS	CQ	Other	N.B.F.	
<b>A. Firms</b>	1.56	0.00	0.00	0.00	0.00	0.00	0.00	1.56
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
<b>B. Individuals</b>	0.00	0.00	0.00	0.00	1.41	0.00	0.00	1.41
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
<b>Total</b>	1.56	0.00	0.00	0.00	1.41	0.00	0.00	2.97
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

<sup>1</sup> 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 in parentheses are the amounts to be financed by the Bank Grant.

**Prior review thresholds (Table B)**



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



### Annex 11 – 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 is a critical partner of IABIN and 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
<b>GEF Financing</b>	<b>1.72</b>	<b>2.47</b>	<b>0.50</b>	<b>0.91</b>	<b>0.40</b>	<b>6.00</b>
<b>Parallel financing Assured by Agreement</b>						
Coordinating Institutions (CIs)	2.96		1.00			3.96
Secretariat				0.25		0.25
Grants		2.22				2.22
US Gov't	2.25					2.25
OAS (Recipient)					1.00	1.00
<b>Total assured parallel financing</b>	<b>5.21</b>	<b>2.22</b>	<b>1.00</b>	<b>0.25</b>	<b>1.00</b>	<b>9.68</b>

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; it does not represent a legal contract 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, 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 chosen institutions must certify with a signed form the amount of parallel financing that they are providing for the activity and make their accounting books 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 an Access 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 Access Database will track parallel financing by country, institution and project components.

#### Allocation of grant proceeds (Table C)

**Table C: Allocation of Grant Proceeds**

<b>Expenditure Category</b>	<b>Amount in US\$million</b>	<b>Financing Percentage</b>
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 %
<b>Total Project Costs with Bank Financing</b>	6.00	
<b>Total</b>	6.00	



**Annex 12 – EVALUATION TO AWARD GRANTS  
PROCEDURE TO EVALUATE PROPOSALS**

Under component 2 of the project, matching grants 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. Please use the following criteria to evaluate the proposals. Institutions with the highest scores will qualify to receive grants. It is important that a subregional balance is achieved within each of the Content Programs during the life of the project. Grants will be in the range of 10-15k/year and may be multi-year. But can be smaller and only for one year.

Name of Institution: \_\_\_\_\_

Country: \_\_\_\_\_

Objective of Proposal:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Criteria	Scale	Score	Remarks
Commitment to IABIN standards and protocols	Yes/No		A NO indicates that the proposed Matching Grantee is not willing to accept IABIN Standards and Protocols. With a NO then, the proposed Grantee is disqualified.
Commitment to public access	Yes/No		A NO indicates that the proposed Matching Grantee is not willing to share data that was in part facilitated by IABIN. With a NO then, the proposed Grantee is disqualified.
Relevance to multiple countries	1 to 20		
Impact of filling data gaps	1 to 20		Demand driven
Linkage to IABIN thematic priorities	1 to 10		
Availability of co-financing (at least 1:1)	1 to 20		
Availability of qualified personnel	1 to 20		
Relevance for conservation and sustainable use	1 to 10		
<b>TOTAL SCORE</b>			

Date of Evaluation: \_\_\_\_\_



**Annex 13 – PROCUREMENT TABLES**

A) Programmed expenditures for the first year of the project and totals for each category for the life of the project.

<b>CATEGORY</b>	<b>FIRST SEMESTER</b>	<b>SECOND SEMESTER</b>	<b>TOTAL PROJECT</b>
Individual Consultant Services	\$134,000	\$164,000	\$1,413,600
Firms Consultant Services	\$155,000	\$175,000	\$1,560,000
Matching Grants	\$30,000	\$30,000	\$1,370,000
Training	\$0	\$25,000	\$570,000
Technical Services	\$108,000	\$53,000	\$635,000
Goods	\$5,000	\$5,000	\$50,000
Operating Costs	\$40,000	\$40,000	\$420,000
<b>TOTAL PROJECT</b>	<b>\$472,000</b>	<b>\$492,000</b>	<b>\$5,998,600</b>

B) Contract packages and consulting assignments that will be procured following international and national shopping



## Annex 14 – FINANCIAL MONITORING REPORTS

### A) Sources and Uses of Funds (numbers do not represent real values)

#### BUILDING THE INTER-AMERICAN BIODIVERSITY INFORMATION NETWORK GEF TF053526

SOURCES AND USES OF FUNDS BY COMPONENTS						
PERIOD: from month/year - to month/year						
Applications for Withdrawal	Date	Total	Recovered	Deposit	ICS	Difference
Cumulative previous applications		\$500,000	\$0	\$500,000	\$500,000	\$0
Current application (month/yr - month/yr)	month/year	\$460,000				
Total Recovered and Deposits			\$0	\$500,000	\$500,000	\$0
Balance in the Special Account				\$5,500,000	\$5,500,000	\$0
SOURCES AND USES OF FUNDS						
		Semester	Cumulative			
Cash Receipts						
GEF Funds		\$500,000				
Others						
<b>Total Financing</b>		\$500,000				
Expenditures by Component						
Interoperability and Access to Data		\$250,000				
Data Content Creation		\$50,000				
Information Products for D-Making		\$0				
Sustainability of IABIN		\$120,000				
Project Administration (OAS/USDE)		\$40,000				
<b>Total Expenditures</b>		\$460,000				
Receipts less Expenditures		\$40,000				
Foreign Exchange Difference (+/-)						
<b>Balance</b>		\$40,000				
Commitments		\$35,000				
Available Balance		\$5,000				
RECONCILIATION						
Opening Cash Balances						
Project Account		\$500,000				
IBRD Special Account		\$5,500,000				
<b>Total Opening Cash</b>		\$6,000,000				
Net change in cash		(\$460,000)				
Closing Cash Balances						
Project Account		\$40,000				
IBRD Special Account		\$5,500,000				
<b>Total Closing Cash Balances</b>		\$5,540,000				
PROJECT EXECUTION						
		Semester	Cumulative			
% Funds Deposited		8.33%				
% Funds Executed		7.67%				
% Funds Available		0.67%				



B) Uses of Funds by Project Component, Subcomponents, and Expenditure Category

BUILDING THE INTER-AMERICAN BIODIVERSITY INFORMATION NETWORK								
GEF TF51150								
USES OF FUNDS BY COMPONENTS, SUBCOMPONENTS AND CATEGORIES								
PERIOD: FIRST SEMESTER (SEPT. 2004 - FEB. 2005)								
COMPONENTS AND SUBCOMPONENTS	ACTUAL		PLANNED		VARIANCE		NEXT SEMESTER	PAD
	1st Semester Sept04 - Feb05	Cumulative to date	1st Semester Sept04 - Feb05	Cumulative to date	Sept04 - Feb05 Actual/Est.	Cumulative Actual / Est.	Planned Mar05-Aug05	Life of Project
<b>INTEROPERABILITY AND ACCESS TO DATA</b>								
Thematic Networks Coordinator			\$24,000				\$24,000	\$240,000
IABIN Catalogue Service								
<i>Consultant Services Individuals</i>			\$30,000				\$45,000	\$175,000
<i>Technical Services</i>			\$15,000					\$45,000
Specimens Thematic Network								
<i>Consultant Services Firms</i>			\$15,000				\$15,000	\$200,000
Species Thematic Network								
<i>Consultant Services Firms</i>			\$25,000				\$25,000	\$200,000
Ecosystems Thematic Network								
<i>Consultant Services Firms</i>			\$50,000				\$65,000	\$250,000
Invasive Species Thematic Network								
<i>Consultant Services Individuals</i>			\$20,000				\$30,000	\$150,000
<i>Technical Services</i>			\$10,000					\$50,000
Pollinators Thematic Network								
<i>Consultant Services Firms</i>			\$35,000				\$35,000	\$180,000
Protected Areas Thematic Network								
<i>Consultant Services Firms</i>			\$30,000				\$35,000	\$230,000
<b>DATA CONTENT CREATION</b>								
Data Content Manager			\$24,000				\$24,000	\$240,000
Metadata Content Program								
<i>Consultant Services Individuals</i>							\$5,000	\$45,000
<i>Matching Grants</i>			\$10,000				\$10,000	\$180,000
<i>Training</i>							\$25,000	\$75,000
Specimens Content Program								
<i>Consultant Services Individuals</i>								\$45,000
<i>Matching Grants</i>								\$260,000
<i>Training</i>								\$95,000



Species Content Program								
<i>Consultant Services Individuals</i>								\$45,000
<i>Matching Grants</i>								\$260,000
<i>Training</i>								\$95,000
Ecosystems Content Program								
<i>Consultant Services Individuals</i>								\$45,000
<i>Matching Grants</i>								\$260,000
<i>Training</i>								\$95,000
Invasive Species Content Program								
<i>Consultant Services Individuals</i>								\$45,000
<i>Matching Grants</i>			\$20,000				\$20,000	\$160,000
<i>Training</i>								\$75,000
Pollinators Content Program								
<i>Consultant Services Individuals</i>								\$45,000
<i>Matching Grants</i>								\$150,000
<i>Training</i>								\$75,000
Protected Areas Content Program								
<i>Consultant Services Individuals</i>								\$15,000
<i>Matching Grants</i>								\$100,000
<i>Training</i>								\$60,000
INFORMATION PRODUCTS FOR DECISION-MAKING								
<i>Consultant Services Firms</i>								\$500,000
SUSTAINABILITY OF IABIN								
IABIN Secretariat								
<i>Consultant Services Individuals</i>			\$36,000				\$36,000	\$273,600
<i>Technical Services</i>			\$18,000				\$18,000	\$180,000
<i>Goods</i>			\$5,000				\$5,000	\$50,000
Partnerships and Communications								
<i>Consultant Services Individuals</i>								\$50,000
<i>Technical Services</i>			\$65,000				\$35,000	\$360,000
PROJECT ADMINISTRATION (OAS/USDE)			\$40,000				\$40,015	\$400,075
TOTAL PROJECT	\$0	\$0	\$472,000	\$0	0%	0%	\$492,015	\$5,998,675



C) Progress Report

BUILDING THE INTER-AMERICAN BIODIVERSITY INFORMATION NETWORK								
GEF TF51150								
PHYSICAL PROGRESS REPORT								
PERIOD: THIRD SEMESTER (SEPT. 2005 - FEB. 2006)								
COMPONENTS/ Subcomponents/Outputs	Planned	ACTUAL OUTPUTS		COSTS INCURRED		Actual Results as a % of total planned results		COMMENTS
		Semester	Cumulative	Semester \$	Cumulative \$	Output	Costs	
<b>INTEROPERABILITY AND ACCESS TO DATA</b>								
IABIN Catalogue Service								
<i>Example: Development of metadata creation tools in multiple languages.</i>	2005: One tool that will do X things in Spanish for \$X dollars. 2005: One tool that will do Y things in Portuguese for \$X dollars.	1 in Spanish	1 in Spanish	\$X	\$X	50%	50%	Portuguese tool was not completed but will be finished before the end of next semester.
<i>Example: Modification of X number of multilingual user interfaces.</i>	2006: Modify 'such' interface for 'such \$' cost.							
<b>Specimens Thematic Network</b>								
<i>Example: Develop website</i>	2006: One running website, installed in a central server, for \$X dollars							
<i>Output two</i>								
<b>Species Thematic Network</b>								
<i>Example: Develop tools to enter data</i>	2007: One tool to enter species data into the network, available to everyone, for a cost of \$ dollars.							
<i>Example: Develop website</i>	2006: One running website, installed in a central server, for \$X dollars							
<i>Example: Training program for web administrators</i>	2006: One training for X number of people for \$X cost. 2007: One training for X number of people for \$X cost.							
<b>Ecosystems Thematic Network</b>								
<i>Example: online systems for cross-referencing different ecosystems classification</i>	2008: online system running. Total cost \$X							
<b>Invasive Species Thematic Network</b>								
<i>Example: Develop value added products</i>	2007: specific product for specific objective at a \$X cost.							
<i>Output two</i>								
<b>Pollinators Thematic Network</b>								
<i>Example: Develop multilingual data entry tools.</i>	2006: entry tool in Spanish at \$X cost.							
<b>Protected Areas Thematic Network</b>								
<i>Output one</i>								
<b>DATA CONTENT CREATION</b>								
Metadata Content Program								



