

ANNEX A

AGENDA

Revised Draft Agenda
Second Meeting of Experts Regarding the Establishment of the
Inter-American Biodiversity Information Network
27-28 January 1998, Washington, D.C.

Day 1 - Tuesday, January 27, 1998

9:00 a.m. - 9:30 a.m. Welcome and Introductions

Mr. Kirk P. Rodgers, Director, OAS/USDE

Amb. Sarah Horsey-Barr, Chair, CEPCIDI Ad Hoc
Committee on Sustainable Development

Dr. Braúlio Dias, Chairman of the Meeting

9:30 a.m. - 1:00 p.m. Planning for the Brazil IABIN Meeting

- Discussion of potencial agenda points for Brazil meeting: Dias
- Review draft TOR for Brazil background papers: Canhos, Samper, Mata, Dias, Muñoz, Cotter
- Review draft TOR for potential pilot projects feasibility studies for GEF proposal: Arriaga, Cotter, Muñoz
- Determination of organizing committee and procedures for Brazil meeting: Dias

1:00 p.m. - 2:30 p.m. Lunch

2:30 p.m. - 5:30 p.m. Development of the IABIN Network

- Discussion of alternatives of support for document preparation: Dias
- Discussion of ways to mitigate doubts raised about IABIN: Dias, Castro
- Coordination with CBD/CHM and process for gaining endorsement: Dias and Torres

5:30 p.m. - 7:30 p.m. Reception

Day 2 - Wednesday, January 28, 1998

9:00 a.m. - 11:00 a.m. **Development of the IABIN Network (continued)**

- Information on OAS follow-up activities from IABIN-I (IABIN focal point request, distribution of IABIN-I reports, and Interagency Task Force on Sustainable Development): OAS
- TNC presentation on Network data base OAS contract: TNC

11:00 a.m. - 12:00 p.m. **RESOURCES FUNDING DEVELOPMENT**

- OAS funding and commitments: OAS
- USAID funding and commitments: Cotter
- Government of Brazil funding and commitments: Dias/Canhos

12:00 p.m. - 1:30 p.m. **Lunch**

1:30 p.m. - 4:30 p.m. • Proposal for GEF support for IABIN: Dias, Castro

4:30 p.m. - 5:30 p.m. **FOLLOW-UP ASSIGNMENTS AND COORDINATION PROCEDURES**

5:45 p.m. **Adjournment**

ANNEX B

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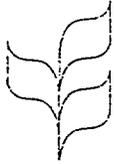
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ANNEX C

**REPORT OF THE FIRST MEETING OF THE
CLEARING-HOUSE MECHANISM REGIONAL
WORKSHOP FOR LATIN AMERICA AND THE
CARIBBEAN**



CBD



CONVENTION ON
BIOLOGICAL DIVERSITY

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CLEARING-HOUSE MECHANISM
REGIONAL WORKSHOPS
First Meeting
Cartagena de Indias, Colombia
13 to 15 October 1997

ADVANCE UNEDITED COPY

REPORT OF THE FIRST MEETING OF THE
CLEARING-HOUSE MECHANISM REGIONAL WORKSHOP
FOR LATIN AMERICA AND THE CARIBBEAN

Introduction

1. In accordance with Decision III/4 of the Conference of the Parties, the Clearing-House Mechanism Regional Workshop for Latin America and the Caribbean, hosted by the Government of Colombia, was held in Cartagena de Indias, from 13 to 15 October 1997.
2. The meeting was attended by representatives of Argentina, Belize, Brazil, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Jamaica, Mexico, and Peru, as well as representatives of the Global Environment Facility (GEF) and observers from the German Agency for Technical Cooperation (GTZ), US Geological Survey, Biological Resources Division, Central American Commission for the Environment and Development (CCAD), BirdLife International/BCIS. A full list of participants is attached as Annex I.

Agenda Item 1: Opening of the Meeting

3. The meeting was opened at 09:00 on 13 October 1997 by the representative of the Secretariat, Mr. Marc Auer, Programme Officer

of the Clearing-House Mechanism, who welcomed the participants on behalf of the Executive Secretary, Mr. Calestous Juma. In his welcoming address, read to the meeting, the Executive Secretary expressed his gratitude to the Government of Colombia for its offer to host the regional workshop and for its continued efforts to promote the Clearing-House Mechanism. He also thanked the Governments of Germany and Australia for their additional voluntary contributions. He noted that the meeting was laying the basis for furthering co-operation and synergy among those who are developing their national biodiversity information and co-operation capacities. The Executive Secretary recalled the importance of the first regional workshop of the Clearing-House Mechanism in the development of the CHM pilot-phase and which will provide recommendations to the fourth meeting of the Conference of the Parties in May 1998.

4. Mr. Cristián Samper welcomed the participants on behalf of the Government of Colombia. He also expressed his satisfaction that the first regional workshop of the Clearing-House Mechanism was being held in Colombia, and his appreciation for the close co-operation between the Government of Colombia and the Secretariat of the Convention in the organization of the workshop. He read the statement of Mr. Fabio Arjona, Vice-Minister for the Environment. After thanking the Secretariat and the Governments of Germany and Australia, he stressed the need to discuss the relationship between the CHM and regional initiatives and the identification of elements particular to the region.

Agenda Item 2: Election of the Chairperson

5. Mr. Cristián Samper (Colombia) was elected Chairperson and Mrs. Dalia Salabarría (Cuba) was elected Rapporteur of the meeting.

Agenda Item 3: Adoption of the Agenda and Organization of Work

6. The provisional agenda as contained in document UNEP/CBD/CHM/RW/1/1 was adopted. The provisional organization of work, contained in document UNEP/CBD/CHM/RW/1/1/Add.1, was also adopted. The agenda is attached as Annex II and the list of documents for the workshop is attached as Annex III.

Agenda Item 4: Introduction and background

7. The Secretariat made a presentation on the state of the art of the CHM introducing document UNEP/CBD/CHM/RW/1/2. This background document was prepared by the Secretariat for the purpose of facilitating the First Regional Workshop on the Clearing-House Mechanism of the Convention on Biological Diversity, recalling the recommendations and decisions related to the Clearing-House Mechanism. To further assist

the Regional Workshops, the document restates the terms of reference of the Meeting, as formulated by the Conference of the Parties to the Convention on Biological Diversity, namely, in order to attain a clear definition of country and regional-level scientific and technical information needs, priorities identified, modalities to deliver information and evaluation of national capacities for the implementation of the Convention. The regional workshops should also review experience in scientific and technical co-operation in support of the objectives of the Convention, in order to identify ways by which the Clearing-House Mechanism can best facilitate such co-operation.

8. The representative of the Secretariat stressed the latest developments of the CHM pilot phase until June 1997, with respect to the guidance provided by the Convention's bodies, partners and target group, concept and current status, regional workshops and prospects and expectations.

Agenda Item 5: Preliminary exchange of views

9. The delegations of Argentina, Colombia, Mexico, Cuba, Ecuador, Costa Rica, and Jamaica made interventions. It was stated, *inter alia*, that the Clearing-House Mechanism was supposed to be more than an information system and should be clearly focused on the implementation of the three objectives of the Convention.
10. Participants also stressed that the CHM should facilitate and promote technical and scientific co-operation.

Agenda Item 6: Presentation of country experiences

11. The representatives of the following countries made presentations about the state of their national Clearing-House Mechanism activities as well as about the implementation of the Convention: Argentina, Belize, Brazil, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Jamaica, Mexico and Peru.

Agenda Item 7: Presentation of regional experiences

12. Representatives of the Interamerican Biodiversity Information Network (IABIN) and the Central American Commission for the Environment (CCAD) made presentations on regional initiatives.

Agenda Item 8: Presentation of thematic experiences

13. The representative of Biodiversity Conservation Information System (BCIS) made a presentation on thematic experiences.

Agenda Item 9: Presentation of information content

14. Mr. Vanderlei Canhos (Brazil) made the presentation on information content.

Agenda Item 10: Presentation on information structure

15. The presentation on information structure was made by Mr. Hesiquio Benitez (Mexico).

Agenda Item 11: Presentation on capacity building

16. Mr. Arturo Martinez (Argentina) presented the agenda item on capacity building.

Agenda Item 12: Presentation of the Global Environment Facility:
Support to the National Implementation of the CHM

17. Mr. Gonzalo Castro, stressed the interest of the Global Environment Facility (GEF) in financing projects for the implementation of the Convention and the development of the CHM. He presented a wide array of options to access GEF funding. He also noted the need for regional perspectives and the importance of liaising CBD projects with initiatives of other international and regional treaties.

Agenda Item 13: Discussion of agenda items 9, 10 and 11

18. Discussion of agenda items 9, 10 and 11 were conducted on October 14 and October 15.

Agenda Item 14: Presentation of results and recommendations of agenda items 9, 10 and 11

General recommendations

19. The Clearing-House Mechanism must be designed to promote and facilitate scientific and technical co-operation, and contribute to the implementation of all three objectives of the Convention on Biological Diversity.

20. Information systems are an important component of the Clearing-House Mechanism. In addition, it should provide other services, including implementation of the provisions of Article 12 of the Convention.
21. The implementation of the Clearing-House at the national level requires the strengthening of national capacities.
22. The Clearing-House should be needs-driven, and based on an assessment of needs for technical and scientific co-operation by potential user groups.
23. Benefits of the Clearing-House include better data for decision making, support faster access to existing knowledge, promote technical and scientific communication and avoid duplication of efforts, allow additional comparisons among existing data and generation of new information, and a more effective and efficient implementation of the Convention.
24. The implementation of the Clearing-House Mechanism will require, *inter alia*, access to metadata and databases, information technology, institutional strengthening, human resources and training.
25. Potential users of the Clearing-House Mechanism include national governments, research and training institutions, international organizations, non-government organizations, civil society, private sector and communications media.
26. Data used for the Clearing-House Mechanism needs to be organized, standardized and made available, in order to integrate, interpret and summarize them according to needs.
27. Ownership of all information made available through the Clearing-House Mechanism shall remain with the provider of the information. Restrictions to access may exist according to terms and conditions agreed upon with the provider.
28. Benefits should be shared with the providers of the information, especially information related to the use of traditional knowledge, innovations and practices of local and indigenous communities, in accordance with Article 8(j) of the Convention.
29. Data quality and updating is an essential component of information management, and shall be the responsibility of the provider of the information at the national level.
30. Information exchange should take advantage of information technology including, *inter alia*, the use of the INTERNET, CD-ROM's and diskettes.
31. Financial resources need to be made available to support the implementation of the CHM, through bilateral and multilateral funding institutions and other international donors. The GEF, as the interim financial mechanism, should maintain a range of funding options that are flexible and meet national needs and in accordance with Decision

Content:

32. Contents of the Clearing-House should include information and technical and scientific co-operation provided by the Convention on Biological Diversity and parties, and also among different users at the national level, and should be a two way mechanism.
33. At the multilateral, regional, sub-regional and bilateral levels, the content of the Clearing-House should include the content of national strategies, programs and plans, and can also include, but not necessarily be restricted to:

A. Full text of the Convention

The importance for National Focal Points to make available the convention provisions and decisions in the native language (making an appeal so that all UN official languages will be in the Secretariat's page) and the interpretation (national and in non technical language) of resolutions and opportunities, is recognized.

B. Information on the Country Studies, National Strategies and Reports, including, *inter alia*, case studies and practices, to the COP. This information besides complying with COP mandates has the function of being highly informative at national level.

C. Opportunities for international, regional and multilateral co-operation.

D. National information on other international and regional treaties related to biological diversity of which the country is member. This information is useful at national level, because it identifies points of contact among different conventions and facilitates the synergy between different commitments the country has. The importance of establishing links among different conventions is recognized. Moreover, each party shall identify existing national focal points in each convention and shall identify the ratification procedures.

E. Case studies referring to activities related to the implementation of the Convention.

34. In order to promote scientific and technical co-operation at the national and regional level, common needs and priorities from other parties should be clearly identified. Examples at the regional level includes shared ecosystems, migratory species and invasive species. Also information about markets, biological collections, maps and satellite images, clean technologies, training opportunities and funding sources.

35. The content of the Clearing-House at the national level may include, but not necessarily be limited to the following aspects, depending on national priorities and capacities:

- a) National Legislation, i.e.
 - Biodiversity conservation
 - Sustainable use
 - Access to genetic resources
 - Access to transfer of technology
 - Patents
 - Biosafety
 - Environmental legislation (list of threatened species both national and international)
 - Incentive measures
 - Threatened and endangered species
 - Intellectual property rights

- b) Biodiversity Information and Practices
 - Components of biological diversity, including:
 - Described genes and genomes
 - Species and communities at different levels, spatial (nation, state) and temporal
 - Ecosystems and habitats
 - Data monitoring activities
 - In-situ conservation (National Protected Areas, Priority Areas)
 - Ex-situ conservation (plants, animals, micro-organisms)
 - Sustainable use of biological resources
 - Incentive measures
 - Transgenic species
 - Introduced species

- c) Information on indigenous and local communities knowledge, innovations and practices

- d) Technological Information
 - Technology (available, required)

- e) Threats:
 - Direct
 - Indirect

- f) Directory of Institutions and experts
 - Researchers
 - Scientific collections
 - Research Institutes

- g) Economic Valuation of biodiversity and incentives for its sustainable use

- h) Markets and trade of goods and services related to biodiversity

- i) Environmental impact assessment and management

- j) Services including, training, surveys, technology experts or other specialties

Structure

36. The need for a clear structure shall be identified to promote scientific, technical and technological co-operation within the CHM. Further, it is proposed that a common structure based on agreed elements be used by the CHM-National Focal Points (NFPs) and the Secretariat of the Convention. This would create a CHM-identity among the national CHMs. The CHM National Focal Points should be linked with the National Focal Point of the Convention. These CHM National Focal Points should also serve as Focal Points for regional and other similar initiatives related to the activities of the CHM.
37. On a general scale two distinct "roles" can be identified emphasizing the tasks of information structuring (content) of:
- (i) the Secretariat and
 - (ii) the CHM National Focal Points.
38. The Secretariat should be responsible for summarizing and facilitating information at the global level, while the NFPs should focus on information at the national level.
39. The Secretariat should assist in linking the non connected CHM National Focal Points to the world wide web.
40. National Focal Points of the CHM should facilitate access to information, conduct surveys of information needs and information providers at the national and local levels, produce directories that promote better communication, avoid duplication of efforts, and promote scientific and technical co-operation.
41. National Advisory Committees could be established to assist the National Focal Points in establishing needs and priorities, as well as to monitor the impact of the Clearing-House Mechanism on the implementation of the Convention at the national level.
42. The following alternatives can be taken into account when establishing the CHM National Focal Point:
- (i) A single organization with an Advisory Committee;
 - (ii) A Commission or a Steering Committee;
 - (iii) A Network of Organizations.
43. The role of the Clearing-House Mechanism may be transactional between information providers and users.
44. In order to facilitate the exchange of ideas and experiences in the development of the CHM it is proposed to establish a CHM-NFP e-mail group including the currently 169 NFPs, moderated by the Secretariat.

45. The following recommendations are possible options to guarantee access to information for non-web-connected NFPs:

(i) Establish facilitator roles for non-web-connected NFPs by those NFPs who have access to Internet and additional space on their server for this kind of bilateral collaboration. This also would help to create CHM identity among the parties. It is recommended that the Secretariat explore with the GEF modalities to enable non-web-connected NFPs to submit their information to the facilitating NFP.

(ii) Explore ways and means to present CBD related requests submitted via various "traditional" media, e.g. e-mail, telephone, fax, letter, to the Secretariat, NFPs or the relevant institutions.

(iii) Present the "CHM" on a CD-ROM.

(iv) Provide a list of CBD-related CD-ROMs which are relevant to the different articles and thematic areas identified by the Convention.

46. To improve synergy with regard to information exchange with other CBD-related conventions (e.g. CMS, CITES, Ramsar, Convention on Desertification, Climate Change, WTO), between CHM and other information management initiatives (e.g. MAB-UNESCO, UNDP-SNDP, UNEPnet, OECD, G7), the avoidance of duplication of efforts is recommended.

Capacity Building

47. In order to promote and facilitate co-operation between Parties, for implementing the Convention, capacity building in areas concerning its three objectives is needed. In this sense Article 12 of the Convention provides guidance on how to promote and facilitate the development of human resources and institutional enhancement, taking into account the needs of developing countries.
48. In addition, the CHM in compliance with Article 18 (3), should not only enhance capacity in data management, but also assist Parties to prioritize country-driven areas of research, education and training. This increasing scientific, technical and technological capacity shall promote both North-South and South-South co-operation.
49. As it is implied in Article 12 (c), financial support by the Financial Mechanism of the Convention is required in order to implement both the human resource development and the institutional strengthening.
50. Co-operation in capacity building shall include, but not be limited to:

A. Human Resource Development

I. Information Technologies and Management for promoting and facilitating cooperation in:

- a) Biodiversity data and information management including data search capabilities;
- b) Information exchange capabilities;
- c) New communication technologies;
- d) Tool-kit development and test phase, and training for using the tool kit;
- e) Non-electronic communication technologies;
- f) Information on policy and management issues relevant to the implementation of the Convention.

II. Other capacity building needs for promoting and facilitating co-operation in:

- a) Developing national strategies, plans and programs for the three objectives of the Convention;
- b) Improving existing capacity by sharing experiences of country-driven projects and case studies on conservation, sustainable use and equitable sharing of benefits;
- c) Developing joint research programs and training in policy research, and joint ventures for the developing of technologies according to Article 18;
- d) Enhancing NFPs capacity to facilitate the identification of needs, weaknesses and strengths of users and providers.

B. Institutional Strengthening

I. Information Technologies and Management

- a) Internet connectivity: hardware and software
- b) Compatibility and harmonization of formats and standards
- c) Interoperability of software
- d) Internet support to other countries without Internet capabilities
- e) Development of an Internet home page
- f) Adequate computer and server capabilities.

II. Relationships

- a) Technical and scientific co-operation within regions
- b) Accessibility of information outside the country and repatriation of information
- c) Sharing of experiences
- d) International encouragement and support for the development of the national Clearing-House Mechanism
- e) Learning and feedback experience
- f) Contact with the Secretariat to ensure the CHM is developing in line with current decisions of the COP

- g) Building of a Biodiversity network with other CHM Focal Points
- h) Information centers

III. Other Institutional Strengthening Needed

- a) Permanent base to operate from
- b) Publishing Capacity
- c) Organizational structure including specialized staff and financial resources (e.g. meeting facilitator)

Agenda Item 15: Finalization of the report and recommendations

51. The meeting invited the Secretariat to conclude the final report.

Agenda Item 16: Adoption of the report

52. On 15 October 1997, the participants considered the draft final report. Amendments were considered and agreed. The draft final report was adopted.

Agenda Item 17: Other matters

53. Delegates also recommended that regional initiatives should be considered in future regional CHM meetings.

Agenda Item 18: Closure of the meeting

54. The Chairperson closed the meeting at 9:10 p.m. on 15 October 1997. The delegates thanked the local organizing committee of the meeting and the Secretariat of the Convention on Biological Diversity.

ANNEX D

**INTERNET TOPOLOGY AND CONNECTIVITY
IN THE AMERICAS**

Terms of Reference

Internet Topology and Connectivity in the Americas

Goal:

Assess the status and trends of the Internet connectivity in the Americas, enabling the establishment of a strategic plan for this sector.

Items to be analyzed:

- 1) Number and throughput of backbones (national, regional, international)
- 2) Backbone reliability (routing and redundancy)
- 3) Traffic and usage rates
- 4) Growth rates of domains, web users and servers
- 5) Plans for upgrading backbones and links (including high speed technology)
- 6) National telecommunication policies
 - a. Monopoly versus competitiveness (including number of carriers)
 - b. Regulations
 - c. Infrastructure
 - d. Services to end-users (education, social, industry, ...)
 - e. Technical expertise and capacity building programs
- 7) Regional and international telecommunication agreements

ANNEX E

INFORMATION EXCHANGE

INFORMATION EXCHANGE

Objective:

To access the status, trends and barriers for access to and exchange of information, and evaluate the potential role of international transfer formats.

Specifically:

- Evaluate initiatives to facilitate information exchange in the Americas
- Review existing international information transfer formats (eg. ITF-Botanical Gardens, SINGER-CGIAR, NABIN, GZ working group, etc.)
- Identify and analyze barriers to information exchange, such as:
 - status of information
 - technology available, connectivity
 - institutional management
 - legal aspects
- Ways and means to improve information quality
- Intellectual property rights and ownership of information, including sample agreements and or MOU's used.

ANNEX F

BDM PROJECT IN CHILE AND COSTA RICA

Proyecto BDM: Un primer paso hacia una metodología para el desarrollo del informe, estudio y estrategia del país en biodiversidad y para el establecimiento de redes mundiales de información sobre biodiversidad.

Objetivo general:

Describir el proyecto BDM en general y sus implementaciones particulares en Costa Rica y Chile, como primer paso para un proceso continuo de generación, manejo y divulgación de información para suplir necesidades establecidas en la Convención sobre Biodiversidad tanto a nivel nacional como regional.

Objetivos específicos:

1. Describir los proyectos BDM implementados en Costa Rica y Chile.
2. Plantear el proyecto BDM como primer paso lógico para establecer redes regionales o mundiales de instituciones que manejan información sobre biodiversidad.
3. Plantear el proyecto BDM como parte de una metodología para el desarrollo del informe, estudio y estrategia del país en materia de biodiversidad.
4. Identificar, a partir de la experiencia chilena y costarricense, los mecanismos para establecer redes regionales a partir de las redes nacionales creadas por el proyecto BDM.

Metodología:

Se contratarán dos consultores para desarrollar el documento. Los términos de referencia se indican a continuación:

1. Ingeniero en informática.
2. Al menos un año de experiencia como analista de sistemas.

Un consultor trabajará en el INBio, Costa Rica, durante dos meses y el otro en CONAMA, Chile, durante el mismo tiempo. Cada uno viajará al otro país para estudiar durante tres días la experiencia desarrollada. El producto final será un documento y una presentación con multimedios que cumple los objetivos específicos mencionados anteriormente.

Duración

Tres meses.

Presupuesto

2 meses de sueldo x dos personas tiempo completo	\$2,000*2*2= \$8,000
2 viajes y viáticos:	\$3,000
Total:	\$11,000

ANNEX G

BUSINESS CASE ANALYSIS

BUSINESS CASE ANALYSIS FOR IABIN

Submitted by Gladys Cotter

U.S. Department of Interior, U.S. Geological Survey, Biological Resources Division

CHALLENGE

The objective of developing a "business case" for IABIN is to define the scenarios under which one could expect to identify and obtain on-going, long term support as a result of expected benefits. In other words it defines and substantiates that there is a positive cost/benefit on a program or project. Although we traditionally think of this in monetary terms, a "business case" for a public/private initiative like IABIN must include qualitative and intangible factors. Good decision making or public good will, for example, are valid benefits.

To make a business case, one needs to understand the costs and benefits of IABIN. These relate directly to the strategic and long-range plans of IABIN. One must look at the data in much more operational and implementation-oriented terms. It will have to identify among other things:

- What IABIN is as a design concept, what products does it offer or enable?
- What/who is the market or users for IABIN?
- What are the input or raw materials, e.g. information resources, infrastructure?
- What are the costs involved in creating and maintaining the design concept for IABIN?
- What are the alternatives for providing the same or similar products and it's impact on the likely success of IABIN?

In the general context of business planning, the simplest business case is based on users' willingness to pay for use of a network. Unfortunately, to make a case for IABIN, one has to deal with the major issue that IABIN is intended to establish and facilitate primarily a free network for data and information sharing. IABIN is a complex mixture of public and private good, and this must be factored into the business case.

In terms of the variables of a business case for IABIN, one must consider both the nature and value of the substance of IABIN; i.e., biodiversity, the value of biodiversity information, as well as the value of the information network, which delivers the product to the user.

Difficult issues to be considered and factored in to the development of a business case:

- Implications of the value of biodiversity, biodiversity information, and then the value added of an information network that supports biodiversity.
- Measuring the impact on decisions regarding biodiversity or the result of good decisions. What are the costs of making a decision without sufficient information. E.g., how does one measure the impact of an IABIN on the decision-making process (that's the output)?

- Public vs. private good aspects of IABIN and implications for a "business case". Could one waive the public good aspect for evaluation purposes and assume that IABIN costs money and then determine how much users are willing to pay?
- Implications of new technologies and communication paradigms; i.e., the Internet for which the "business case" itself is in question.
- Possible disparities in who bears the costs and who receives the benefits.
- The negative impacts if IABIN didn't exist. What are the alternative costs of obtaining this information (substitute values)?
- Measuring the inputs or costs of development. Are they incremental to ongoing efforts? How do we measure the outputs or value derived from the outputs (products and services)?
- Looking at the network nature, one could consider the value of each country obtaining the data itself versus the costs of doing this cooperatively (include both tangibles and intangibles).
- The issues, justification, and opportunities for the long term financial sustainability of IABIN.
- Identifying the potential sources of funds, both public and private

STATEMENT OF WORK AND DELIVERABLES

The consultant needs to become familiar with IABIN and its development.

The consultant should review the existing literature that addresses this issue, talk to experts working in the fields of biodiversity economics, information system economics, and the value of information for decision making.

A business case for IABIN should be written that takes in to consideration all of the above factors. It should be coordinated closely with overall strategic and work plans being developed.

There will be a draft document provided for review. Based on the review and suggested changes, a final case will be written.

KEY REFERENCE DOCUMENTS

These are contained in Attachment 1.

ATTACHMENT I
BIBLIOGRAPHY

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ANNEX H

BIRDS OF THE AMERICAS

The Birds of the Americas

A Preliminary Proposal to the

Interamerican Biodiversity Information Network

The Idea

This project is oriented around the idea of construction of a first module of the biodiversity clearinghouse mechanism proposed in the Biodiversity Convention. Because biological species distributions or the distributions of ecosystems and biotypes rarely coincide with political boundaries, integration of efforts across these artificial boundaries becomes a priority for catalyzing effective conservation action, as well as scientific activity on a number of topics.

Building from a base of experience first with the construction of the databases central to the *Atlas of the Distribution of Mexican Birds*, and more recently with implementation of the *North American Biodiversity Information Network's Birds of North America* project, it is proposed that extension to encompass the birds of the Americas constitutes a next logical step. Using new technologies based on the World Wide Web, data from numerous institutions—both governmental and non-governmental—would be made freely available to all users, and facilities provided for query, visualization, analysis, interpretation, and export.

Objectives

- Implementation of a first module of the clearinghouse mechanism in the Western Hemisphere, focusing on the *Birds of the Americas*
- Repatriation of data to source countries from diverse institutions principally in the Northern Hemisphere
- Open exchange of data among all participating data caretakers, and with a broad user community
- Provide tools to a broad spectrum of users for understanding biodiversity distribution, diversity, and uniqueness
- Provide tools for interpretation of biodiversity information into conservation prioritizations
- Open doors to a new level of understanding of one important component of New World biodiversity

Significance

The significance of the effort that is herein proposed is fourfold, as follows:

- *Initiation of data-sharing efforts.*—Article 17 of the Biodiversity Convention emphasizes the critical importance of sharing information among countries. Although several initial steps have been taken, sharing biodiversity data at a regional or hemispheric scale has not seen significant advances. This step, apart from fulfilling Convention commitments, serves also to catalyze additional such advances in diverse fields.
- *Repatriation of information from developed countries to source countries.*—Much of the history of biodiversity exploration in the Americas can be characterized by a strong, unidirectional flow of information from south to north. In this way, much of the knowledge regarding the biota of the Americas resides in institutions and resources in the United States and Europe. The proposed

effort would in many regards eliminate this bias in information flow, allowing information to flow freely in all directions.

- *Remove differences of data access and analytical capability.*—Another common theme across the Americas is that of differential access to information and infrastructure. The proposed effort would, in small yet significant ways, remove this inequality by means of making information equally accessible across the region, allowing investigators and conservation planners anywhere to access the same information pool. In addition, important analytical tools tied directly to the information facility would allow all involved access to the same suite of analytical tools.
- *Catalyze rapid analysis and interpretation of regional patterns of biodiversity.*—Removal of barriers to data access and analysis constitutes a key step in initiating rapid progress in the understanding of geographic patterns in biodiversity, and in the delineation of effective, scientifically based conservation strategies. Once workers across the Americas have this access, we anticipate prompt development of diverse applications of the information base to the manifold challenges of biodiversity conservation throughout many regions in the Americas.

Preliminary Project Plan

Assembly of an Americas-wide avian information network will require cooperation by diverse information sources, as well as financial and institutional support at a significant level. We envision a stepped-implementation, in which data from core institutions in the United States are used to achieve the information repatriation goals, followed by accretion of many additional data sources in efforts to achieve the broader goals of open information-sharing and collaborative action.

Much of the feasibility of the proposed project is built on 1997 progress in the North American Biodiversity Information Network. In that effort, political consensus was built among approximately 110 institutions, key data caretaking steps such as metadata construction and georeferencing of localities were achieved, technological advances permitting data to be located at dispersed sites to be included in centralized efforts were made, and the groundwork for a prototype, Internet-based system was laid. These NABIN advances coincide exactly with needs anticipated in constructing the *Birds of the Americas* facility, and hence eliminate or minimize several critical challenges.

Finally, many capacities are added to the NABIN facility thanks to the Biodiversity Insight System under development by Dr. David Stockwell of the San Diego Supercomputer Center. This web-based facility permits visualization of biodiversity point data in a geographic context, modeling of ecological niches and prediction of geographic distributions, interpretive modeling and analysis, and export of resulting maps and tables in a broad variety of formats. An especially important capacity is that of export in ARC/GRID format, permitting ready incorporation into GIS studies. This facility adds many important capabilities to the proposed network by taking the process beyond simple data tables to actual interpretive and synthetic maps and images.

Planning stage.—At this point, careful assessment of the dimensions of the challenge will be necessary. Careful investigation of distribution and status of critical data sets will be necessary, as will be contacting each data source with regard to interest in participation. Critical data sources would include scientific collections, observational data sources, conservation status data sources, and other ancillary information. A series of demonstrations and discussions at centralized meetings and in individual countries would be involved.

Initial steps.—The first concrete steps in the process of building such an information system are those of building infrastructure. Development of taxonomic authority files, georeferencing capabilities, and computerization of individual collections would be promoted by means of tools and

guidelines developed in the NABIN effort and other initiatives. The NABIN prototype system, providing the information stored in many of the large North American scientific collections openly via the Internet, would serve to demonstrate the potential benefits of such data-sharing initiatives, and to show initial good-will on the part of the data-rich countries with regard to their data-poor southern neighbors. These steps would serve to demonstrate concrete benefits to potential participant data sources.

Subsequently, extension of the NABIN prototype biodiversity data sharing and interpretation facility would be necessary to include additional data sources in the Americas outside of the three-country NABIN region. This process of accretion of data sources to the central system is relatively easily accomplished, as any institution with an Internet server and computerized collection is a potential candidate for participation. Hence, an early goal would be to establish participant nodes in the extended prototype system throughout the Americas.

Full implementation.—Once a functioning prototype system for the *Birds of the Americas* project is established, that example of such a facility would be used to demonstrate the value of participation to a broad suite of data sources across the Americas. We envision identification of 20-50 potential participant institutions across the region, and searching for funding at the level of \$1-5M to permit connection of all to the system. Funding would be dedicated to assisting the participant institutions in final preparation and editing of their data sets, fine-tuning of web servers, and travel and communication expenses involved with actually connecting them to the system. The potential result would be an all-Americas data network permitting free and open interchange of information in real time.

ANNEX I

**INFORMATION SYSTEM ON NON-NATIVE
INVASIVE SPECIES**

INFORMATION SYSTEM ON NON-NATIVE INVASIVE SPECIES

BACKGROUND

Throughout history, human populations have transported plants, animals, and their associated pathogens and diseases from one region to another. Many non-native species have been intentionally introduced into new areas. Some of these have become mainstays of modern agriculture, aquaculture, horticulture, forestry, livestock and other resource-based industries. Other species have been transported unintentionally by domestic animals, vehicles, commercial shipments, in ballast, and other pathways. A substantial number of introduced species have established free-living populations, of which some have become invasive in croplands, rangelands, waterways, and natural ecosystems, causing significant economic losses, impacts on ecosystem functions, and threats to native species. In the current century and particularly during the last decade, the economic and ecological risks from non-native invasive species (NIS) have increased due to increasing commerce and travel, elimination of trade barriers, and diversification of the pathways for introduction, as well as the increasing disturbance of natural habitats, which favors the spread of opportunistic non-native species. Impacts are becoming particularly severe in countries with long histories of disturbance and diversified trade, in which established NIS have had time to invade large areas.

CURRENT INFORMATION SITUATION

Non-native invasive species are a growing problem throughout the hemisphere. However, efforts to assess and address the problem are hampered by limited information on the status and trends in many invasive species, especially those affecting primarily natural areas. There is also inadequate sharing of information and experience in prevention, early detection of new invaders, monitoring of established populations, methods for control of invasive species and restoration of degraded areas.

Many species native to the Old World have become invasive in the Western Hemisphere. Other species native to a particular region of the Hemisphere have become invasive in other regions. In the United States, a national action plan is being developed to address the threats from NIS. A fundamental component of this initiative is the development of an Internet-based Alien Species Information System to facilitate electronic access to sources of data and information on invasive species, and eventually enable data and information from many sources to be systematically documented and integrated.

The development of strategies to assess and address threats from NIS in the Hemisphere will benefit from coordinated efforts to locate, systematically document, and provide electronic access to sources of information on the taxonomy, distribution, ecology, control, and management of NIS. Vascular plants provide an appropriate initial focus of such efforts because many countries have long histories of introductions and are experiencing significant impacts from an increasing number of invasive plants.

INFORMATION SHARING CHALLENGE

Sources of information on non-native invasive plants in the Western Hemisphere include floras, museum collections, biological inventories and surveys, professional publications, and unpublished records of government agencies, non-governmental entities, and international organizations. Many deal only incidentally with the origins and establishment of non-native species, and thus require documentation to be useful in identifying risks and addressing threats. Available syntheses of information focus on a small number of highly invasive agricultural weeds. Information on invasive plants in natural areas is much less extensive and available. Useful information developed by North American institutions may not yet be readily available to users in Latin America. The value of the Internet in facilitating access to sources of information remains to be developed.

In the U.S., various regional and national projects are developing information on the taxonomy, distribution, status, and control of invasive plants. The National Biological Information Infrastructure, coordinated by the U.S. Geological Survey, offers a national framework for documenting and linking these efforts. Development of information systems on invasive plants has been especially well supported in California, which has the largest vascular flora of any U.S. state (about 9000 species) and widespread threats from invasive plants. These efforts are planned and implemented through partnerships involving the University of California, state and Federal research agencies, and The Nature Conservancy. They include a geographic information system on invasive plant distributions (California Flora Project), and an information system to facilitate management and control of weeds (California Interagency Noxious Weed Project). The University also provides technical assistance worldwide to the Man and the Biosphere Program for MABNET, which is developing an on line database on the taxonomy and status of plant and animal species in biosphere reserves and other protected areas. The MABFlora component includes information on non-native species. The initiative includes MABNetAmericas, a Hemispheric database referenced in the Bolivian Summit Agreement and its initial work on the Hemisphere's 100 biosphere reserves (including the 10 sites in California) to computerize local biological data and report these data via the internet.

Western Hemisphere countries along the Pacific coast provide a logical geographic focus for demonstrating the practical benefits of cooperation in locating, documenting, and facilitating Internet-access to information on invasive plants. The great climatic, physiographic, and ecological diversity of the region from Alaska to Chile has facilitated the evolution of a diverse native flora. The region has a long history of human spread of non-native plants, and has many areas which are particularly vulnerable to introductions of new invasive plants associated with expanding intra-hemispheric and world trade. A number of Pacific Rim countries in Latin America are developing databases on their biological diversity through government programs (e.g., Costa Rica, Chile) and/or Conservation Data Centers (e.g., Peru, Ecuador, Colombia) developed domestically in partnership with the The Nature Conservancy.

A pilot project under the auspices of IABIN could facilitate cooperation among agencies and institutions concerned with the problem of invasive plants in countries with considerable differences in awareness of the problem, existing policies, institutional capabilities, information needs, and available information. The project would identify issues of concern, user constituencies, and the needs of users for information in the participating countries. This perspective would facilitate recommendations on shared objectives for identifying, documenting, and facilitating access to sources of data and information, and the basis for developing and testing a prototype information system to provide useful products to meet user needs, including a preliminary compilation of national and regional checklists of non-native species in the participating countries.

TECHNICAL CHALLENGES

The IABIN pilot project would enable the cooperating parties to identify and address a variety of technical issues in organizing and communicating information on non-native invasive plants to meet the needs of the many sectors involved. Potential issues to be addressed include

- o differences among nomenclatural treatments of vascular plants
- o standards for documentation of geospatial and topical data
- o quality control of reported data and information
- o home page content and design
- o developing and maintaining local capacity for data management and internet connectivity
- o assuring a transparent multi-lingual framework
- o addressing limitations in telecommunications capabilities

POTENTIAL COLLABORATORS

- o Regional and Global Programs: MABNetAmericas; Biodiversity Conservation Information System (IUCN)
- o Institutions in Participating Latin American Countries
 - Conservation Data Centers
 - Cooperating Government Agencies and Non-governmental Organizations
- o U.S. Institutions and Partnerships
 - National Biological Information Infrastructure (U.S. Geological Survey in cooperation with institutions managing major plant databases)
 - Federal Interagency Committee for the Management of Noxious and Exotic Weeds
 - Institutions and Partnerships in the State of California (University of California, California Nature Conservancy, Cal Flora Project, California Interagency Noxious Weed Project)

STATEMENT OF WORK AND DELIVERABLES

A consultant will develop a detailed work plan for a pilot project on non-native invasive species. It shall include a detailed assessment of the current situation, challenges, and potential contributors and participants. A draft and final work plan shall be developed, with revisions as necessary from the sponsoring entity.

Contacts:

Technical background prepared by Dr. William Gregg (USGS/BRD) and Dr. Xavier Silva del Pozo (TNC)

ABEXOTICS2.WPD

ANNEX J

**PROYECTO PILOTO EN EL MARCO DEL
DISEÑO DE LA RED IABIN - THE *HANTA*
VIRUS IN FOREST-DWELLING RODENTS**

**PROYECTO PILOTO EN EL MARCO DEL DISEÑO DE LA RED IABIN
OEA WASHINGTON D.C. 27-28 DE ENERO DE 1998
CONSUELO MUÑOZ
CONAMA
CHILE**

I. ANTECEDENTES GENERALES SOBRE LA RED IABIN:

La iniciativa 31 del Plan de Acción sobre Desarrollo Sostenible, aprobada por los presidentes participantes en la Cumbre Hemisférica realizada en Santa Cruz Bolivia en diciembre de 1996, establece que los países deben: "Procurar el establecimiento de una Red de Información Interamericana sobre Biodiversidad, con el fin de promover medios compatibles para la recolección, comunicación e intercambio de información relevante para la toma de decisiones y la educación en materias de conservación y utilización sostenible de la diversidad biológica".

En este contexto, se realizó en Octubre del presente, una reunión en la OEA con expertos en la materia, para proponer acciones que permitan avanzar en el diseño y planificación de la Red IABIN.

Se identificaron ideas de proyectos a explorar, de los cuales, Chile es responsable de indagar en dos de ellos. Para uno de ellos, el acceso a financiamiento sería directo a partir de fondos OEA, el segundo optaría a financiamiento por parte del Fondo para el Medio Ambiente Mundial, (FMAM), u otro organismo a identificar durante la 2º Reunión de Expertos.

Los perfiles de ideas de proyecto se sometieron a la Dirección Ejecutiva de la Comisión Nacional de Medio Ambiente, CONAMA, para sus observaciones y autorización, así como al punto Focal Nacional del FMAM, recibiendo de ambas instancias su aprobación y apoyo, considerando en particular el proyecto de monitoreo de habitat de roedores silvestres vectores del virus hanta, de alta relevancia y urgencia, para el país considerandolo como una aproximación creativa e innovadora para abordar un tema de tal relevancia y que sus productos permitiría aplicar medidas directas que permitan ampliar el ámbito de la prevención.

1. Los representantes de Costa Rica y Chile deberán preparar un documento sobre construcción de Metadato Base, utilizando como insumo la experiencia de ambos países en el desarrollo del proyecto Manejo de Datos en Biodiversidad (BDM). El documento a formular será presentado en la próxima reunión de diseño de la Red IABIN. Los fondos para el desarrollo del documento serán otorgados directamente por la OEA. El término de referencia fue enviado directamente por el Sr. Mata de Costa Rica.

IDEA DE PROYECTOS A SOMETER AL FMAM.

- 1.. La representación de Chile se comprometió a formular un informe de factibilidad para el 27 de enero de 1998 en torno a la idea de proyecto "Evaluación y Monitoreo del Hábitat de Roedores Silvestres Vectores de enfermedades", para ser presentado En la 2º reunión de expertos convocada por la OEA.

A. Antecedentes:

El Hanta es una enfermedad viral transmitida por roedores silvestres tanto a través del contacto directo con sus excreciones (fecas, orina y/o saliva), como por contacto indirecto por la aspiración de aerosoles de polvo y partículas suspendidas contaminadas por roedores portadores de la enfermedad.

Dicha enfermedad tiene un alto porcentaje de morbilidad y mortalidad, no existiendo aún un tratamiento específico por lo cual resulta fundamental la prevención.

El primer caso de síndrome pulmonar por virus Hanta se diagnosticó en USA en 1993. A la fecha, se han reportado 162 casos en 27 estados de este país. Un alto porcentaje de los casos diagnosticados tienen evidencia de contacto estrecho con roedores silvestres.

En América Latina se han reportado infecciones por virus Hanta en México, Brasil, Bolivia, Argentina, Paraguay y Chile. Para la Región del Cono Sur, los primeros casos fueron detectados en Paraguay y Argentina en el año 1995, notificándose para este último país 122 casos a la fecha. Finalmente Chile presentó sus primeros casos en el año 1996, con un total a la fecha de 20 casos confirmados.

Los estudios realizados indican, en general, que existe una tendencia a la expansión de la casuística, clasificándola en términos genéricos como "enfermedad emergente". Desde un punto de vista epidemiológico para la salud humana, esta enfermedad está asociada directamente a la presencia de roedores silvestres portadores del virus. Para prevenir el contagio se ha recurrido a la difusión de las causas directas de contagio, sobre los síntomas tempranos de la enfermedad, formas de prevención a través de métodos mecánicos y físicos (ventilación, desinfección de superficies, asoleo, disposición segura de residuos sólidos domiciliarios, etc).

Recientemente se ha indicado que la enfermedad ha existido desde hace mucho tiempo en la región y que su aumento se debería a mejores métodos de diagnóstico.

No obstante lo anterior, es importante investigar que factores ambientales y ecológicos, pudieran estar favoreciendo la presencia de estas enfermedades emergentes, sus vectores asociados, las condiciones del ecosistema y habitat y otras a determinar.

El proyecto presenta un interés global, ya que varios países de la Región se enfrentan con el mismo problema desde la perspectiva salud humana y biodiversidad, en su relación con cambios en el ecosistema y composición de poblaciones vegetacionales y animales silvestres. Asimismo este proyecto, tendría una aplicación práctica y de carácter urgente ya que se requiere abordar el tema desde una perspectiva integral tanto desde el punto de vista epidemio lógico como ecológico (ej. alteración de hábitat, disminución de especies predatoras de roedores, etc), para dar respuesta adecuada al problema.

En este contexto se han consultado los sectores nacionales involucrados (SAG, CONAF, Salud del Ambiente) quienes han manifestado un alto interés en el desarrollo del proyecto ya que éste aportaría los aspectos ambientales y ecológicos anteriormente indicados. Por otra parte se ha identificado que los roedores silvestres son las especies más estudiadas en Chile contándose con información de base para el desarrollo del proyecto. Asimismo la disponibilidad del catastro de especies vegetacionales en Chile, entregara la información de base para apoyar al desarrollo del proyecto. La disponibilidad de esta herramienta podrá ser presentada como parte de la contribución nacional al proyecto.

Dadas las características y objetivos de la Red IABIN, se recomienda que el proyecto sea tripartito, esperando comprometer además a países vecinos.

B. Objetivo General: Revertir o minimizar los cambios en el ecosistema que generan la proliferación de roedores silvestres vectores de enfermedades.

C. Objetivos Específicos :

*Establecer correlaciones entre el estado del hábitat y las condiciones poblacionales de especies de roedores silvestres vectores de enfermedades (Hanta), en las zonas en que se ha detectado la enfermedad.

*Determinar la composición de las cadenas tróficas asociadas a los roedores silvestres en las zonas que se ha presentado la enfermedad.

*Desarrollo seguro de actividades productivas, de comercialización de productos silvoagropecuarios, y de servicios para la población humana.

*Apoyo a la minimización de riesgos para la salud humana.

D. Resultados Concretos:

*Contar con información actualizada sobre el estado del hábitat, y las condiciones poblacionales de roedores silvestres, además de la composición de las cadenas tróficas asociadas a ellos y su correlación con la presencia de casos de Hanta en población humana.

*Contar con información sobre estado de las cadenas tróficas asociadas a los roedores silvestres en las zonas que se ha detectado la enfermedad y la correlación con su prevalencia.

- *Identificación de factores que podrían incidir en el incremento poblacional de roedores.
- *Disponer de un set de recomendaciones y acciones para el manejo de hábitat, repoblamiento de especies predatoras de roedores, recuperación de hábitat, etc.
- *Convenios establecidos con instituciones nacionales e internacionales para el apoyo a la implementación de criaderos e invernaderos in-situ y ex-situ que permitan desarrollar programa de recuperación y restauración de zonas de hábitat afectados y repoblamiento con especies nativas predatoras de roedores.
- *Capacitación en manejo cultural de siembra y otras actividades silvoagropecuarias que permita disminuir los riesgos de contagio y revertir los cambios que generan el crecimiento poblacional de roedores vectores del Hanta.
- *Apoyo a la toma de decisiones en los esfuerzos realizado para el control epidemiológico en salud humana, desde la perspectiva ecosistémica, silvo-agropecuaria y fito-zoosanitarias.

Consuelo Muñoz
Punto Focal Nacional CDB y CHM
Comision Nacional para el Medio Ambiente
Chile

ANNEX K

**MABNet AMERICAS AND INTERFACE WITH
IABIN**

MABNetAmericas and IABIN Interfaces

1. Initiative 31 of the Summit of the Americas on Sustainable Development, states that IABIN "...builds upon such initiatives as [CHM] ...the Man and the Biosphere (MABNetAmericas), and... [BCIS]..."
2. In essence, MABNetAmericas aims to provide a "library card catalogue" for information on biological diversity in general and on flora and fauna species inventories in particular.
3. MABNetAmericas contributions to IABIN can be twofold:
 - (A) to assist IABIN in utilizing acknowledged master species lists and site information data "to know where the information is;" and,
 - (B) to ensure that standardized metadata is available to describe the information available about the flora and fauna species.
4. MABNetAmericas has developed two computer software programs: MABFauna and MABFlora. These freeware programs contain:
 - (A) universally recognized master species lists for fauna and flora;
 - (B) geographic coordinates identifying the protected area containing the species/information; and
 - (C) ten (10) metadata standards to describe accurately "the information about the information" of the flora and fauna species at the protected area sites in the hemisphere.
5. The ten metadata standards have been developed in consultation with our colleagues throughout this hemisphere (as well as in Europe, Asia and Africa). We have worked with CYTED (Ciencias y Tecnologia para el Desarrollo) preceding both the Summit in Miami and the Summit in Bolivia.
6. While additional metadata development workshops probably do NOT need to be held, we would like to see these existing standards formally adopted and consequently referenced in the development work of IABIN. Additional metadata standards may be incorporated in the future. So far we have not seen any proposals to discard any of the MABNetAmericas metadata standards and substitute new ones. But, we stay open to the possibility of incorporating additional elements.

7. MABNetAmericas is limited to protected areas --initially based on UNESCO recognized biosphere reserves, but other protected areas are also members (e.g., The Smithsonian's Tropical Research Institute's site at Barro Colorado, Panama; the Organization for Tropical Studies (OTS) site, La Selva, in Costa Rica; and, most of the sites in Canada). IABIN (as well as CHM/BCIS) will incorporate, e.g. museum collections, herbariums, arboretums and other data sources. While again the master species list and metadata standards can be applied to all sources, clearly IABIN will be a far more extensive network and will contain in many cases actual raw data bases.

8. The content interchanges of databases will be difficult to obtain. In my experience, biologists are generally very very reluctant to share their original field data. They can continue to "mine their data" for journal articles *ad infinitum*. MAB has one small data interchange project between Belize, Mexico and Guatemala in the Peten region concerning the exchange of databases of bats, butterflies and large mammals. But we have yet to see any real data actually being made public as this project is still in its pilot stage.

9. While IABIN is hemisphere based, as is MABNetAmericas, both systems must strive to be relevant to facilitating global comparisons. The MABNET system is working within other regional MAB organizations to fully expand and incorporate the scientific standards and rigor of the MABFauna and Flora software programs into global acceptance.

(A) These MABNet standards have been formally adopted by EuroMAB (31 nations of Europe and North America) and serve as the basis for AfriNet/BRAAF (Biosphere Reserve Network of Anglophone Africa) as well as for the EABRN East Asian Biosphere Reserve Network. Currently, U.S. MAB also supports field personnel to teach the MABFlora/Fauna software packages in the Americas, Africa, Europe and Asia.

(B) Currently, over 700 biological data bases have been entered into the MABNet system from more that 275 sites throughout the world. Attached is a MABFauna Statistical "status sheet" that we publish a *de vez en cuando* which summaries where we are.

10. One area where IABIN and MABNetAmericas can be of mutual benefit is in the development of a master species list for the flora of tropical America. As you know, no universal flora master species list exists. It cost the U.S. government over \$400,000 for the development of the North American vascular plants list of >66,000 species in PLANTS -- which we distribute for the Western Hemisphere version of MABFlora. Clearly we all need to work together to develop a standard species list for tropical plants. Even though that task will consume several generations of taxonomists for the future, at least we ought to launch an effort to standardize and rationalize those lists that already exist.

Attachments:

metadata standards for MABFauna/Flora
MABFauna Statistics as of January 1998
MABNetAmericas (brochure)

MABFLORA METADATA

Presence

- species present in reserve
- species probably present in reserve
- species listed, but probably absent from reserve
- species extinct in reserve (cause & approx. date in COMMENTS)
- species records in reserve are anomalous or accidental
- species records in reserve are unreliable
- other (specify in COMMENTS)
- no entry

Documentation

- documented in a published scientific study
- reliable written record
- unconfirmed record
- no written record, but obvious or common species
- basis for listing unknown
- no entry

Specimen

- record of reference specimen in museum/herbarium/university
- reference specimen held in reserve
- other reference specimen
- probably documented by specimen, location not recorded
- not collected, or unknown
- no entry

Special Status

- species of special concern to reserve (note in COMMENTS)
- no special status
- status unknown
- no entry

Origin

- known only from reserve
- local endemic
- widespread native
- human introduction (list approx. date if known in COMMENTS)
- natural invasion or colonization
- non-native, method of introduction unknown
- origin (native/non-native) unknown
- other (specify in COMMENTS)
- no entry

Distrib. Info.

- data on species' distribution throughout the reserve
- data on species' distribution in part of the reserve
- little or no data on species' distribution in the reserve
- no entry

Resident Status

- permanent reproducing population in reserve
- occasional reproduction in reserve
- waif or non-reproducing in reserve
- reproductive status in reserve unknown
- other (specify in COMMENTS)
- no entry

Abundance

- abundant (generally encountered in large numbers)
- common (normally encountered)
- uncommon (occasionally encountered)
- rare (present, but frequently not encountered)
- casual or accidental (not normally present)
- no entry

Abundance Data

- abundance data from regular monitoring
- multiple, but irregular, census studies
- one census
- abundance data limited or nonexistent
- no entry

Database

- on computerized database with geographic coordinates
- on computerized database, without geographic coordinates
- not computerized, but organized, systematic manual fashion
- information available, but not organized
- database status uncertain
- no database exists
- no entry

COMMENTS



MABFauna and MABFlora Statistics

From the MAB Online Query System located at
<http://www.mabnet.org>
JANUARY 1998

Number of Possible BR Participating Sites:	340+
Number of Sites Represented:	285+ (80% of BRs)
Number of Possible Participating MAB Countries:	85
Number of Countries Represented:	75 (89%)
Number of Possible Taxonomic Groups per Site:	6 (5 fauna + vascular plants)
Number of Possible Inventories:	2040+
Number of Inventories on File to Date:	693+ (>33%)

Birds	Total Species to Date (Number of Unique Species):				
	Mammals	Amphibians	Reptiles	Fish	Plants
16,230 (4,364)	4,106 (1,203)	518 (174)	627 (262)	1,320 (820)	(22,549)

MABNet	# of Sites	MABNET Distribution:		
		Sites w/ Data	Possible Inventories	# of Inventories
United States	47	38 (74%)	282	124 (43%)
NAFTAMAB ¹	63	55 (86%)	378	153 (39%)
EuroMAB ²	192	173 (90%)	1152	537 (43%)
MABNetAmer. ³	102	84 (82%)	612	212 (35%)
AfriNet	45	40 (90%)	270	149 (55%)
EABRNet	44	35 (80%)	264	64 (24%)

MABFauna On-Line Query System:

>3,000+ users/month

MABNet Home Page:

>375 users/day (average since going on-line January 24, 1997)

¹ NAFTAMAB includes data from the U.S., Canada and Mexico.

² EuroMAB includes data from all of Europe, Russia, the U.S. and Canada.

³ MABNetAmericas includes data from all of the Western Hemisphere, including NAFTAMAB.

ANNEX L

**BIODIVERSITY INFORMATION
NETWORKING INITIATIVES: A REPORT FOR
THE CREATION OF THE INTER-AMERICAN
BIODIVERSITY INFORMATION NETWORK
(IABIN)**

Biodiversity Information Management Initiatives

Name	Acronym	Mission	Home Page	Sector of Society	Main Topic	Sector of Society targeted as:	
Type	Geographical Region					Primary Audience Secondary Audience	
ACCESO			#http://www.acceso.org/#				
	Non-Governmental	Central America			Biodiversity Use Management	Sustainable Development Socio-Economic	
		To improve the opportunities for the poor and the disenfranchised in Central America to participate meaningfully in the decisions and institutions that make an important difference in their lives.					
ACCESS EXCELLENCE			#http://www.gene.com/ae#				
	Non-Governmental	North America			Material Diffusion	Environmental Education	
		Assists high school biology teachers by providing peer contact, access to scientists and research laboratories, and many other resources for teaching biology at the high school level.					
ALEXANDER VON HUMBOLDT INSTITUTE INITIATIVE							
		To contribute to the conservation and sustainable use of the biodiversity in Colombia by providing, coordinating and performing investigations					
GONGO consortium		South America			Biodiversity	Policy Conservation	
AMAZONIAN INFORMATION SYSTEM			#http://www.interconnect.com/br/siamaz/siamazi.htm#				
	SIAMAZ	To contribute to the development of the Amazon Region and promote free and systematic information circulation among the countries, using modern information techniques.					
	Non-Governmental	Amazon Cooperation Treaty-ACT (ART.XV)			Biodiversity Use Management	Sustainable Development Science	

Name **Acronym** **Mission** **Home Page** **Type** **Geographical Region** **Sector of Society** **Main Topic** **Primary Audience** **Secondary Audience**

AQUATIC CONSERVATION NETWORK *ACN* [#http://www.athilles.net/holiday/acn/acnhome.html#](http://www.athilles.net/holiday/acn/acnhome.html#) Non-Governmental North America Sector of Society Blodiversity Policy Science

ASSOCIATION FOR BIODIVERSITY INFORMATION [#http://www.heritage.tnc.org/abi/index.html#](http://www.heritage.tnc.org/abi/index.html#)

ABI *To unify, support, and represent the network of Natural Heritage Programs and Conservation Data Centres in the mission of collecting, interpreting, and disseminating ecological information* Blodiversity Policy Science

ASSOCIATION OF SYSTEMATICS COLLECTIONS [#http://www.ascoll.org/#](http://www.ascoll.org/#)

ASC *To support and enhance natural history collections, their human resources, and the institutions that house them, form the benefit of science and society.* North America Museography Environmental Education Policy

BIODIVERSITY ACTION NETWORK www.igc.apc.org/bionet#http://www.igc.apc.org/bionet#

BIONET *To catalyze and support actions by its members aimed at strengthening biodiversity conservation law and policy, as well as to inform the environmental community and others about biodiversity issues.* Global Advocacy and Policy Making Conservation

BIODIVERSITY CONSERVATION INFORMATION SYSTEM www.biodiversity.org/index/index.html#

Name	Acronym	Mission	Home Page	Sector of Society targeted as:
Type	Geographical Region	Sector of Society	Main Topic	Primary Audience Secondary Audience
BIODIVERSITY CONSERVATION INFORMATION SYSTEM				
	BCIS	To support environmentally sound decision-making & actions affecting the status of biodiversity & landscapes at local, national, regional & global levels through cooperative provision of data, etc.	www.biodiversity.org/index.html#http://www.biodiversity.org/index.html#	
	Non-Governmental	Americas	Biodiversity	Policy Conservation
BIODIVERSITY FORUM INITIATIVE, THE				
		<i>Seeks through communication, education, cooperation, and public advocacy, to support the conservation of biological resources through the preservation and responsible sustainable use of these resource</i>	http://www.worldcorp.com/biodiversity/resources.html#	
	Non-Governmental	Americas	Biodiversity	Science
BIODIVERSITY INFORMATION NETWORK				
	BIN21	To support the aims of the Biodiversity Convention and make a contribution to the greater understanding conservation and sustainable use of the biological resources of the planet.	http://www.anbg.gov.au/bin21/bin21.html#	
	GO/NGO consortium	Global	Biodiversity	Science Policy
BIODIVERSITY INFORMATION NETWORK - BRAZIL				
	BINBr		http://www.bdt.br/#	
	Non-Governmental	South America	Biodiversity	Science Policy
BIOTRADE INITIATIVE, THE				
		<i>to stimulate and promote sustainable development of biological resources/</i>	http://www.biotope.org#	
	Non-Governmental	Global	Biodiversity Trade	Commerce/Development/Industry Science

Name **Acronym** **Mission** **Home Page** **Sector of Society targeted as:**
Type **Geographical Region** **Sector of Society** **Main Topic** **Primary Audience** **Secondary Audience**
 BIRDLIFE INTERNATIONAL INITIATIVE www.surfnnet.fi/birdlife/int/index.html# www.surfnnet.fi/birdlife/int/index.html#

To conserve bird species and their habitats and through this, work for global biodiversity and sustainability.

Partnership Americas Biodiversity Conservation
 BOTANIC GARDENS CONSERVATION www.rbghkew.org.uk/BGCI/index.html#http://www.rbghkew.org.uk/BGCI/index.html#

BGCI To Maintain collections of live plants mainly for study, scientific research, conservation or education

Non-Governmental Americas Botany Science Conservation
 CAB INTERNATIONAL INITIATIVE <http://www.cabi.org#>

to help improve human welfare worldwide through the dissemination, application and generation of scientific knowledge in support of sustainable development, with emphasis on mgmnt of nat. resources

Non-Governmental Global Biodiversity Use Management Sustainable Development Socio-Economic
 CANADIAN BIODIVERSITY <http://www.doe.ca/ecs/biodiv/biodiv.html#>

INFORMATION NETWORK provides a framework for action at all levels that will enhance our ability to ensure the productivity, diversity and integrity of our natural systems.

GO/NGO consortium North America Biodiversity Science Policy
 CANADIAN BOTANICAL CONSERVATION NETWORK

CBCN

Name	Acronym	Mission	Home Page	Sector of Society targeted as:
Type	Geographical Region	Sector of Society	Main Topic	Primary Audience Secondary Audience
CENTER FOR CONSERVATION BIOLOGY NETWORK		#http://www.conbio.rice.edu#		
CCBN	to help develop the technical means for the protection, maintenance, and restoration of life on this planet- its species, its ecological and evolutionary process, and its particular and total envrmt.	North America	Biodiversity	Science Environmental Education
CENTRAL AMERICAN CULTURAL- ECOLOGICAL INFORMATION NETWORK		www.mines.edu/camu#http://www.mines.edu/camu/#		
	Facilitate the development & form an integral part of emerging regional, national & global efforts in ed., research & cultural outreach incl. enhancement of public awareness of environmental concerns	Central America	Archeology and Cultural Ecology	Science Environmental Education
CLEARING HOUSE MECHANISM		www.biodiv.org#http://www.biodiv.org#		
CHM				
GO/NGO consortium	Global		Biodiversity	Science Policy
COMISION NACIONAL PARA EL CONOCIMIENTO Y USO DE LA BIODIVERSIDAD		www.conabio.gob.mx#http://www.conabio.gob.mx#		
CONAB	To promote and coordinate the efforts that are currently being made to deserninate biodiversity information by numerous institutions and groups in Mexico.	North America	Biodiversity	Science Policy
CONSORTIUM FOR INTERNATIONAL EARTH SCIENCE INFORMATION NETWORK				

Name	Acronym	Mission	Home Page	Type	Geographical Region	Sector of Society	Main Topic	Primary Audience	Sector of Society targeted as:	Secondary Audience	
CONSORTIUM FOR INTERNATIONAL EARTH SCIENCE INFORMATION NETWORK											
	CIESIN	To provide information and help scientists, decision makers, and the public better understand their changing world.		Non-Governmental	Global		Technology advancement	Commerce/Development/Industry	Policy		
CYTED NETWORK											
	CYTED	To encourage scientific and technological cooperation among participating countries to assist in the improvement of the quality of life for the people.	www.cicyt.es/ivpm/cyted.htm		Americas						
GOINGO consortium											
ECOLOGICAL MONITORING AND ASSESSMENT NETWORK											
	EMAN	Coordinated monitoring and research activities within a network of specific sites across Canada which attempt to address federal, provincial, regional and local environmental needs.	http://www.cciw.ca/eman-temp/itro.htm		Americas						
				Non-Governmental	North America		Global Warming	Science	Policy		
ENTOMOLOGICAL COLLECTIONS NETWORK											
	ECN		http://iris.biosci.ohio-state.edu/newsletters/ecn/ecn97.htm		Americas						
				Non-Governmental	Americas		Entomology	Science	Science		
G7 ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT											
			http://www.g7.fed.us/#								

Name	Acronym	Mission	Home Page	Sector of Society targeted as:	
Type	Geographical Region	Sector of Society	Main Topic	Primary Audience	Secondary Audience
G7 ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT		#http://www.g7.fed.us/#			
G7ENR	To create a virtual library of information on environment and natural resources management held in globally distributed electronic sites and accessible on emerging electronic networks				
Non-Governmental	Global		Natural Resource Management	Sustainable Development	Science
GREAT PLAINS INFORMATION DATA NETWORK					
	GPIDN	North America			
INBIO BIODIVERSITY INVENTORYING NETWORK					
INBIO	To Promote a new awareness of the value of biodiversity, and thereby achieve its conservation and use to improve the quality of life				
Non-Governmental	Central America		Biodiversity	Science	Policy
INDIGENOUS PEOPLES AQUATIC BIODIVERSITY INFORMATION NETWORK					
IABIN	Open forum of native groups working on indigenous self-management of marine & freshwater resources & integration of traditional tenure management syst. & indigenous science w/Western scientific methods		www.ibin.org/iabin/#		
Non-Governmental			Biodiversity Use Management	Socio-Economic	Sustainable Development

Name

Home Page

Acronym

Mission

Type

Geographical Region

Sector of Society

Main Topic

Sector of Society targeted as:

Primary Audience Secondary Audience

www.ibin.org

INDIGENOUS PEOPLES BIODIVERSITY

INFORMATION NETWORK

IBIN

Is a mechanism to exchange information about experiences and projects and to increase collaboration among indigenous groups working on common causes related to biodiversity use and conservation.

Non-Governmental

Global

Biodiversity Use Management

Socio-Economic

Sustainable Development

<http://www.iadb.org>

INFORMATICS 2000

Multi-lateral GO

Americas

Technology advancement

INTEGRATED TAXONOMIC INFORMATION SYSTEM

ITIS

<http://www.nbi.gov/iaibin/index.htm>

INTERAMERICAN BIODIVERSITY INFORMATION NETWORK

IABIN

to promote greater coordination among Western Hemisphere countries in collection, sharing, and use of environmental information.

Governmental

Americas

Biodiversity

Policy

Conservation

<http://www.irf.org>

ISLAND RESOURCES FOUNDATION

Name	Acronym	Mission	Home Page	Sector of Society targeted as:
Type	Geographical Region	Sector of Society	Main Topic	Primary Audience Secondary Audience
ISLAND RESOURCES FOUNDATION				
IRF	To solve the environmental problems of demelopment in small tropical Islands	http://www.irf.org/#		
Non-Governmental	Caribbean		Natural Resource Management	Sustainable Development Science
LATIN AMERICAN PLANT SCIENCES NETWORK				
RLB	To provide research, scientific information, and graduate level training to individuals in Latin American Countries	http://macul.ciencias.uchile.cl/rlb/#		
Non-Governmental	South America		Training Sessions and conferences	Environmental Education Policy
MAN AND THE BIOSPHERE AMERICA				
MABNet	To organize and share information from the biological, physical and social sciences obtained by biosphere reserves in the Western Hemisphere; and to provide reliable information on international trend	http://www.mabnetamericas.org/#		
Governmental	Americas		Biodiversity	Conservation Policy
NATIONAL BIOLOGICAL INFORMATION INFRASTRUCTURE				
NBII	The NBII will provide information on and access to biological databases, information products, directories, and guides maintained by Federal, State, and Private organizations	http://www.nbii.gov/#		
GONGO consortium	North America		Taxonomy	Conservation Environmental Education
NATIONAL SPATIAL DATA INFRASTRUCTURE				

Name	Acronym	Mission	Home Page	Sector of Society	Main Topic	Primary Audience	Secondary Audience
NATIONAL SPATIAL DATA INFRASTRUCTURE							
	NSDI						
NATURAL HERITAGE PROGRAM AND CONSERVATION DATA CENTER NETWORK			www.heritage.tnc.org				
	NHP/C	To provide sound scientific and readily accessible source of biological diversity and geographic information for use in conservation and development planning.					
	GO/NGO consortium	Americas			Biodiversity	Conservation	Development
NORTH AMERICAN BIODIVERSITY INFORMATION NETWORK			#http://www.ccc.org/nabin/links.html				
	NABIN	To enhance collaboration among biodiversity data sources and data users, thereby improving access to information needed to improve the quality of life and economic prosperity in the region.					
	GO/NGO consortium	North America Free Trade Agreement (NAFTA)			Biodiversity	Science	Conservation
NORTH AMERICAN CENTER FOR ENVIRONMENTAL INFORMATION AND COMMUNICATION			#http://ciceana.org/				
	CICEAN	To motivate the population to work in favor of the environment through the use of up to date information to create a new conscience towards sustainable development in Mexico, the U.S.A. and Canada					
	Non-Governmental						
RED DE DESARROLLO SOSTENIBLE							

Name	Acronym	Mission	Home Page	Main Topic	Sector of Society	Primary Audience	Secondary Audience
WORLD HERITAGE INFORMATION NETWORK							

WORLD HERITAGE INFORMATION NETWORK

WHIN

ANNEX M

**TNC REPORT TO THE OAS ON THE IABIN
DATABASE NETWORK**

Report to the Organization of American States

Biodiversity Information Networking Initiatives:

**A Resource for the Creation
of the
Inter-American Biodiversity
Information Network (IABIN)**

January 31st, 1998

OAS General Secretariat, contract No. WSC15761



**The
Nature
Conservancy**

**The Nature Conservancy
Xavier Silva, Project Manager**

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Special thanks to Jane Mansour for her immense contributions to the editing of the final document, Karin Wall for making the initial corrections of the document and proof reading the Quick Start Guide, and to all other peer reviewers who have contributed with their suggestions.

Thank you.

Xavier Silva del Pozo
Director
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1. EXECUTIVE SUMMARY

In order to fulfill the basic needs for the development of the Inter American Biodiversity Information Network (IABIN), a comprehensive, reliable, searchable, and continuously updated source of information about other biodiversity information networking initiatives was needed, and which included biodiversity information trends, and activities in the Western Hemisphere. An understanding of how these initiatives are managing their information, activities and audiences will be helpful in the development of IABIN.

The objective of the current report and database is to provide to the Organization of American States (OAS) a basic tool and an analysis of the biodiversity information network initiatives in the Americas. This tool is a user-friendly database for analyzing these initiatives. The present report, based on the current information incorporated into the database, assesses the degree of thematic and geographic coverage, identifies gaps of the reported initiatives, and evaluates the general needs for biodiversity information management, among other points.

The Organization of American States was entrusted with the implementation of this initiative and contracted The Nature Conservancy (TNC) to do the following:

- Prepare an inventory of biological diversity directory, clearing-house, and networking initiatives underway
- Develop a database, in Microsoft Access 97, which succinctly describes the results of this inventory
- Prepare a summary report which assesses the degree of geographic and thematic coverage or gaps.
- Evaluate existing user needs for biodiversity information. Identify and review the results of completed efforts to survey or otherwise elicit the biodiversity information needs, and needs related to information sharing and networking of users in the Americas.
- Provide a Hyper-Text-Markup Language (HTML) version of the final report, which can be made readily available via the Internet on the OAS Web Server.

The Database

The database was developed in Microsoft Access 97 and is designed to manage and search the most important aspects of the initiatives. The main record is the biodiversity information networking initiative (BINI). A BINI is a program, project, or set of actions established in order to manage biodiversity information as a network at global, regional, or national levels, and is comprised of one or more institutions working under the same parameters and for the same purpose. The database includes BINIs that work for and within the Western Hemisphere. Queries and searches of information can be executed easily; a number of pre-programmed reports of the data can also be generated easily.

The database structure follows the most important thematic and geographic aspects of the initiatives, and is organized in electronic tables and fields which can be used to generate several different reports. The database is fully relational and include the following fields, among others:

- Mission, strategies, objectives, and activities, which are related to the articles and strategies of the Convention of Biological Diversity and the Global Biodiversity Strategy;
- Subject areas on which initiatives focus their work, including 104 topics ranging from taxonomy to policy making, which are organized by sectors of society;
- Scope of work, which can be defined by geographical, commercial, or political region;
- Target audience and users;
- Information management system or database used.

The Analysis and Results

This report is based upon the 52 initiatives recorded so far in the database. The results of the analysis are, therefore, preliminary, as the database is not comprehensive of all initiatives working in the Western Hemisphere. Many of these gathered were found through the Internet, which favors initiatives with access to this tool. Time was spent analyzing initiatives with no access to this technology (primarily in Latin America and the Caribbean). Letters and direct phone calls were necessary to gather basic information and were very time consuming and not very productive. More time and human resources are also needed to address many national and sub-regional initiatives.

The strategies of the 52 initiatives were examined according to how well they represent the strategies outlined in the Global Biodiversity Strategy (GBS) and the articles of the Convention on Biological Diversity (CBD). The articles most frequently addressed are Exchange of Information, In-Situ Conservation, and Research and Training. All seven of the GBS strategies are addressed at some level by the 52 initiatives, the most common of which are: Expanding Human Capacity in Biodiversity Conservation, Management of Biodiversity Throughout the Human Environment, and Conserving Species, Populations, and Genetic Diversity.

Biodiversity is the topic most frequently addressed by the 52 BINIs. Among other topics covered are: Botany, Taxonomy, Global Warming, Natural Resource Management, Watershed Management, and Policy Making. Geographically, the vast majority of initiatives are Global, or cover North America or the Americas. Greater detail on these and other results can be found in the full report.

Conclusions and Recommendations

In general, many initiatives have set efforts trying to establish data-sharing agreements with other initiatives or institutions with similar goals. The preparation of agreements and implementation of existing agreements are typically at initial stages. There is a need for better legal and most important conceptual frame work for cooperation among initiatives or institutions. The need for data sharing has to evolve from being a conceptual model to it actually becoming a reality. Biodiversity information sharing regulations, protocols and policies are also in the early stages of implementation, especially at an international scale. The promotion of data sharing agreements among institutions and initiatives is a principal need in the biodiversity information management arena.

Considering that for many initiatives studied, policy is undeniably a target audience, more effective work in environmental/biodiversity information issues for decision making should be undertaken by the initiatives. But collaboration efforts in the near future should be focused on initiatives addressing not only policy-oriented topics but also those other that are not currently being sufficiently implemented.

As an outcome of this report it is our recommendation to undertake a major hemispheric analysis of potential biodiversity users of the initiatives identified. Such an analysis should give us a clear understanding of biodiversity information network management and its positive potential impacts in the preservation and conservation of biological diversity.

The Biodiversity Information Network Initiative (BINI) Database has been developed in order to assist in the identification of such gaps. It is an instrument that has the potential of becoming of utmost importance for analysis and the further development of IABIN.

2. BACKGROUND

Before the Inter-American Summit on Sustainable Development was held in Santa Cruz, Bolivia in 1996, the Inter-American Commission on Biodiversity and Sustainable Development recommended the creation of an Inter-American Biodiversity Information Network (IABIN). The network would build on the Partnership for Biodiversity that came out of the Miami Summit of the Americas (SOA). IABIN would promote the goals of Agenda 21 and the Convention on Biological Diversity (CBD), both of which call for the production and dissemination of information needed for the conservation and sustainable use of biodiversity.

At the Santa Cruz Summit, participating governments accepted the recommendation of the Inter-American Commission and committed, via Initiative 31 of the Plan of Action, to do the following:

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 the Biosphere Network (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 was entrusted with the implementation of this initiative.

3. PROJECT OBJECTIVES

Following a series of staff discussions and informal hearings, the Unit for Sustainable Development and the Environment, a division of the General Secretariat of the OAS, convened a series of Expert Meetings to determine the design, structure, and function of IABIN.

During the early stages of IABIN's development, the OAS decided it would be useful to have access to information about all the biodiversity information networks that could be important to IABIN, either as partners or competitors. The information sought by the OAS would be comprehensive, reliable, searchable, continuously updated, and would maximize the allotted resources and minimize the duplication of effort, since there are already many biodiversity information networking initiatives underway both regionally and globally. The OAS decided a computerized database would best meet this need, and contracted The Nature Conservancy (TNC) to do the following:

- Prepare an inventory of biological diversity directory, clearing-house, and networking initiatives underway (global, regional, and/or national network initiatives involving several public or private sector entities in efforts affecting the management of biodiversity in this hemisphere);
- Develop a database, in Microsoft Access 97, which succinctly describes the results of this inventory including goals, objectives, participants, level of development, level of use/acceptance, spheres of interest/information addressed, etc. for each database or source of information;
- Prepare a summary report which assesses the degree of geographic and thematic coverage or gaps;
- Evaluate existing user needs for biodiversity information. Identify and review the results of completed efforts to survey or otherwise elicit the biodiversity information needs, and needs related to information sharing and networking of users in the Americas;
- Submit progress reports in October, November, and December, 1997, and a final report by January 31, 1998;

- Provide a Hyper-Text-Markup Language (HTML) version of the final report, which can be made readily available via the Internet on the OAS Web Server.

The first stage of the project and future work plans were discussed at the OAS "Meeting of Experts Regarding the Establishment of IABIN," held at OAS Headquarters on October 6-7, 1997. Progress reports were presented to the OAS in November and December.

4. METHODOLOGY

The basic unit for inventory and analysis is called a Biodiversity Information Network Initiative (BINI). A BINI is a program, project, or set of actions established to manage biodiversity information as a network, at the regional, national, or global scale, and is comprised of one or more institutions working under the same parameters and for the same purpose.

There were four major components of work under this project: 1) determining what information to collect about each BINI and designing a database for managing the information; 2) searching for and collecting the information about existing BINIs from a variety of sources, and populating the database; 3) analyzing the information collected; and 4) preparing a user's guide for operating the database and documenting the results of the analysis.

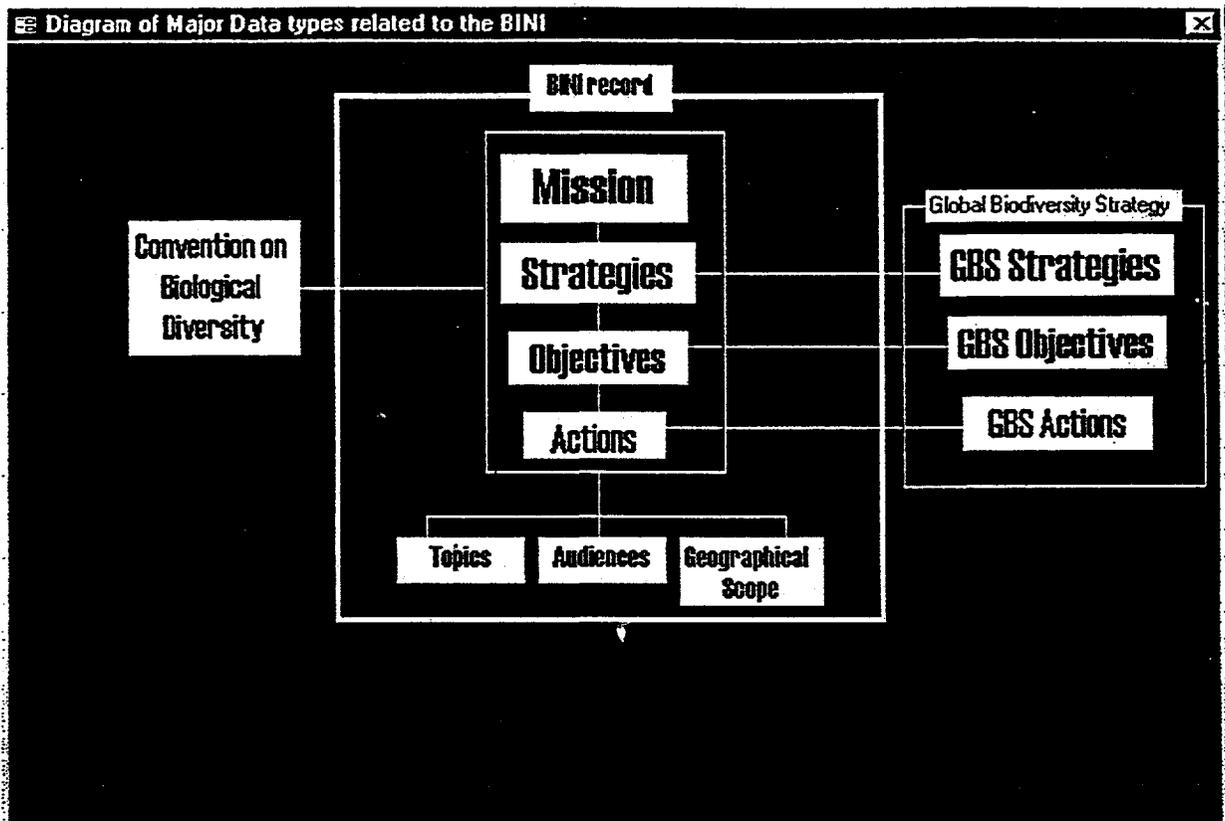
The database covers the major thematic and geographic aspects of the initiatives, organized into tables and fields. The main fields and tables included in the database are:

- **Mission, strategies, objectives, and actions**

The articles of the Convention of Biological Diversity (CBD) and the Global Biodiversity Strategy¹ (GBS) provided an excellent framework for data collection and analysis (see Appendix 3 & 4). The Global Biodiversity Strategy is organized into seven broad strategies; for example, "Creating an international policy environment that supports national biodiversity conservation," and "Establish a national policy framework for biodiversity conservation." These strategies are broken down into 21 targeted objectives, each of which, in turn, contains a subset of 85 specific actions designed to achieve the objectives. Similarly, the CBD contains 42 articles, which correspond broadly to the strategies in the GBS.

The database developed by the Conservancy captures, within fields, the mission statement for each BINI, as well as strategies, objectives, and actions. The categories found in the CBD and the GBS provide an internationally recognized common language for cataloging and comparing initiatives—an invaluable tool, given that this information varies for each BINI. A given initiative can have strategies, objectives and actions that correspond to one or more CBD articles and one or more GBS strategies, objectives and actions. In some cases, BINIs explicitly define their work in terms of these two documents. In most cases, however, the CBD and GBS are not cited, but their work can be represented in the context of the CBD and GBS frameworks. In the database, a user can perform a search for one or more articles, strategies, objectives, or actions that the initiatives address. For example, a user can create a report on the initiatives that address a given CBD article for a given geographic region. The following diagram helps illustrate the methodology implemented for the analysis of the initiative

¹ Global Biodiversity Strategy: Guidelines for Action to Save, Study, and Use Earth's Biotic Wealth Sustainably and Equitably, 1992. WRI, IUCN, UNEP, in consultation with the FAO and UNESCO.



- **Topics on which initiatives focus their work**

- BINIs provide and manage information covering a wide range of subjects and scientific disciplines. In the database, there are 104 of these subject areas, or topics, including Taxonomy, Spatial Information and GIS, Conservation Biology, Museography, Environmental Education Materials, Ecotourism, Human Population and Conservation, Policy Making and many more (see Appendix 2). The 104 topics are organized under eleven broad sectors of society (Science, Socio-Economic, Sustainable-Development, Policy, Information Regulation, Conservation, Environmental Education, Commerce and Development, Industry, Health and Environment, and Agriculture-Livestock). Each BINI is categorized by what has been identified as its main topic. Subject area searches of the database can be easily undertaken using the topic field. One can also search by a series of related topics, using the societal sectors. For instance, one can ask which are the initiatives that are working in Taxonomy in a given region. An example of a more inclusive search would be to ask which initiatives are working in Science with in a given region.

- **Geographical, commercial, or political scope**

Each BINI covers a geographic region. Some of these regions, however, correspond directly to the scope of an international trade agreement or political alliance and are better defined in that context. The geographical, commercial, and political scopes defined in the database are:

1. Global: world-wide scope of work, including the Americas;
2. Americas and/or Western Hemisphere: initiatives working at the hemispheric level;
3. Regional: North America, Central America, Central America and the Caribbean, Caribbean, Eastern Caribbean, Western Caribbean, South America, Amazon Basin;
4. Country: There are 56 countries in the database, which can be used to identify an initiative's central node. It may also refer to the location of its headquarters, or of its contact person;
5. Commercial and political regions: These currently include the Andean Region and Pacto Andino, Southern Cone and Mercosur, Tratado de Cooperacion Amazonica, North America and NAFTA and others. The list can be extended or modified as appropriate. (see Appendix 6)

- **The target audience and users**

The expected audience and the users for each BINI are categorized according to the same 11 societal sectors described above. In the database, BINI users are referred to as actual audience. Both expected and actual audiences are defined at two levels: Primary Target Audience, Secondary Target Audience, Primary Actual Audience and Secondary Actual Audience.

- **Other important information contained in tables and fields:**

1. Name, acronym, type of initiative (GO, NGO), contact, title, and address
2. Level of development: under design, implementation, operational, or closing
3. Contractual agreement: MOU-Binding Agreement, MOU-Non Binding Agreement, Single Institution, Treaty.
4. Information Source: where data comes from.
5. Web Page, if any
6. Deliverables: products and services.
7. Related institutions: Institutions most closely related to the Initiative and the type of relation identified.
8. Partner initiatives: Initiatives most closely related to the Initiative and the type of relation identified.

- **Relationships between Tables**

The diagram illustrated below identifies the existing relationship between the several tables found within the database. Briefly introduced, the database is composed of four main tables of which the most important is the table gathering information on the initiative. The remaining three tables are those for Contact information, Database information, and Institutions related to the initiative.

All other tables within the database support these four main tables.

Biodiversity Information Networking Initiatives Database - [Relationships]

File Edit View Relationships Tools Window Help

tblDatabases

ID
InitiativeID
DatabaseMSName
Acronym
SystemOverview
WebPage
Usership
NumberOfInstallations
SystemStructureandConte
PlatformTechnology
MethodOfChange

tblInitiatives

InitiativeID
Name
InitiativeAcronym
Mission
InitiativeType
LevelOfDevelopment
ContractualAgreement
RegionName
RegionType
Sector
FundingMechanism

tblContacts

ContactID
FirstName
LastName
Prefix
ContactType
Address
City
StateOrProvince
PostalCode
RegionName
Country

tblInstitutions

ContactName
ContactID
Address
City
StateOrProvince
PostalCode
RegionName
Nation
MainPhone
FaxNumber
WebServer

tblContactTypes

ContactTypeID
ContactType

tblInitiativesStrategies

StrategyPriority
BCArticleNumber
GBSStrategyID

tblInitiativesObjectives

ObjectiveDescription
ObjectivePriority
GBSStrategyID
GBSObjectiveID

tblInitiativesActions

GBSActionID
GBSObjectiveID
GBSStrategyID

tblInitiativesInstitutions

ID
InitiativeID
InstitutionID

tblGBSStrategies

StrategyID
Strategy
WebPageDescription

tblBCArticles

BCArticleNumber
BCArticleDescription
BCArtHyperLink

tblGBSActions

ActionID
StrategyID
ObjectiveID
Action

tblNations

NATION
NAME

tblGBSObjectives

ObjectiveID
StrategyID
Objective

tblRegions

RegionID
RegionType
RegionName

tblTopics

TopicID
Topic
Sector
Description

5. DATA COLLECTION

The first step in the data collection process was to conduct an extensive search on the World Wide Web for information from and about major existing BINIs. This search was carried out at the same time as the database was being developed so as to gather the most pertinent information. It quickly became clear that not all BINIs have Web sites, and those that do, do not always post all their information on their site. Staff, therefore, followed up the WEB search, as necessary, by letter, fax, e-mail, and telephone to gather further information. To obtain information on National level initiatives, surveys were sent out throughout, but the response was minimal.

As it was received, information was entered into the growing database. Some information was readily available, such as names and addresses of contacts, countries involved in the information network, and institutional partnerships. Other information, such as thematic coverage and gaps, and user needs, was more difficult to determine. This required a careful study of each BINI's published record, in order to characterize its strategies, objectives, and actions, using the methodology described above. Throughout the contract period, the total number of BINIs included in the database continued to grow to the current number, 52.

Two full-time biodiversity information professionals worked throughout the contract period to design the database, prepare the initial BINI inventory, conduct Web research, contact BINIs for information, interpret their responses, enter relevant information into the database, generate sample queries, and publish the results of these queries (see Appendix 7). They were joined from time to time by writers and editors who contributed to the development of the various updates and reports.

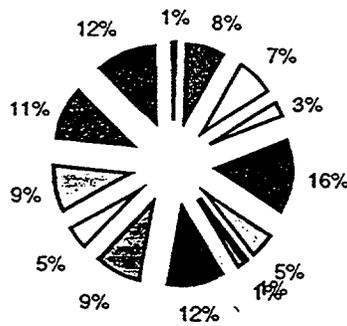
6. ANALYSIS AND RESULTS

Once information on the 52 BINIs was entered into the database, the Conservancy conducted an analysis of the initiatives through database queries and an interpretation of results. BINIs were analyzed with respect to: strategies, topics/societal sectors addressed, geographic scope, target audience and users, and information management systems. Results are also presented below on institutional agreements, funding mechanisms, level of development, and regional coverage. (The results in each section refer to the percent of the 52 BINIs.)

- **Strategies addressed**

The strategies of the 52 initiatives were examined according to how well they represent the strategies outlined in the Global Biodiversity Strategy (GBS) and the articles of the Convention of Biological Diversity (CBD).

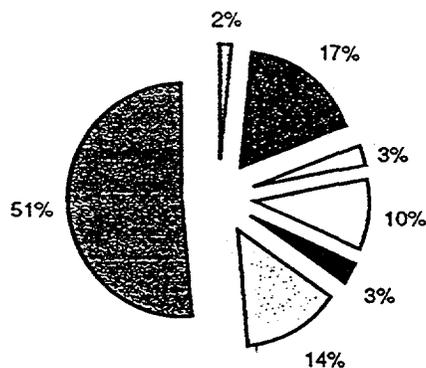
Articles of the Convention on Biological Diversity addressed by the BINIs



- Article 2: Use of Terms
- Article 5: Coopération
- Article 6: General Measures for Conservation and Sustainable Use
- Article 7: Identification and Monitoring
- Article 8: In-situ Conservation
- Article 9: Ex-situ Conservation
- Article 10: Sustainable Use of Components of Biological Diversity
- Article 11: Incentive Measures
- Article 12: Research and training
- Article 13: Public Education and Awareness
- Article 15: Access to Genetic Resources
- Article 16: Access to and Transfer of Technology
- Article 17: Exchange of Information
- Article 18: Technical and Scientific Cooperation

Fourteen of the 42 articles of the CBD are addressed by one or more of the 52 BINIs. Of these, The articles most frequently addressed are In-Situ Conservation (16%), Research and Training (12%), Technical and Scientific Cooperation (12%), Exchange of Information (11%), Access to and Transfer of Technology (9%), Public Education and Awareness (9%), and Cooperation (8%). The remaining seven articles addressed, each by less than 8% of the initiatives are: Use of terms, Access to Genetic Resources, Identification and Monitoring, Sustainable Use of Components of Biological Diversity, Incentive Measures, General Measures for Conservation, and Ex-situ Conservation.

Strategies addressed by the BINIS



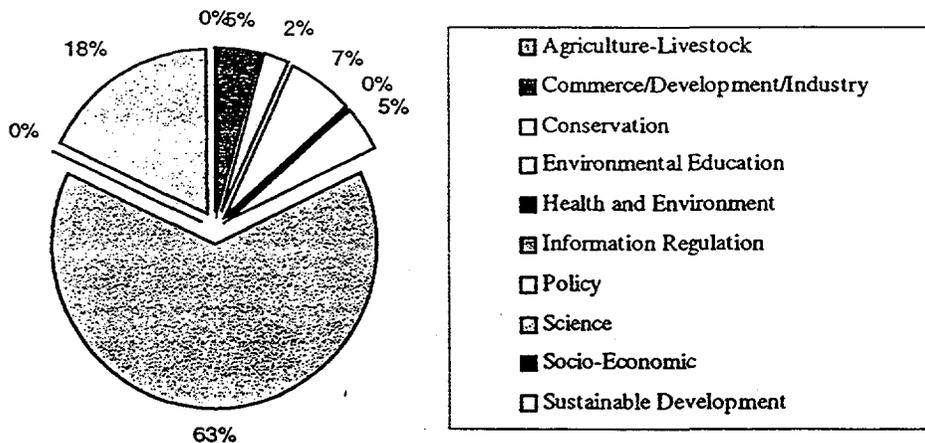
- 1 Strategy Establish a national policy framework for biodiversity conservation.
- 2 Strategy Creating an international policy environment that supports national biodiversity conservation.
- 3 Strategy Creating conditions and incentives for local biodiversity conservation.
- 4 Strategy Managing biodiversity throughout the human environment.
- 5 Strategy Strengthening protected areas.
- 6 Strategy Conserving species, populations, and genetic diversity.
- 7 Strategy Expanding human capacity to conserve biodiversity.

All seven of the GBS strategies are addressed at some level by one or more of the 52 initiatives in the database. The most common are: Expanding Human Capacity to Conserve Biodiversity Conservation (51%), Creating an International Policy Environment that Supports National Biodiversity Conservation (17%), Conserving Species, Populations, and Genetic Diversity (14%), Managing Biodiversity Throughout the Human Environment (10%), and The less well represented strategies are: Establishing a National Policy for Biodiversity Conservation (2%), Creating Conditions and Incentives for Local Conservation (3%), and Strengthening Protected Areas (3%).

- **Sectors and topics addressed**

The societal sector most frequently addressed by the 52 initiatives is Science, with 63%. Within this sector, Biodiversity is the most frequently addressed topic. Other topics addressed within the same sector are Botany (2%), Taxonomy (2%), Global Warming (2%), Spatial Sciences and Remote Sensing (2%), and Archaeology and Cultural Ecology (2%). Many initiatives did not address Science sector topics as the principal focus of their work.

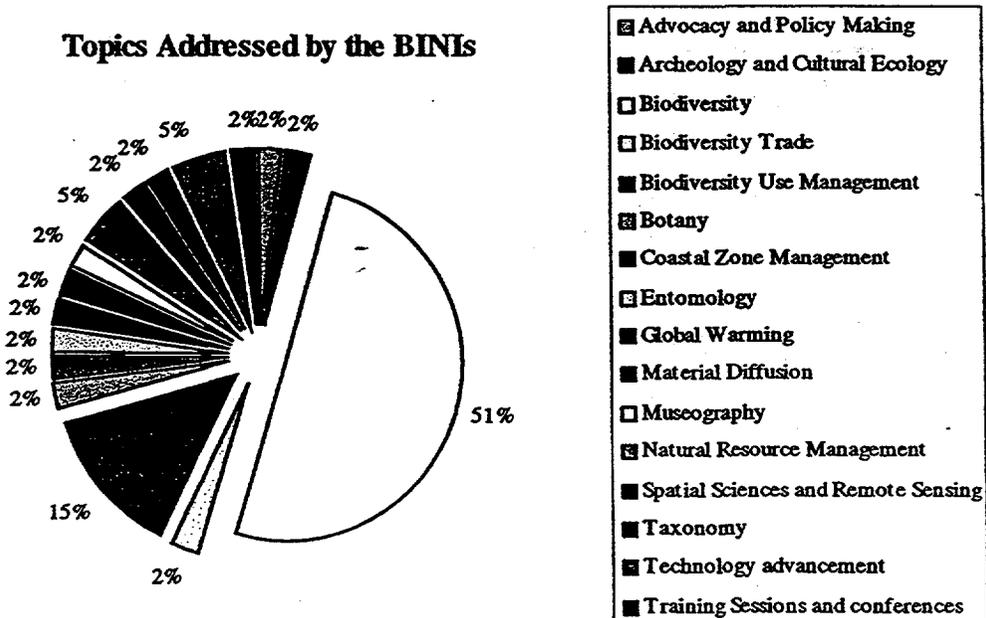
Sectors of Society Addressed by the BINIs



The second most frequently addressed sector is Sustainable Development, with 18%. The topics addressed in this sector are Biodiversity Use and Management (15%), and Natural Resource Management (5%).

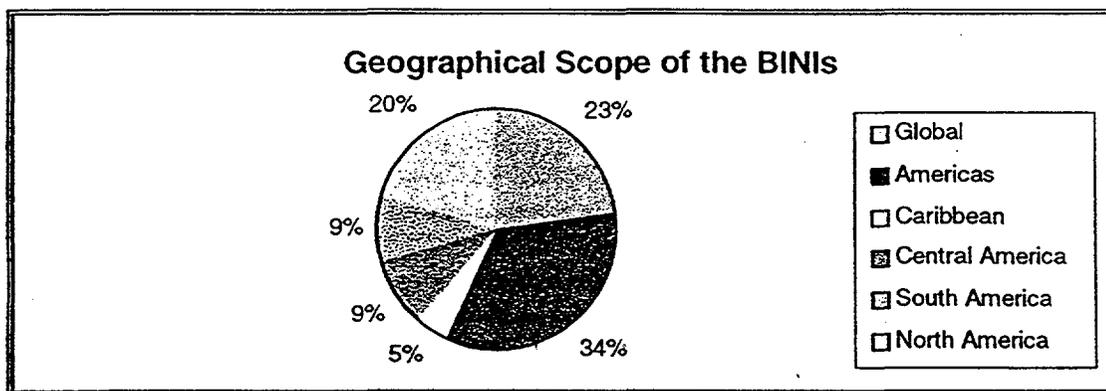
Four BINIs (7% of initiatives) address the Environmental Education sector. Within this sector, the topics include: Museography (2%), Training Sessions and Conferences (2%), and Material Diffusion (2%). Three initiatives (2%) address the Conservation sector which includes the topic Coastal Zone Management (2%). The same percent coverage is found in the Commerce and Development sector, with Biodiversity Trade (2%) and Technology Advancement (5%). Only 2% of the BINIs directly addresses Advocacy and Policy Making, a topic within the Policy sector; sector which makes up 5% of the 52 initiatives.

Topics Addressed by the BINIs



- **Geographical, commercial, or political scope**

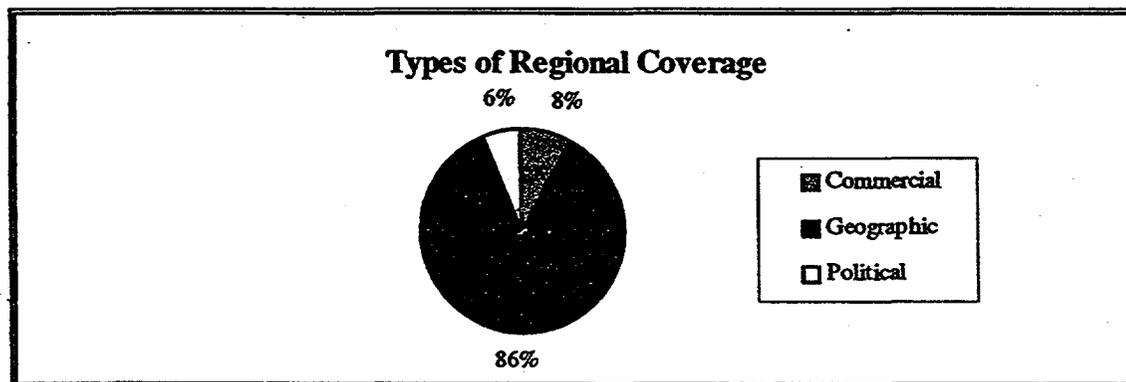
The database defines geographic scope as Regional, Hemispheric, and Global. For this analysis, we considered the 52 initiatives as they related to six main divisions: Global, Americas (Hemispheric), North America, Central America, Caribbean, and South America.



The geographic areas most frequently covered are North America (20%), Global (23%), and the Americas (33%). These three categories represent 76% of the initiatives. Other regions represented are South America (9%), Central America (9%), and Caribbean (5%). These results are consistent with the methodology used to gather data for the database, since the Internet is more readily available and more frequently used in North America, where most of the headquarters for the Global, Hemispheric, and North American initiatives are located.

Initiatives based in North America commonly work on a Global or Hemispheric scale. Most of the initiatives based in Latin America and the Caribbean address national or subregional scales.

Finally, the vast majority of initiatives (94%) focus their work on one of the geographical regions mentioned above. Commercial alliances and political units are represented by 4% and 2% of the initiatives, respectively.



- **Information management systems/databases**

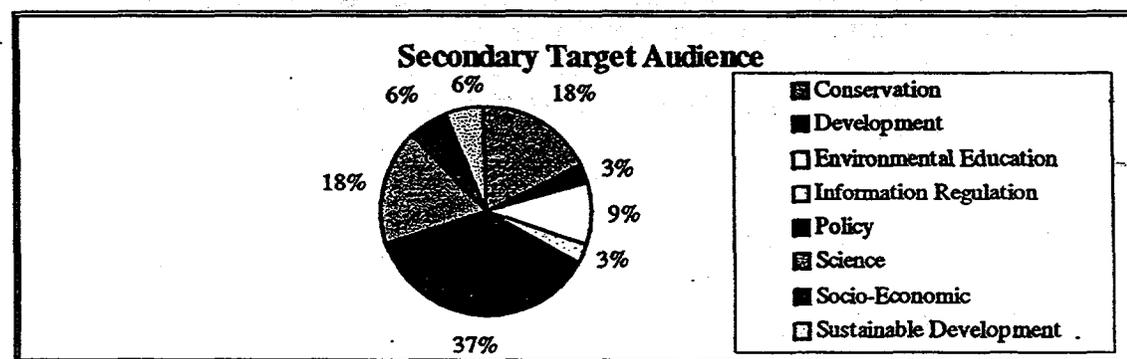
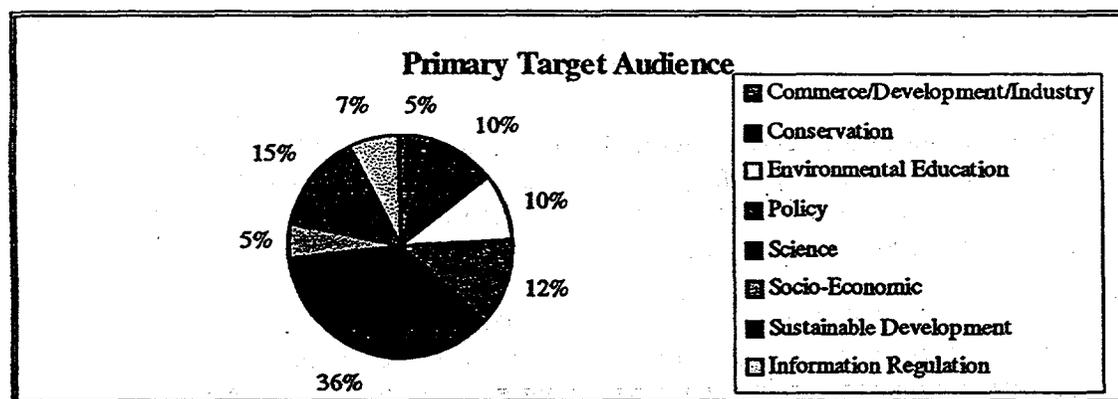
Of the 52 initiatives included in this report, 21% reported maintaining either one or more databases. Eleven of these keep records on biodiversity, five focus on metadata and directories, four manage geographic and mapping information, and one deals with environmental policy information.

Neither rapidly growing networking capability nor what is likely to be an increasing number of databases implies growing compatibility among databases. The barriers to data sharing and compatibility are less technological than they are philosophical. The databases studied in this project represent a broad range of methodological frameworks, making the incorporation of information from one initiative into another very difficult, if not impossible. Developing techniques to render data compatible requires significant resources—a cost that rises sharply with the number of databases involved.

Of the databases analyzed, nine are installed in Latin America and the Caribbean: Amazonian Region (2), Brazil (Base de Dados Tropical), Colombia (ARKAS, at Instituto Von Humboldt), Costa Rica (BIMS, at INBio), and Mexico (BIOTICA, at CONABIO). Three databases are shared by various institutions throughout the region: the BCD, managed by the Conservation Data Centers (part of Natural Heritage Program of The Nature Conservancy); MABFlora; and MABFauna, both managed by MAB/UNESCO as part of the management and monitoring of Biosphere Reserves.

- **Target audience and users**

Science is the sector most frequently identified as the primary target audience (36%). As a secondary target audience, the Policy sector is addressed by the greatest number of initiatives (37%). At least 10 initiatives identify science as their primary target audience and policy as their secondary target audience



Most initiatives are still in their early stages and few have any information about their actual users. Accordingly, there is little information on which to base an analysis of users and user needs. Some initiatives have databases that record the number of users requesting information and the kind of information they request. For these initiatives, it is possible to determine who are direct users of the database and to compare this data to their target audience.

for experts who will, over the coming months and years, work to design and create IABIN. Making reports widely available on the Web, however, may generate critical support for IABIN, from both the public and private sectors. Moreover, on-line availability means universal access, which is likely to make its audience grow. It will be of potential interest to scientists, economic and environmental policy makers, conservationists, environmental educators, protected areas managers, and many within the private economic sector including landowners, developers, industrialists, ecotourism managers, and agriculturists.

7. ONGOING DATABASE DEVELOPMENT

We must emphasize that, given the rapid rate of evolution in biodiversity information management, no inventory or database can ever be exhaustive. This is particularly true in the case of this brief and demanding project. The OAS and/or its partners, however, will be able to continually update and augment the database throughout the process of designing and implementing IABIN.

The future maintenance, management, and upgrading of the software and information contained in the database should be a relatively simple and inexpensive task. A method similar to the request form that was used for gathering data about BINIs can be used as new initiatives are identified, or to update existing information.

Should the OAS and/or other organizers of IABIN wish to do so, the database developed in Access 97 can be posted on line not only as an HTML document (as reports are provided), but also in a fully interactive form. The software and hardware required are not expensive, nor would it be complex for an institution (such as the OAS) that already has its own Internet server and experience with Windows NT.

8. CONCLUSIONS

It seems somewhat apparent that we are entering an era of Networking Initiatives. Our technological advances could very likely be blamed for providing the means and capabilities to achieving such endeavor. Throughout our research and analysis, it has become clear that initiatives have set efforts trying to establish cooperation through actions such as data sharing agreements with other initiatives or institutions having similar goals. The preparation of such agreements and implementation of the same, have shown to be at initial stages. There is a need for a better legal and most important conceptual framework for cooperation among initiatives or institutions. But this need for data sharing must evolve from a concept into reality. Biodiversity information sharing regulations, protocols and policies are also in the early stages of implementation, especially when international boundaries have to be crossed. The promotion of data sharing agreements among institutions and initiatives is a need of utmost value in the biodiversity information management arena and needs to continue on its development for a successful implementation.

A major step has been accomplished here. Through the implementation of this project, the laying foundation has been set. The continued development of IABIN as a clearing-house of information will be somewhat dependent upon the continued and continuous update of information as it becomes available. It is fair to say that the list of initiatives presented within is not an exhaustive one, but it does lay down the course for continued success.

In the U.S., some initiatives, like the Natural Heritage Program, have worked hard to promote the use of their databases by the Policy sector. This has evolved through years of negotiation and interaction with local, state, and federal environmental agencies, such as the U.S. Fish and Wildlife Service, the Environmental Protection Agency, and the U.S. Geological Survey.

- **The Needs And The Gaps**

Most initiatives are in the early stages of establishing data sharing agreements with other initiatives and institutions. Data sharing regulations, protocols and policies are developing at both the national and international level. At the level of most common initiatives, there is a lack of work towards resolving the biodiversity information and data sharing regulation issues (international copyright regulations, copyrights, information transfer and sharing regulations; and information transfer protocols). No initiatives reported to directly address any of the topics of information regulations, although in most cases the initiatives expressed the need of being better informed on data sharing regulations and protocols, both at national and international levels.

There are gaps in coverage of information for several sectors of society and their related topics. Few initiatives address Agriculture-Livestock, Commerce and Development, Conservation, Health and Environment, Industry, Policy, or Socio-Economic as a means of directly or indirectly influencing biodiversity issues. The Science and Sustainable Development sectors account for more than 80 % of the initiatives' attention.

Considering that many initiatives target the Environmental Policy sector as an audience, few initiatives have specific actions addressing policy issues directly. This may be due to the fact that most of the initiatives are managed by science sector institutions. This may also hold true for the Commerce and Development sector, the Socio-Economic sector, and others.

A hemispheric analysis of potential BINI users should be undertaken in order to better understand the market for biodiversity information network management and its potential positive impacts on the environmental conservation. Such an analysis would provide the information needed to answer whether new initiatives should be created and whether existing initiatives need to refocus their attention toward Environmental Policy, Information Regulation or other important issues.

Considering that for many initiatives studied policy is undeniably a target audience, more effective work in environmental/biodiversity information issues for decision making should be undertaken by the initiatives. But collaboration efforts in the near future should be focused on initiatives addressing not only policy-oriented topics but also those other that are not currently being sufficiently implemented as well.

As an outcome of this report it is our recommendation to undertake a major hemispheric analysis of potential biodiversity users of the initiatives identified. Such an analysis should give us a clear understanding of biodiversity information network management and its positive potential impacts on the preservation and conservation of biological diversity.

- **Primary Managers and Audience of the Database**

To increase awareness about different ongoing biodiversity networking initiatives in the Americas, reports from the BINI database will be posted onto the World Wide Web as an HTML document, perhaps via the OAS Web server.

The immediate and principal purpose of the database and the results of this analysis are to become a tool

for experts who will, over the coming months and years, work to design and create IABIN. Making reports widely available on the Web, however, may generate critical support for IABIN, from both the public and private sectors. Moreover, on-line availability means universal access, which is likely to make its audience grow. It will be of potential interest to scientists, economic and environmental policy makers, conservationists, environmental educators, protected areas managers, and many within the private economic sector including landowners, developers, industrialists, ecotourism managers, and agriculturists.

7. ONGOING DATABASE DEVELOPMENT

We must emphasize that, given the rapid rate of evolution in biodiversity information management, no inventory or database can ever be exhaustive. This is particularly true in the case of this brief and demanding project. The OAS and/or its partners, however, will be able to continually update and augment the database throughout the process of designing and implementing IABIN.

The future maintenance, management, and upgrading of the software and information contained in the database should be a relatively simple and inexpensive task. A method similar to the request form that was used for gathering data about BINIs can be used as new initiatives are identified, or to update existing information.

Should the OAS and/or other organizers of IABIN wish to do so, the database developed in Access 97 can be posted on line not only as an HTML document (as reports are provided), but also in a fully interactive form. The software and hardware required are not expensive, nor would it be complex for an institution (such as the OAS) that already has its own Internet server and experience with Windows NT.

8. CONCLUSIONS

It seems somewhat apparent that we are entering an era of Networking Initiatives. Our technological advances could very likely be blamed for providing the means and capabilities to achieving such endeavor. Throughout our research and analysis, it has become clear that initiatives have set efforts trying to establish cooperation through actions such as data sharing agreements with other initiatives or institutions having similar goals. The preparation of such agreements and implementation of the same, have shown to be at initial stages. There is a need for a better legal and most important conceptual framework for cooperation among initiatives or institutions. But this need for data sharing must evolve from a concept into reality. Biodiversity information sharing regulations, protocols and policies are also in the early stages of implementation, especially when international boundaries have to be crossed. The promotion of data sharing agreements among institutions and initiatives is a need of utmost value in the biodiversity information management arena and needs to continue on its development for a successful implementation.

A major step has been accomplished here. Through the implementation of this project, the laying foundation has been set. The continued development of IABIN as a clearing-house of information will be somewhat dependent upon the continued and continuous update of information as it becomes available. It is fair to say that the list of initiatives presented within is not an exhaustive one, but it does lay down the course for continued success.

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