THE INTER-AMERICAN BIODIVERSITY INFORMATION NETWORK (IABIN)

In the Declaration of the Fifth Summit of the Americas held in Port of Spain, Trinidad and Tobago on April 19, 2009, "Securing Our Citizens' Future by Promoting Human Prosperity, Energy Security and Environmental Sustainability," the Presidents of the Americas reiterated in paragraph 64:

From Ridge to Reef, IABIN data is being used for improved sustainable development decision making.

We will collaborate to promote environmental sustainability through regional cooperation, in accordance with national legislation and applicable international law, in the areas of human and institutional capacity building, transfer on mutually agreed terms of environmentally sound technology, and effective mobilization of new and additional human and financial resources, as appropriate, including innovative public and private financing mechanisms and instruments, for inter alia:

(a) the sustainable management of forests, including efforts for reducing deforestation;
(b) the sustainable management of protected areas and World Heritage Sites;
(c) protecting endangered and migratory species;
(d) combating illegal international trafficking of biodiversity;
*(e) promoting the exchange of scientific knowledge on biodiversity, such as through the **Inter-American Biodiversity Information Network (IABIN)**; and,*
(f) recognizing and sharing the benefits arising from access to and use of genetic resources and associated traditional knowledge.

Given this fresh mandate from the Presidents of the Hemisphere, renewing IABIN's original mandate from the 1996 Santa Cruz Summit on Sustainable Development, and with continued support by the Global Environment Facility, the World Bank, and the OAS, IABIN has achieved a number of its primary goals in 2008 and early 2009:

(i) All Thematic Networks (TNs) (See table on next page) have completed their work on standards and protocols for their TNs, and many have completed their data digitization tools and web interfaces to provide access to their data. The IABIN Catalogue http://iabin-catalog.nbii.gov/portal/server.pt has developed a search engine allowing users to discover data and other resources across TNs and other databases.

(ii) RfPs for data content grants are active in all 5 TNs and will complete the 125 roughly US$10,000 grants forecasted by June 2010.

(iii) "Value added tools' projects to integrate, visualize and utilize IABIN data are underway.

(iv) Outreach and fundraising efforts will start to nurture potential partnerships based on proposals written by the Vision/MTR/ and fundraising consultant.

(v) Follow on and extension proposals to the IABIN/GEF project will also begin development.

KEY CHALLENGES TO ACCOMPLISHING PLANNED TASKS AND STRATEGY FOR OVERCOMING THEM IN THE COMING THE YEAR

(i) take the steps to promote the sustainability of IABIN by preparation of several fundraising proposals, (ii) set the vision for IABIN after the GEF Project, (iii) Improve communications and outreach activities, (iv) facilitate the financial sustainability of the Coordinating Institutions
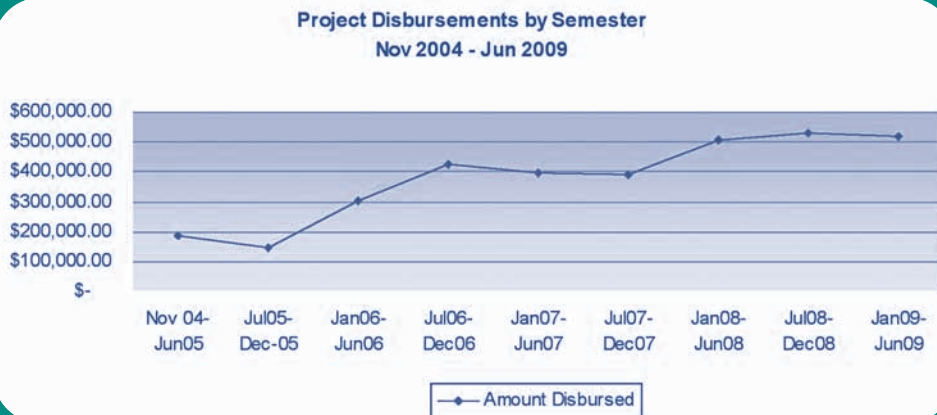
TABLE. 1. STATUS OF EACH OF IABIN'S COORDINATING INSTITUTIONS.

Thematic Network/	Objective	Coordinating Institution	Location
Invasive Species	Encourage the creation and standardization of national and sub-national databases on invasive species, promote their interoperability, create value-added products, and expanded this network to all IABIN member countries	United States Geological Survey	Washington DC
Species and Specimens	Define and implement the architecture, tools, standards and protocols to access specimen and species information located in institutions throughout the region by using distributed access standards	Instituto Nacional de Biodiversidad	San Jose, Costa Rica
Protected Areas	Promote 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	World Conservation Monitoring Center	Cambridge, England
Ecosystems	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)	NATURESERVE	Washington DC, USA
Pollinators	Develop an electronic Global Species Database (GSD) of Pollinators as a linking element to facilitate the integration of biological, ecological and agricultural information, in an efficient retrieval system	Pollinator Partnership	San Francisco, CA, USA
Catalogue Service	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 through an Internet-based search service. 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	US Geological Survey	Washington, DC, USA

(v) increase the number of organizations contributing data content to 125 to be completed by June, 2010, (vi) integrate component #3 "Information Tools for Decision Making" into TNs and Catalogue, (vii) place IABIN thematic network data and data content grant data on a geospatial platform, and (viii) solidify partnerships.

To address these challenges, IABIN has undertaken a range of fundraising and sustainability activities in early 2009. IABIN has adopted an updated Vision and Mission Statement, and undertaken outreach at the e-Biosphere 2009 conference of leading international biological informatics organizations in London, England.

BUDGET: SINCE NOVEMBER 2004 UNTIL JUNE 2009 THE PROJECT HAS DISBURSED OVER $3,407,000.00 WHICH REPRESENTS 57% OF THE TOTAL BUDGET.

c. Infrastructure for hosting a multilingual Thesaurus
d. Webservice to allow external queries.
e. Webservice to allow harvesting of metadata from external clearinghouses
f. Defined a variation of the Dublin Core and FGDC BDP as metadata Standard for the Catalog.
g. Ongoing coordination of IABIN's IT Thematic Working Group.

PLANNED ACTIVITIES TO ACHIEVE EACH GOAL – IABIN PROJECT STATUS BY COMPONENT

COMPONENT 1: INTEROPERABILITY AND ACCESS TO DATA

In year five of the implementation of the project "Building the Inter-American Biodiversity Information Network", the activities under Component 1 will finish implementation of each Thematic Network and carry out activities related to content creation and formation of help desks and other user assistance.

The overall IABIN Architecture, shown below based on the IABIN Pollinators Thematic Network, relies on distributed technologies, widely adopted international standards, and significant in-kind contributions from a number of organizations and coordinating institutions. The network supports various open standards, web-services, and protocols currently available globally today within the community. IABIN has built this network and architecture in cooperation with other major biodiversity initiatives globally and regionally such as the Global Biodiversity Information Facility (GBIF), the U.S National Biological Information Infrastructure (NBII), and others.

The following is a brief description of the various IABIN Thematic Networks, current status and summary of their capabilities.

1. Catalog Service: **The Catalog has completed the following activities:**
   a. Website for the IABIN Search Engineering
   b. Metadata digitalization tool (only in English)

2. Species and Specimens Thematic Network:
SSTN has completed the following activities:

a. SSTN multilingual website
b. Multilingual Desktop Digitization tool for Species and Specimens
c. Multilingual portal for visualization and integration of SSTN data
d. Connector to harvest and index data from SSTN data providers.
e. Adopted Darwin Core as Specimens Standard
f. Developed and adopted Plinian Core as Species Standard
g. Established a SSTN Thematic Working Group
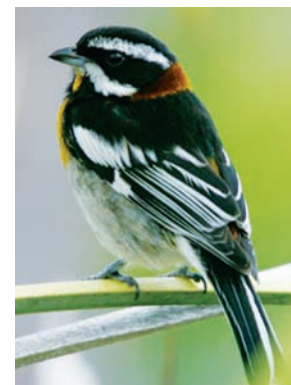
3. Ecosystems Thematic Network: **For year 5 ETN goals are to finish the Marine Ecosystems Standard, the crosswalk system and create a sustainability plan. ETN has completed the following activities with the IABIN Executive Committee naming NatureServe as the new Coordinating Institution. TNC will also collaborate in this leadership role.**
   a. ETN multilingual website
   b. Multilingual Web Digitalization tool for Terrestrial and Freshwater Ecosystems
   c. Adopted the GEOSS system as base systems to describe Terrestrial Ecosystems
   d. Created a Freshwater Ecosystems Standard

e. Established Terrestrial, Marine and Freshwater Thematic Working Groups.

4. Invasive Species Thematic Network: I3N's goal in year five is to create a new, open source version of the digitization tool and web template that will allow users to install it in servers with Linux or Windows operating systems and to integrate I3N data automatically with the I3N central portal. I3N has completed the following activities:

    a. I3N multilingual website

    b. Multilingual Desktop Digitalization Tool for Invasive Species

    c. Created a Web Template Tool (only for Windows servers)

    d. Created I3N Standard (based on the Darwin Core Standard)

    e. Established I3N Thematic Working Group

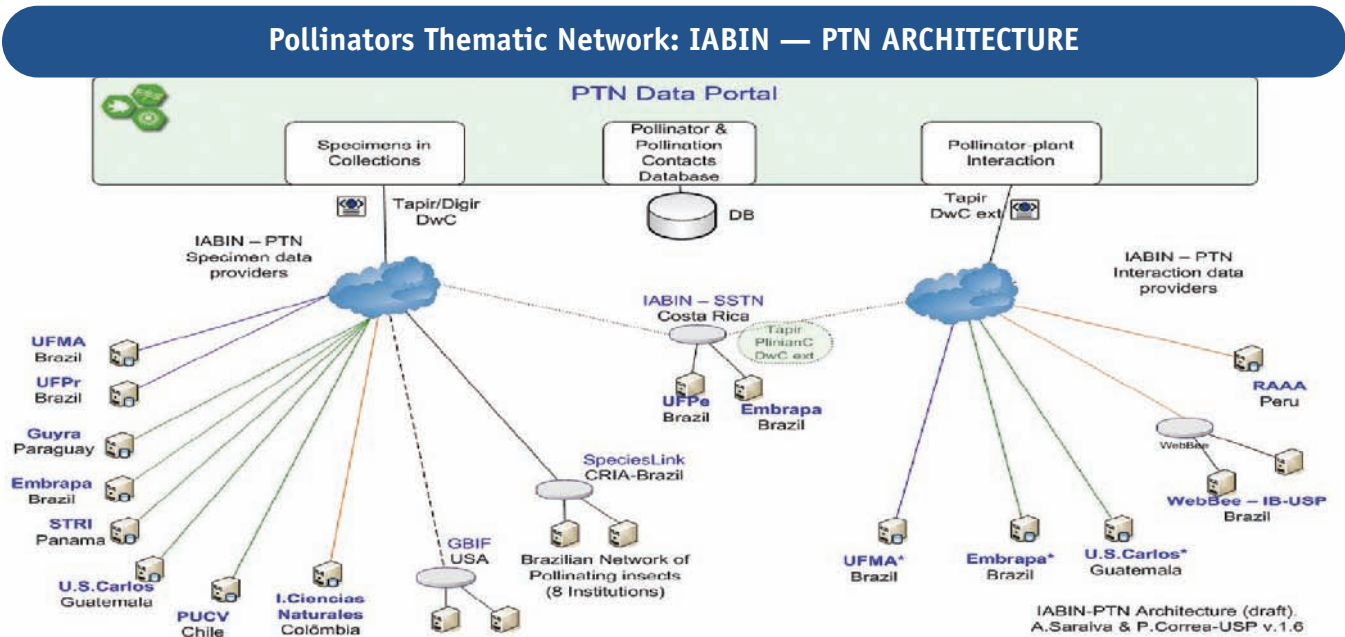**5. Pollinators Thematic Network: For year five, PTN goals are to maintain the infrastructure, finish the** training materials and implement a sustainability plan. **PTN has completed the following activities:**

    a. PTN multilingual website

    b. Multilingual portal for visualization and integration of SSTN data

    c. Adopted Darwin Core as base standard for PTN

    d. Created an Extension of the Darwin Core Standard to allow management the Plant-Pollinator relationship.

    e. Created a web-based digitalization tool to capture the Plant-Pollinator relationship.

    f. Connector to harvest and index data from PTN data providers

    g. Established PTN Thematic working Group.

6. Protected Areas Thematic Network: UNEP-WCMC had recently assumed the CI role to finish PATN implementation. PATN has completed the following activities:

    a. PATN multilingual website

    b. Adopted WDPA as standard for PATN.

Pollinators Thematic Network: IABIN — PTN ARCHITECTURE

The above diagram illustrates that three of the main products of the Pollinators Thematic Network (PTN) are pollinators specimen data, pollinator-plant interaction data and pollination & pollinator contacts data. The PTN is based on a distributed architecture which comprises a Data Portal and a set of Data Providers. Communication between these software pieces is made based on the standards and protocol commonly adopted by the biodiversity informatics community: TAPIR protocol and Darwin Core (DwC) conceptual schema for specimen data. In order to be able to exchange pollinator-plant information an extension to DwC was developed.

Specimen and observation data come from a number of institutions throughout the Americas, and from the SpeciesLink network (Brazil). Pollinator data available at GBIF has also been incorporated to the data portal database. (left side of the figure). A smaller, yet increasing number of Institutions provide data about pollinator-plant interactions (right side of the figure). Some institutions provide both types of data. This requires them to set up two TAPIR providers, one for each category of data, and conceptual schema, but using the same protocol (TAPIR).

A database of Pollinator and Pollination Contacts provides access to information about individuals that work on these subjects. The Database has around 100 names and keeps increasing.

BOX 1. THEMATIC NETWORK CROSSWALKING / INTEGRATION WITH DATA CONTENT GRANTS

The Inter-American Biodiversity Information Network is a Network of Networks created by 7 Sub-Networks:

1. **Species and Specimens Thematic Network**
2. **Invasive Species Thematic Network**
3. **Pollinators Thematic Network**
4. **Ecosystems Thematic Network**
5. **Protected Areas Thematic Network**
6. **Geospatial Network**
7. **Catalog Service.**
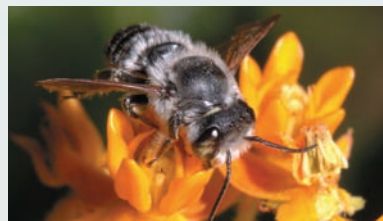
Each of these Thematic Networks, except for the Catalog Service, produces tabular data or geospatial data or a combination of both using standards adopted by each TN. According to the IABIN Project Implementation Plan, the Catalog Service's main goal is to "provide a mechanism to locate, evaluate, and access biological data and information from a distributed network of cooperating data and information sources from across the Americas". In order to attain this goal, it is necessary to create metadata for each group of data existing in the Network. The IABIN Catalog Service is considering offering a product that could be interpreted as a "Google for the Biodiversity Community", which allows users to:

- Find High Quality metadata related to IABIN priorities
- Identify data resources, quality, conditions and cost of use of the data.
- Search for resources in a multilingual environment.
- Greater country level data indexed

Crosswalking and integration of data from the five TNs will be done through the different tools developed under Component 3, or by any other tool developed by any organization that wants to access IABIN Data providers using IABIN standards. With the infrastructure that IABIN is creating, crosswalking/integration of the TNs could be done in one of the following ways:

1 – DATA VISUALIZATION: The integration consists in displaying tabular data over a map system; using the geographic information (geographic coordinates). Currently, IABIN is allowing data visualization and integration at the Thematic Network Level. In order to allow IABIN to visualize and integrate data from different IABIN TNs, it is necessary to create a central unique INDEX with the basic information from the whole network. This INDEX will require a stronger geospatial infrastructure and server capabilities to allow IABIN to harvest and store the indexes produce by each TN, and process this information. One Component 3 project currently underway (outlined below) is an initial step in this process

2 – MODELING: This is the second kind of integration that IABIN is developing, through Component 3. The different tools will allow the user to query and integrate information from different IABN TNs. Integration under this schema will answer specific questions with specific data when completed. Under this schema it is important to identify which question the model wants to answer, and the data needed for it.

COMPONENT 2: DATA CONTENT CREATION

The objectives of Component 2 are to increase the availability of biodiversity data through:
(i) Coordinating data content creation activities for IABIN's Thematic Networks and the Catalog,
(ii) Ensuring use of agreed-upon standards and protocols with data content grantees,
(iii) Organizing and leading, together with IABIN's Thematic Networks and the Catalog, training sessions on IABIN data creation and integration tools and standards, and
(iv) Ensuring high quality of data and metadata accessed through IABIN.

RECENT HIGHLIGHTS:

- **Species-Specimens Thematic Network** carried out two training for trainers' workshops in 2008, one in Spanish and one in English. Representatives were trained from 15 Spanish speaking countries (Argentina, Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Uruguay and Venezuela), and from eight English speaking countries (Dominica, Jamaica, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Trinidad & Tobago and USA) plus Haiti, as well as representatives from ETN, I3N, PTN, and

The software tools training workshop in Species Specimens Thematic Network (SS TN) in Chile was completed in April 2009 to familiarize the train-the-trainers in the use of data digitization in each thematic network that will permit the cross walking and connecting of data between the thematic networks.

the Catalog. In total 29 people were trained in the use of the three SSTN tools (data digitizing tool, connector and web page). Three countries have carried out their national training with seed funds from IABIN on the use of the SSTN tools as of Dec 31, 2008: (Bolivia, Colombia, and Panama), Mexico and United States carried out their training with their own funds. In total, 78 people were trained.

- **Ecosystems Thematic Network** carried out a workshop in March 2008 to revise the Standard Format for Marine Ecosystems. Thirteen countries participated and 16 people were trained. ETN carried out a workshop in Dec 2008 to review the Fresh Water Ecosystems standard. Representatives from 6 countries participated. This was carried out with support from TNC and NatureServe.

- **Pollinators Thematic Network** carried out a pilot workshop in June, 2008 to test its data digitizing tool. The PTN Technical Working Group members as well as representatives from 3 countries participated and 20 people were trained.

- **The Protected Areas Thematic Network** carried out a training to instruct attendees how to update the WDPA and digitize protected areas information using a tool developed by the Ministry of the Environment of Brazil (MMA). Representatives of the Ministries of the Environment of 17 countries participated as well as personnel from WCMC, the IABIN Secretariat, I3N

and ETN, a total of 20 people. Most of the participants expressed their desire to use the MMA tool. It is worth noting that unlike other TNs, there are very few potential data providers for PATN (the ministries of the environment of each country plus a handful of NGOs who have PA data).

- The Invasives Thematic Network (I3N) carried out training workshops in Panama, Guatemala and El Salvador.

- The Catalog, carried out two training workshops on the development of geospatial metadata with 38 people trained. There has been one training on development of metadata with 12 people trained.

- Total people trained by the Thematic Networks as of December 31, 2008 = 322. Total number of people trained at the national level: 78. Total number of people trained, both at Training for Trainers and at National Workshops = 400.

COMPONENT 3: INFORMATION PRODUCTS FOR DECISION MAKING

Component 3 projects integrate, visualize and utilize the data standardized and digitized by the other Components of the IABIN-GEF project.

Four projects are currently underway, with additional projects projected to begin implementation in September-October 2009 :

1. **An information system to model scenarios of potential threats to biodiversity.** IABIN funding requested US$107,298 and co-financing US$218,100 Submitted by Instituto Nacional de Biodiversidad (INBio)

2. **System for decision making based on conservation categories and biodiversity uses.** IABIN funding requested US$77,695 and co-financing US$133,880. Submitted by Instituto Nacional de Biodiversidad

3. **Internet-Based GIS Ecosystem Assessment and Reporting Tool for Conservation Decision-Making.** IABIN funding requested US$75,000 and co-financing US$150,000. Submitted by The Nature Conservancy

4. **Advancing joint roles as Coordinating Institutions for the Inter-American Biodiversity Information**

IABIN DECISION SUPPORT TOOL (ReefFix)

Declared a national park in 1975, National Park of the East is in the southeastern end of the Dominican Republic. The Park includes the entire peninsula south of these towns and measures 80,800 hectares, which is almost equally distributed between coastal and terrestrial habitats. The park's coastline offers a variety of coral formations and is excellent for diving, especially along the western side.

Marine Experts from the Dominican Republic met in April, 2009 to discuss marine valuation techniques and assess the benefits of ecosystem services such as fisheries, tourism, and shoreline protection.

The direct economic impact of National Park of the East coral reefs is US$ 72.5 million. This includes the annual value of use of the local residents of coralline reefs and the beach considered in US$ 20.0 million in the marine park, and the consumer surplus estimated in US$1.6 million. The recreation activities, the additional satisfaction derived from the participants on diving trips (SCUBA) and snorkeling rips, was considered in US$ 2.6 million for the park.

The fishing industries associated to coralline reefs have a small economic impact, but they provide other important values including works, cultural value, and a network of economic and social actions. The fishing industries directly associated to the coralline reef, annually generated US$ 1.6 million. The coral reefs play a vital role in the protection of the marine park and surrounding coasts which support hundred of hotel rooms. The annual value of the services of shore protection that provide coral reefs (in potentially avoided damages) were considers in US$6.300 by square meter or the equivalent to US$21,105 by km2 for the marine park. The relative role of the protection provided by coral reefs greatly varies with the elevation of the land and the coastal slope of the border, the geologic origin of the area (and of the resistance to the erosion), and the energy of the wave throughout the coast.

network (IABIN) – Ecosystems Thematic Network (ETN). IABIN funding requested US$49,971 (+ up to 18k that will be used for 2 training workshops) and co-financing $50,000. Submitted by NatureServe.

OAS has also received funding from the Government of Chile to undertake a related project, ReefFix. ReefFix is an Integrated Coastal Zone Management (ICZM) tool that improves the understanding and management of coastal and marine resources in the Caribbean through the use of economic valuation. Ecosystem services are the benefits derived either directly or indirectly from ecological systems. Some examples of ecosystem services include: support of the food chain, harvesting of animals or plants, provision of clean water, scenic views and recreational opportunities. Ecosystem Service Values are the financial equivalent of these services. Case study analysis has been completed in 4 case study sites in the Caribbean.

For further details, please see
www.iabin.net
http://www.oas.org/dsd/IABIN/Component3.htm.
And for ReefFix:
http://www.oas.org/dsd/IABIN/Component1/
ReefFix/ReefFix.htm

VISION 2010 FOR IABIN

IABIN — a regional network of governments, strategic partners, and experts in disciplines related to biodiversity and bioinformatics that provides knowledge of the ecological context for human security in the Americas, illustrates the importance of biodiversity to human development, permits the prediction of outcomes resulting from changes in biodiversity, and empowers society to make informed choices in its long-term best interests.

The societal need for IABIN is high and is growing greater each day. The aggregation of biodiversity data across a wide range of fields to draw knowledge for decision-making in conservation and sustainable use is IABIN's niche. IABIN has four core assets to deploy in the creation of knowledge:

■ **NETWORKS.** IABIN has created networks of institutions organized thematically around major conservation issues (species, pollination, ecosystems, invasive species and protected areas). IABIN itself functions as a type of meta-network to link across disciplines and directly to governments and other stakeholders. These networks serve several functions; they provide economies of scale for smaller institutions and build capacity through cooperative activities, and provide for dissemination of information throughout

BOX 2. KEY WORDS IN IABIN VISION

IABIN's future lies in leveraging these assets in the provision of value added tools and products undertaken in partnership with competent knowledge-management counterparts in other disciplines. Our collective understanding of human security has grown over the years since the Rio Earth Summit process, where the Convention on Biological Diversity was conceived, to encompass not only national security, food security, economic security and health, but also biological security, and all are increasingly understood to be interconnected and at risk, as reflected for example in the Millennium Ecosystem Assessment and the Millennium Development Goals. IABIN should therefore become the regional repository of knowledge concerning "ecological security" (encompassing the environmental aspects of the security concerns noted above). This will require a greater focus on the application of data to important decisions of the day. The ability to collaborate across sectors and regions through partnerships to produce results is essential to achieve this goal. In the Americas important partner organizations will include, inter alia, the Pan American Health Organization (PAHO) for health, the UN Food and Agriculture Organization (FAO) and the Inter-American Institute for Cooperation on Agriculture (IICA) for agriculture, the Caribbean Community Climate Change Centre for climate change, and the InterAmerican Development Bank for economic development and infrastructure.

This approach can best be achieved through targeted projects that selectively build capacity around high-priority issues identified by the government stakeholders in IABIN. Recognizing that IABIN's mandate is both information exchange and education, a vision for the future could be based upon four objectives:

- IABIN should help stakeholders to predict the consequences of actions (or of inaction) through ecological forecasting.

- IABIN should help stakeholders to prevent the loss of biodiversity through better choices based upon science that appropriately value biodiversity.

- IABIN should inform and educate society about the status of and threats to biodiversity, offering a compelling case to persuade the public to take action to conserve biodiversity.

- IABIN should empower society by providing public access to information upon which to base actions, and developing tools and a sustainable infrastructure to support local, regional, and global ecological and biological issues.

This vision must be captured in an IABIN "brand identity" that appropriately positions IABIN vis à vis both partners and competitors as an official forum for ecological security and the application of knowledge about biodiversity to societal choices. The exchange and application of knowledge about biodiversity (as opposed to information) is fundamental to IABIN and should be captured in its institutional identity. As a forum, IABIN should consider periodic conferences on the ecological security theme, which will serve to raise IABIN's profile and promote intersectoral exchange on trends, challenges, and opportunities in light of the opportunities and threats described above.

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a regional system. They provide the test-bed for value-added tools for the system as a whole.

- **PARTNERSHIPS.** IABIN's networks are supported through Coordinating Institutions, the strategic partners of the IABIN enterprise. These leading institutions within the region help to anchor the networks and guide their development through advanced technical capacities and strategic vision.

- **STANDARDS.** IABIN has created standards and protocols for information exchange within its networks, which makes data interoperability possible between the governments and non-governmental institutions handling biodiversity data in the region.

- **INFRASTRUCTURE.** IABIN does not maintain its own physical infrastructure. Instead, its network and standards leverage existing infrastructure to provide the pathways for the exchange of information. This decentralized approach means that the overall IABIN network can continue to function at a low overhead cost, freeing up resources for content development and decision-support applications.

TARGETED FUNDRAISING STRATEGY FOR IABIN 2010

NAME	OBJECTIVE	TIME FRAME	ESTIMATED COST ($US)	PRODUCTS	EXAMPLES OF POTENTIAL PARTNERS AND DONORS
GoogleParks	Reverse the loss of environmental resources through protected areas consistent with MDGs; organize information create knowledge and build virtual communities around protected areas	three years	1,050,000	Comprehensive knowledge-base ("Google") of all aspects of protected areas and their contents in the Americas	Google.org
Monitoring Rapid Environmental Change in South America	Improve transparency and rigor in decision-making and governance of a complex bio/geo/socio-economic system (IIRSA) by creating a more transparent, rigorous and publicly accessible decision making process through the provision of data and the development of models based upon this data. A range of scenarios describing alternative futures for South America based upon different combinations of driving forces can serve to support risk analysis and decision-making.	three years	2,000,000	decision support system on environmental impacts for IIRSA	InterAmerican Development Bank, World Bank, GEF, Wallace Global Fund, GTZ
Use of IABIN to Assist in the Preparation of National Reports	To strengthen national capacity to implement multiple multilateral environmental agreements (MEAs), through the use of IABIN data in a harmonized national reporting framework, technical assistance in its use, and testing in relation to the conservation measures being undertaken in the region	three years	1,250,000	expert system for partial automation of national reports for CBD, UNFCCC, UNCCD and possibly others (Ramsar, Migratory Species)	CIDA, GEF, DFID, NORAD
Ecosystem Data System for Latin America and the Caribbean	The development of effective ecological decision-making tools as to address the cumulative and escalating impacts of the forces of change, including especially climate change and land use change.	five years	4,000,000	Red List of threatened ecosystems, comprehensive knowledge base on ecosystems and their threats	World Bank, JR Biodiversity Fund, Moore Foundation
IABIN Applied Biodiversity Institute	Build biodiversity literacy on the part of a new generation of decision-makers through professional-development training for junior and mid-level staff in organizations involved in environmental decision-making, including both the public and the private sector.	five years	1,925,000	professional certification program in bioinformatics through distance learning and development of plan for masters degrees in bioinformatics and biodiversity policy	World Bank Institute, UNDP, universities throughout the region, JR Biodiversity Fund, Blue Moon Fund, SIDA
Invasive Species Early Detection and Rapid Response Learning Network	To build capacity of port and commerce managers and regulators to contain the transboundary movement of invasive alien species, pests, and diseases, and to limit economic and ecological damage, through experiential learning and peer-to-peer networking in inspection, quarantine, surveillance, and rapid response measures.	three years	2,250,000	A scaleable knowledge network and information management system shared between trading partners to facilitate international cooperation in the detection and eradication of invasive species, disease vectors, and agricultural pests.	USDA APHIS, GEF, IDB, USAID, CIDA
Vulnerability Atlas for the Eastern Caribbean	To advance work on climate adaptation and link to biodiversity and ecosystems, form a consortium of data providers and analysts and, building upon existing Caribbean GIS base-maps, overlay three types of data: scenarios from climate models, baseline data from a variety of existing sources, and existing indexes of risk, combined with community-based mapping of locally significant ecological economic resources.	two years	1,105,000	online and paper-based vulnerability atlas tied to IABIN data, available for public use in development of community and regional adaptation strategies	MacArthur Foundation, Packard Foundation, Hewlett Foundation, CIDA, France, DFID

IABIN also has the capacity, through its Thematic Networks and Coordinating Institutions, to create a standing "College" of eminent experts from the region in information technology, bioinformatics, and knowledge management to deliberate on emerging issues in capacity building and knowledge management for biodiversity, and issue recommendations that have the advantage of emanating from a source with both government backing and the highest technical qualifications.

Finally, IABIN has the potential to take capacity-building to a higher level by creating a consortium of universities from the region to establish diploma or degree programs using distance learning and instruction on local campuses to cover gaps in the availability of trained experts in technical fields. (Indeed, this is already beginning through collaboration between universities in the region). Using the Train-X approach developed by the United Nations, IABIN could create courses at a relatively low cost to each academic partner to help stem gaps in capacity. Possible areas include species identification for sanitary/phytosanitary inspection, geographic information systems and remote sensing, protected area management effectiveness, pollinator ecology and management, and valuation of ecosystem services. ⌁

Organization of American States