
IABIN Vision, Outlook, Challenges, and Opportunities

The Fifth IABIN Council meeting takes place almost at the mid point of the implementation of the “Building of the Inter-American Biodiversity Information” Global Environment Facility (GEF)-Project. This presents a great opportunity to review current Network development and to look into the future and plan ahead as to how the IABIN initiative first envisioned by the Presidents and Head of States will continue once the GEF funds end.

The Secretariat has taken the lead in analyzing several issues that will be key in determining IABIN’s future path to be presented to the Council to serve as the basis for discussion and to elicit decisions around this matter.

I. Description of IABIN

The Inter-American Biodiversity Information Network (IABIN) is a forum to foster technical collaboration and coordination among countries of the Americas in collection, sharing, and use of biodiversity information relevant to decision-making on natural resources management, biodiversity conservation, and education to promote sustainable development in the region.

It is envisioned as an Internet-based resource with infrastructure and content. It is developed as an integrated, interoperable, and distributed network of biodiversity information systems from different sources.

It promotes broad participation from all sectors of society including government, academia, non-governmental organizations, the private sector, and individuals. Participants include original data providers, data and information processors, network infrastructure developers, and end-users of data, information products and services, as well as those who participate directly in any of the IABIN governance or technical bodies (Council, Technical Working Groups, committees, etc.).

At its inception, IABIN encompassed six Thematic Networks, TNs: species, specimens, pollinators (PTN), invasive species (I3N), protected areas (PATN), and ecosystems (ETN). As the implementation of the network progressed it was decided to better join the species and specimen network into a single one (SSTN). From these TNs biodiversity data will be freely and universally provided through Internet-based web services, including search and retrieval capabilities in a Web portal, and a network of collaborating institutions and individuals.

These TNs will be technically positioned to provide access to information, coordinate technological developments, build capacity for information exchange, and facilitate inclusion of biodiversity themes in national, regional, and global conservation agendas.

In addition, IABIN participates in developing strategies for biodiversity information management in collaboration with other global and regional initiatives to fulfill its commitment to facilitate access to, enhance and utilize biodiversity information most effectively.

IABIN promotes open access to biodiversity data and information while acknowledging the rights of the original data owners and/or providers.

In November, 2004, IABIN received a 5-year grant of US\$6 million from the GEF to help it attain its objectives. This grant allowed IABIN to advance in the implementation of its objectives and in the development of the Network infrastructure. It has laid down the foundation under which IABIN vision and mission will be achieved.

II. Vision

During the planning phase of IABIN, representatives from the governments, NGOs, and the research and academia communities of the Americas decided that its vision will be:

"To be a self-sustaining distributed network which provides open access to high quality, relevant information on biodiversity in the Americas, providing that information in a timely manner to users throughout the public and private sector in the Americas and to other interested parties worldwide."

This vision implies the achievement of self-sustainability and the development of mechanisms to provide high-quality data in an efficient manner that could reach a wide variety of end-users.

The achievement of self-sustainability implies, in turn, the need to have adequate resources to continue the development of the network beyond 2009, which is the year in which the current GEF-grant will end.

The IABIN sustainability has two components. First, sources of recurring funding (e.g., for the continued operation and technological development of TNs, support IABIN Council and IEC meetings, training activities, and communication, as well as to cover Secretariat staff salaries) must be identified. In this case, it is anticipated that in order for the TNs to continue operation substantial resources will be needed that will be channeled through the Coordinating Institutions (CIs). Second, participating countries must be assured of sustained internal funding for IABIN-related activities and to facilitate their efforts to continue promoting data interoperability at the national, regional, and global levels.

It is expected that IABIN itself will not be a source of funding for projects; rather, it should 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.

Additionally, the IABIN sustainability includes securing long-term Secretariat hosting. The network, therefore, should evaluate the options to either keep current Secretariat hosting arrangements with City of Knowledge (CoK) or make provisions to secure another host institution. City of Knowledge has been extremely supportive of IABIN, thus, it is recommended that the agreement between the IABIN Executive Committee (IEC) and CoK be renewed to expand the commitment of the latter to host the Secretariat for at least five more years after the initial period ends.

Fundraising efforts have been directed to foundations that have within their area of interest the environment, bioinformatics, and specific programs within the World Bank. While there has been some funding success (funds to develop the *DGF Program - World Bank*; for developing *Guidelines for Management of Environmental Information in World Bank and IADB projects* and for a project called *Integrating Ecosystem and Species Data into Disease Forecasting Models – World Bank*, as well as NBII support for Secretariat salary and the upcoming expansion of the geospatial network to South America with the support of the Andean Development Corporation, CAF), it is necessary for the network to show defined products that can be advertised as concrete IABIN contributions for environmental management in order to apply for and receive additional grants. In this regard, four aspects are identified as key components of an IABIN fundraising strategy:

- i) IABIN TNs should be operational no later than by the end of 2007. This ought to include capacity to harvest data from data providers, provide data-entry tools, and interoperability in order to make integrated queries.

Technological planning and implementation of the network is underway (see Reference Document No.5). At this point the network is not in the capacity to serve data since its infrastructure is just being developed, however, data providers are encouraged to make available their data once the TNs are fully operational. There are at least two TNs (I3N and Species and Specimens) that will be able to achieve this goal by the end of this year. It is expected that the Ecosystems TN will be able to meet this goal as well, if significant advances are achieved in designing and implementing the reference classification that will allow for a cross-walk between currently used ecosystems classifications in the Americas.

- ii) The Network needs to establish clear guidelines as to when and how IABIN name can be used by other organization to obtain grants or donations. In the past, in the absence of these guidelines these projects may have not contributed to IABIN sustainability. In addition, there is the need to guarantee that these projects advance the Network technical objectives.

In terms of definition of what constitutes an IABIN project and additional funding sources, these aspects are already addressed by the modifications to the IABIN Rules of Procedure put forward by the Secretariat (see Reference Document No.6, particularly Annex 4).

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- iii) The network should explore other funding venues that capitalize on the technical developments and expertise it has developed. One of these could be for IABIN to team up with organizations, the private sector, and other potential partners to provide specific services such as strengthening biodiversity informatics capacities for management of protected areas, design and implementation of biodiversity information systems, and technical assistance in general, etc. This area of potential funding should have specific guidelines developed as recommended in Annex 4 of Reference Document No.6.

It is important to make a decision in this regard since the opportunity has presented itself for IABIN to collaborate with Environmental Consulting firms providing some services. The funds obtained through the provision of these services could be used to build the IABIN treasury or endowment.

- iv) Another component to be added to this fundraising strategy is the development of targeted "special IABIN projects" to support areas of interest of the network that can be advanced by interested parties such as a group of Focal Points or partners or a coalition of both. These interest groups with the collaboration of the IEC and the Secretariat would be in charge of developing proposals to obtain funding for a special project. The project may be limited to the country or regions involved and should take advantage of local and international funding opportunities. This special IABIN project could be directed, for example, to strengthen local biodiversity informatics capacities and the National Environmental Information Systems, as a way to channel funds to the countries.

There is an additional, complementary aspect to the fundraising strategy outlined that is geared at guaranteeing resources to cover Network recurrent costs associated with IABIN Council and IEC meetings. This relates to the possibility of IABIN country members to contribute an annual fee, the amount of which, can be discussed at the Council meeting, but that could be in the range of US\$500-1,000. Upon funds availability from this measure, it may be also possible to facilitate participation of Network members at bioinformatics training events.

In addition, it has become evident that in order for IABIN to fulfill its mission a revision of its design and future is needed. This includes:

- i) Looking at the convenience of having a wide array of areas of interest (TNs) versus a more focused approach (establishing a niche);
- ii) Define the nature and organization of the IABIN network; is the Network an initiative of a multilateral organization or is it a self-determined initiative of the countries of the Americas that needs a legal framework to carry out its mission and vision, of course, with the collaboration of other regional and multilateral organizations?;
- iii) How does it see itself in the years to come? That is, how may the vision be modified or augmented in relation to challenges and opportunities; and

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- iv) Carrying out fundraising activities with a defined focus on developing a mechanism to guarantee IABIN sustainability, supported by the legal framework needed to pursue this approach.

These considerations will be analyzed in Section III of this document.

III. Outlook, Challenges and Opportunities

This section analyzes how IABIN is seen right now and what things need to be done to make it stronger and able to fulfill its mission and vision.

1. Outlook

Currently IABIN is building up an infrastructure for biodiversity information exchange and is strengthening regional technical capacities to do so. It is initiating a data content building process by which data providers are encouraged to make available their data and shortly it will launch an initiative to produce or adapt information products for decision makers (tools for decision-making, see Reference Document No.3).

Its network architecture includes technical provisions promoting interoperability between the different TNs, which will allow for integrated queries to be conducted by end-users (see Reference Document No. 5).

The IABIN initiative is novel in the region in that it will offer the possibility to integrate:

- a) Specimen and observation records with species data, including images,
- b) Data on invasive species and pollinators with socioeconomic data, and
- c) Geospatial data to be analyzed in an ecosystem and protected areas context for conservation and sustainable development planning purposes.

The Network is well-positioned to support regional initiatives such as the Global Biodiversity Information Facility (GBIF), the Barcode of Life (BCoL), Conservation Commons, the Clearing-House Mechanism (CHM) of the United Nations Convention on Biological Diversity (CBD), the Global Taxonomic Initiative (GTI), and the Encyclopedia of Life (EoL). For some of these initiatives the Network will provide data on biodiversity of the Americas and for others it will be able to contribute, in addition, in-depth species or ecosystems data.

2. Challenges and Opportunities

- i) One of the challenges the Network faces is whether or not it should maintain its emphasis on various TNs or if it should develop a more focused niche approach. It also needs to explore whether current network development arrangements are best suited to obtain sustainability or if changes need to be adopted to achieve this long-term goal.

Today, there are other global or regional initiatives carrying out activities similar to the ones IABIN is sponsoring (e.g., work on specimens, protected areas, pollinators, and invasive species). These initiatives have established their own niche and have adequate financial resources to continue to develop their mandates. These pertain to technological developments, strengthening biodiversity informatics capacities, and competence to attend to the needs of several regions of the world, including the Americas.

Accordingly, IABIN must avoid duplicating these efforts. It can certainly support the efforts undertaken by those organizations, particularly leveraging on the support it has built up in the countries to advance common areas of interest with said initiatives. On the other hand, IABIN should evaluate which ones of its TNs can better further its vision and objectives. This analysis has to take into account the TNs technological and strategic development, impact, and opportunities to contribute to establish an IABIN niche in the bioinformatics arena. In addition, it should consider which one of the TNs has the best potential to contribute to, or complement, other initiatives and to be competitive in obtaining resources to foster its development in a sustainable manner.

There are at least four scenarios or opportunities that could be analyzed under the context above:

- a) **Establishing an IABIN Niche.** In the first scenario, IABIN would secure and maintain a leadership role on bioinformatics. IABIN's TNs are validating and promoting new standards (e.g., Species TN) and creating standards and tools (e.g., Invasive Species and Ecosystems TNs) that will significantly contribute to the biodiversity informatics field and other global initiatives. The TNs have also encouraged the participation of a wide range of IABIN countries and partners in their implementation and enjoy broad support and acceptance across the IABIN network. Some TNs have already considered initiating fundraising efforts and an active program to enlist more institutional and organizational support in the region.

Currently, the database entry tool developed by I3N is being adopted by the Global Invasive Species Programme (GISP) to be used in Malaysia and Morocco. It is expected that additional GISP countries will utilize this database along with training material and tools to manage invasive species data. The ETN is working with the Global Earth Observation System of Systems (GEOSS), United States Geological Survey (USGS) and other partners to contribute to a World Ecosystems Classification. In the Americas, this network is proposing the use of a reference classification to make a crosswalk between the different ecosystems classifications in the region in order to make comparisons among shared ecosystems. This tool would significantly enhance countries capabilities to plan for the management of critical and endangered ecosystems. The SSTN is adopting, validating, and promoting the Plinian Core Schema,

which is a new standard developed by GBIF nodes in Spain and Costa Rica to capture and share species data. IABIN is positioned to play a key role in advancing the use of this standard and can contribute to future updates. The discussed developments in these TNs would facilitate the interoperability of the Network. The areas of interest of these TNs, therefore, seem to form a natural IABIN niche and would serve to focus the Network development.

Based on this, the IABIN vision would evolve to “encompass a leadership role on bioinformatics by strengthening national capacities in this area and by spearheading development of tools and applications for utilization of biodiversity, geospatial, and socioeconomic data related to the identified niche for better environmental management.”

In any case, this scenario would call for financial resources to be obtained to pay for the recurrent costs already mentioned, for technological development of the niche areas chosen, and for the coordination and facilitation of the initiative functions provided by the Secretariat (see Section III.2.ii below as well as Reference Document 4.1)..

- b) **IABIN as a Clearing-House.** In the second scenario, IABIN would maintain itself as a gateway that facilitates access to existing biodiversity information. This would be more cost efficient by centralizing the current TNs network infrastructure into a single web portal and by limiting or eliminating resources for new technological development of tools and applications. Additional data providers could be linked to this infrastructure using existing protocols and developed tools. In effect, the network would be more of a clearing-house focusing on encouraging countries and data providers to share their data rather than in addition developing new technological infrastructures to do so. This would be an appropriate regional role for IABIN and would be coordinated with the CHM.
- c) **Self-sustaining TNs.** The third option would be for IABIN to transfer all responsibilities for management, development, and long-term functioning of the TNs to leading organizations in each of their respective areas [e.g. SSTN to GBIF, PATN to the World Conservation Monitoring Centre (WCMC), PTN to Food and Agriculture Organization (FAO), Catalog and I3N to the National Biological Information Infrastructure (NBII), and ETN to the Smithsonian Tropical research Institute (STRI), the Nature Conservancy (TNC) or NatureServe]. Under this scenario the Network would play a limited coordination and supporting role that could be assumed by the OAS in direct consultation with the IEC and the Secretariat would disappear, in which case there would be no need either for a Secretariat Host. Still the resources for the recurrent costs of meetings (IEC and Council) would need to be raised by the coordinating institution, in this case, the OAS. On the other hand, the responsible

institution would assume the sustainability of each of the TNs and would incorporate its operation costs under their present fundraising strategies. There may be the need for a hosting service to keep some centralized server to integrate Network data, which could be assumed by one of the institutions responsible for the TNs or by the OAS as coordinating institution.

- d) **Consolidation.** A fourth scenario could be a combination of scenarios a) and b). In this case, substantial resources could be saved by combining all the functions of those TNs chosen as an IABIN niche under one roof. This saving will come from having to pay recurrent, operational costs for only one facility. Technical staff would need to be available at this one facility instead of those at each TNs in order to ensure the continued operation and technical development of the chosen areas.

Any of these options will necessitate that additional legal agreements be negotiated and signed between the appropriate IABIN governing body and the organizations involved in providing the support to the Network in the capacities indicated above.

- ii) The IABIN initiative has no legal status and has so far relied on other organizations to represent it in order for donors to be able to give IABIN a grant or donation. As IABIN matures and additional resources become available through fundraising it will be necessary to either obtain legal status so that it can enter into contracts or manage grant proceeds or continue its dependence on OAS, CoK or other initiatives to do so on its behalf (see Reference Document 4.1). In addition, as IABIN position itself as a major player in the bioinformatics arena fundraising activities and entering into legal relationships with partners and donors would be facilitated by being a legal entity.

In the interim, however, a measure has been proposed in Annex 4 of Reference Paper No.6 that will allow for some organization such as the IABIN Secretariat Host, CoK, to represent IABIN in contracts and to manage an IABIN bank account. This measure should be temporary until an IABIN legal status course of action is decided, particularly if Council agrees with the extended IABIN vision proposed in Section III.1.a of this document. Reference Document 4.1 also discusses and recommends some of the options available to secure an IABIN legal status.

Specific recommendations as to how to address the issue described above are found in Reference Documents 4.1 and 6. These should be thoroughly read in order to contribute to the Council discussion and to come to some conclusions and recommendations.

3. Final thoughts

The Summit of the Americas of Presidents and Heads of States of this continent in 1996 gave IABIN a broad mandate to create an infrastructure based on regional cooperation to promote biodiversity information sharing and the use of this for decision making, particularly for environmental management, sustainable development, and education.

It is, therefore, up to the Focal Points, as representatives of the Governments of the Americas, to decide whether it is time for IABIN to move forward and face the new challenges and opportunities outlined here as a legal entity that is supported not only by the nations of the Americas but by many partners throughout the region. By doing so the Council would mandate IABIN to focus its actions on those areas where most likely it will make significant contributions, establish itself as a biodiversity informatics leader in the Americas, and help produce tools and application for the management of biodiversity in the region. All of this, while fulfilling its commitment to support the CHM of the CBD and working to support and collaborate with similar initiatives such as GBIF and the GTI, and by helping build programs such as the BCoL and the EoL.

In order to achieve this goals and mission, the Secretariat proposes that the IABIN vision be amended to:

"IABIN is a leading, self-sustained, autonomous, and focused biodiversity information network in the Americas that provides open access to high quality, relevant information on biodiversity to users throughout the public and private sector of the region and to other interested parties worldwide."