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Policy issues: international environmental governance

**Overview of regional and national environmental information
networks**

Note by the Executive Director

The annex to the present note contains additional information on several important environmental information networking initiatives that are referred to in document UNEP/GC/24/3/Add.2, entitled “Strengthening the scientific base of the United Nations Environment Programme: Environment Watch Strategy: Vision 2020”. The annex has been issued without formal editing.

* UNEP/GC/24/1.

Annex

OVERVIEW OF REGIONAL, SUB-REGIONAL AND NATIONAL ENVIRONMENTAL INFORMATION NETWORKS NAD SYSTEMS

Introduction

The present Annex provides additional information on several important environmental information networking initiatives referenced in document UNEP/GC.24/3/Add.2 entitled *Strengthening the scientific base of UNEP: Environment Watch Strategy: Vision 2020*. One major component of the draft Environment Watch strategy is networking and information exchange where one of the tentative 2020 targets is to develop incrementally a worldwide information network based on existing networks and developing new ones where appropriate.

This Annex provides an overview of a sample of existing regional, sub-regional and national level environmental information networking initiatives. For each initiative listed, the network is described according to a common structure:

- (a) Background and Legislative Authority
- (b) Objectives
- (c) Structure
- (d) Activities
- (e) Outputs

This Annex is based on publicly available information, but it should be noted that many of the networks described are constantly evolving and although efforts have been made to ensure that the information presented is up-to-date the paper may not fully reflect the latest developments.

OVERVIEW OF REGIONAL, SUB-REGIONAL AND NATIONAL ENVIRONMENTAL INFORMATION NETWORKS NAD SYSTEMS

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1. Environmental information networking: rationale and relation to the Bali Strategic Plan and the proposed Environment Watch Strategy: Vision 2020

Information is fundamental to the work of keeping the environment under review. Most decision makers depend upon the regular flow of quality information for every aspect of their work. Deficiencies in quality information prevent decision makers from gaining a useful understanding of states and trends to guide their decisions. The challenge currently is for them to have systems and approaches for information exchanges that are effective for decision-making.

The recently endorsed Bali Strategic Plan for Technology Support and Capacity-building provides UNEP with an important mandate to strengthen national capacities for data collection, research, analysis, monitoring and integrated environmental assessment; developing institutional capacities, staff training and support for appropriate and adaptable technologies and methodologies; support for assessments of environmental issues of regional and sub-regional importance and for the assessment and early warning of emerging environmental issues; support for scientific exchanges; for the establishment of environmental and inter-disciplinary information networks; and promotion of coherent partnership approaches. This is consistent with UNEP's original mandate (UNGA resolution 2997) which called on UNEP to promote the contribution of the relevant international scientific and other professional communities to the acquisition, assessment and exchange of environmental knowledge and information, and decided that UNEP's Environment Fund should be used for financing such programmes of general interest such as, inter alia, environmental research, information exchange and dissemination.

Establishing and maintaining effective partnerships and networks to keep the world environmental situation under review underpins the work programme of UNEP and is consistent with UNEP's role as a catalytic organization by mobilizing institutional cooperation at the relevant level. The multidisciplinary nature of environmental issues and themes coupled with the fragmentation of data and information across different institutional custodians makes it imperative to have structures in place to harness the best available scientific data to support scientific assessment and early warning, and report on the state of the environment from global down to local level.

The Environment Watch Strategy: Vision 2020 is being presented to the 24th session of the Governing Council of UNEP (ref UNEP/GC.24/3/Add.2). It sets out a bottom-up and incremental approach to achieving by 2020: *Enhanced institutional, scientific and technological infrastructures and capacities for cooperation on keeping the state of the environment under review and providing timely, accurate, credible, relevant and consistent environmental data and information for environmental governance*. The strategy is generic and based on three pillars: capacity building and technology support; networking and information sharing; and assessments.

This note provides an overview of some of the Regional, Sub-regional and National Environmental Information Exchange Networks that are operational and under development. It provides additional information related to the first and second objectives of the Environment Watch Strategy on enhancing and connecting national, international, scientific and technical capacities and efforts for keeping the state of environment under review and promoting exchange of priority environmental data and information. The strategic objective and the planned programmatic activities will contribute to the implementation of the relevant parts of the Bali Strategic Plan for Technology Support and Capacity-building (BSP), in particular its call in Section IV F for: supporting scientific exchanges and establishment of environmental and inter-disciplinary networks.

The success of an environmental information network is dependant on the ability of involved institutions to share and exchange data. Information sharing through networking is recognized as a key productivity-enhancing activity in efforts for keeping the environment under review. The rapid developments in information technology are providing increased and new opportunities. Networks are important for filling information gaps and avoiding duplication and they have a positive financial implication. They can contribute to bridging the information divide and are important for vertical and horizontal exchange and distribution of information for assessments, indicators and early warning of environmental problems by

countries, international agencies and other stakeholders. In general, the network members share a common objective and tend to collaborate on an in-kind basis to derive mutual benefits from the working relationship.

On the communications side, the dissemination of policy-relevant assessment findings to policy-makers enables effective policies to be formulated in response to pressing environmental concerns. In addition, the provision of access to environmental information facilitates sound decision-making at the relevant level by a broad spectrum of stakeholders ranging from governmental officials to the ordinary citizen.

2. Regional Networks

2.1 European Environment Information and Observation Network (Eionet)

a) Background and Legislative Authority

Eionet is a partnership network of the European Environment Agency (EEA) and its member and participating countries. It consists of the EEA itself, a number of European Topic Centres (ETCs) and a network of around 900 experts from 37 countries¹ in over 300 national environmental agencies and other bodies dealing with environmental data and information. These are the National Focal Points (NFPs) and National Reference Centres (NRCs). <http://www.eea.europa.eu/organisation/nfp-eionet-group/>

The regulation establishing the EEA was adopted by the European Union in 1990. It came into force in late 1993 immediately after the decision was taken to locate the EEA in Copenhagen. The regulation also established the European environment information and observation network (Eionet). The information technology infrastructure (e-Eionet) supporting the institutional network became operational in 1997. <http://www.eea.europa.eu/documents/mandate.html>

For several years, EEA and its member countries have been collaborating on the technology platform Reportnet because the flows of information from countries to the international level, and back again, are important for understanding environmental progress. The flows are primarily linked to targets and measures defined in European Union legislation, international conventions and protocols and in EEA's targets. Information is needed on issues such as the causes of pollution, the status of biodiversity, the environmental performance of sectors and the effectiveness of actions. Such information is used to describe trends and model futures, thereby helping countries and European institutions to formulate more effective policies. Reportnet is currently focusing primarily on flows from member countries to the EEA. The long-term vision is to develop an infrastructure allowing multiple data requestors at national and international levels access to delivered data. This principle can be briefly described as 'Deliver-once-use-by-many' <http://www.eionet.europa.eu/rn>

b) Objectives

Eionet aims to provide timely and quality-assured data, information and expertise for assessing the state of the environment in Europe and the pressures acting upon it. This enables policy makers to decide on appropriate measures for protecting the environment at national and European level and to monitor the effectiveness of policies and measures implemented.

c) Structure

The main components of Eionet are the EEA itself, the European Topic Centres (ETCs), the National Focal Points (NFPs) and the National Reference Centres (NRCs) as it is shown in Figure 1.

¹ Member countries: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom. Participating countries: Albania, Bosnia-Herzegovina, Croatia, FYR of Macedonia, Serbia and Montenegro

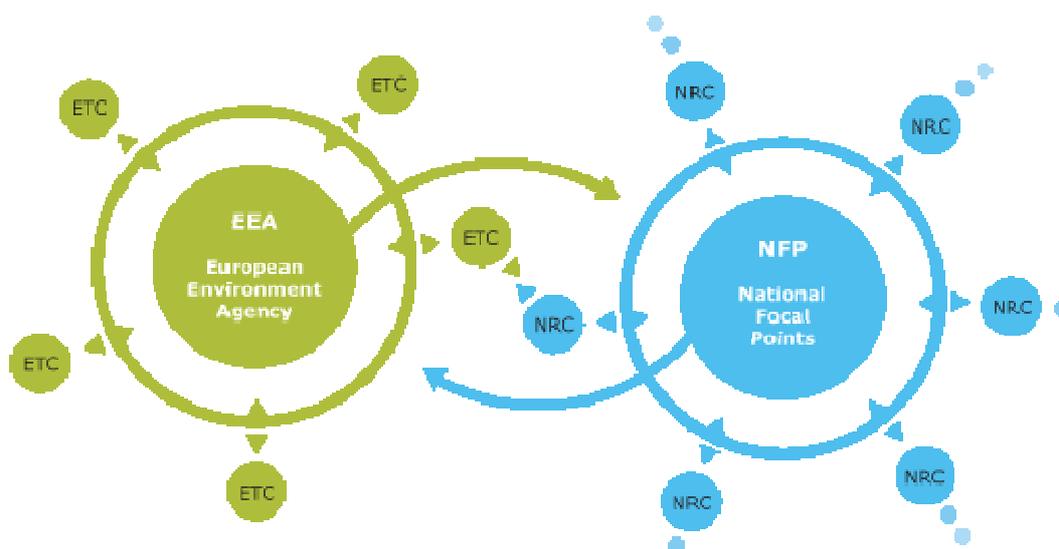


Figure 1: The European Environment Information and Observation Network (Eionet)

Source: <http://www.eionet.europa.eu/>

European Topic Centres (ETCs) are centres of thematic expertise contracted by the EEA to carry out specific tasks identified in the EEA strategy (five-year work programme) and the annual management plans. They are designated by the EEA Management Board following a Europe-wide competitive selection process and work as an extension of the EEA in specific topic areas. Each ETC consists of a lead organisation and specialist partner organisations from the environmental research and information community, which combine their resources in their particular area of expertise. The ETCs, working together with member and participating countries, facilitate the provision of data and information from the countries and deliver reports and other services to the EEA and Eionet. There are currently (2006) five ETCs covering air and climate change, water, land use, resource and waste management and biodiversity.

National Focal Points (NFPs) are the main contact points for the EEA in the member countries. They are in charge of cooperation with the EEA and the ETCs and organise national coordination of activities related to the EEA strategy. Their working methods differ from country to country. This partly reflects the diverse nature of the national environmental systems within which they are based. For example, some NFPs are located in environment agencies, others are part of the environment ministry; some are in centralised national administrations, whereas others operate in decentralised, sometimes federal, systems. NFPs maintain and develop the national network, facilitate and coordinate contacts, requests and deliveries between national and European level. In addition, they act as advisers to their EEA Management Board members and develop contacts to other relevant networks. In order to promote key EEA publications, many NFPs organise launch events and issue press releases.

National Reference Centres (NRCs) are nominated by member countries. They are nationally funded experts or groups of experts in organisations which are regular collectors or suppliers of environmental data at the national level and/or possess relevant knowledge regarding various environmental issues, monitoring or modelling. NRCs are established in specific areas of environmental activity, for example air quality, climate change, river quality, waste generation, biodiversity, energy and many more. They play a role in technical coordination of these topics and work with the EEA and the relevant ETCs. The NRC structure varies in accordance with the requirements and priorities of the EEA strategy. <http://www.eea.europa.eu/organisation/nfp-eionet-group/presentation/>

d) Activities

According to the EEA founding Regulation, the main purposes of Eionet are to:

- support the Agency's activities on data collection, reporting and integrated assessments;
- support the Commission Services, in particular DG Environment, and Member States in data collection and reporting as required under EU legislation; and

- facilitate streamlined data flows and reporting between countries and Community institutions/international bodies as well as between Community institutions and international bodies, so as to minimize duplication and eliminate redundant efforts.

e) Outputs

Based on input from the Eionet partners, the EEA has identified a set of priority annual data flows. These data, collected currently in the areas of air quality, air emissions, inland waters, marine and coastal waters, contaminated soil, nature conservation and land cover, are used to update the core set of environmental indicators which form the basis of EEA reports and assessments. A yearly progress report is produced by the EEA on country performance in delivering these data. This exercise is a useful tool to benchmark country performances and encourage all countries to improve their response. As far as possible, data and information which have already been reported by the countries in the framework of EU or international obligations are used within Eionet. This means that data collected once at a national level can be used for many purposes at national, EU and international levels.

The aim of EEA/Eionet is to help the EU and member countries make informed decisions about improving the environment, integrating environmental considerations into economic policies and moving towards sustainability. To do this, a wide range of information and assessments is provided. These cover the state of the environment and trends, together with pressures on the environment and the economic and social driving forces behind them. It also covers policies and their effectiveness. The EEA tries to identify possible future trends, outlooks and problems using scenarios and other techniques. The EEA publishes a number of reports every year and — increasingly — short briefings on specific issues. Briefings and major reports are usually translated into the official languages of EEA member countries.

Source: <http://www.eionet.europa.eu/>

2.2 Africa Environment Information Network (AEIN)

a) Background and Legislative Authority

The Africa Environmental Information Network (AEIN) is a network of African stakeholders through which participating countries will have better access to environmental and sustainable development data, information and knowledge to help decision-making, policy development, and investment choices at the national and regional levels. Ultimately, the AEIN will enable African countries to manage environmental resources as assets for sustainable development, especially within the implementation of the New Partnership for Africa's Development (NEPAD) and for monitoring progress towards development goals.

The network will create a framework for cooperation and coordination amongst the various existing information management initiatives in Africa, thus preventing duplication of information collection efforts whilst maximizing the communication and use of existing information by making it available to a wider audience and by presenting it in a variety of user-friendly formats and media.

The AEIN was developed in response to political and technical needs expressed by the African Ministerial Conference on Environment (AMCEN) at a special session held in October 2001. It also responds to expressions of interest from African agencies, policy makers, environmental managers and researchers attending the fifth AFRICAGIS Conference in Nairobi in November 2001.

b) Objective

The objectives of the AEIN are to:

- strengthen capacity at the national level for managing information relevant to Africa's environmental assets to provide opportunities for sustainable development;
- facilitate public access to environmental data and information to improve good governance and public participation in decision-making;
- assist the implementation of the objectives of NEPAD and AMCEN decisions and medium-term programmes; and
- generate information products to enhance country negotiation status with respect to its assets within the context of multilateral environmental conventions.

c) Structure

AEIN has been conceived as an integrated framework programme that will contribute to strengthening institutional capacities in managing and using *information related to sustainable development*. In this respect two aspects of the AEIN framework are recognized. The Figure 2 below illustrates the broad two sets of objectives of AEIN, and the linkages therein. The first set of objectives addresses *specific capacity building needs for the effective implementation of national, sub-regional, and regional assessment and reporting processes*. This refers explicitly to the AMCEN request and the Africa Environment Outlook (AEO) process for which AEIN has a specific "mandate". This is represented by the "*framework for integrated assessment and reporting*" block, with AMCEN as the apex organ of the network. Clustered together in that block are the institutions directly involved in these processes, with an indication of the relationships among them. This is essentially the existing AEO/GEO structure, with the addition of a national AEIN node (Figure 2).

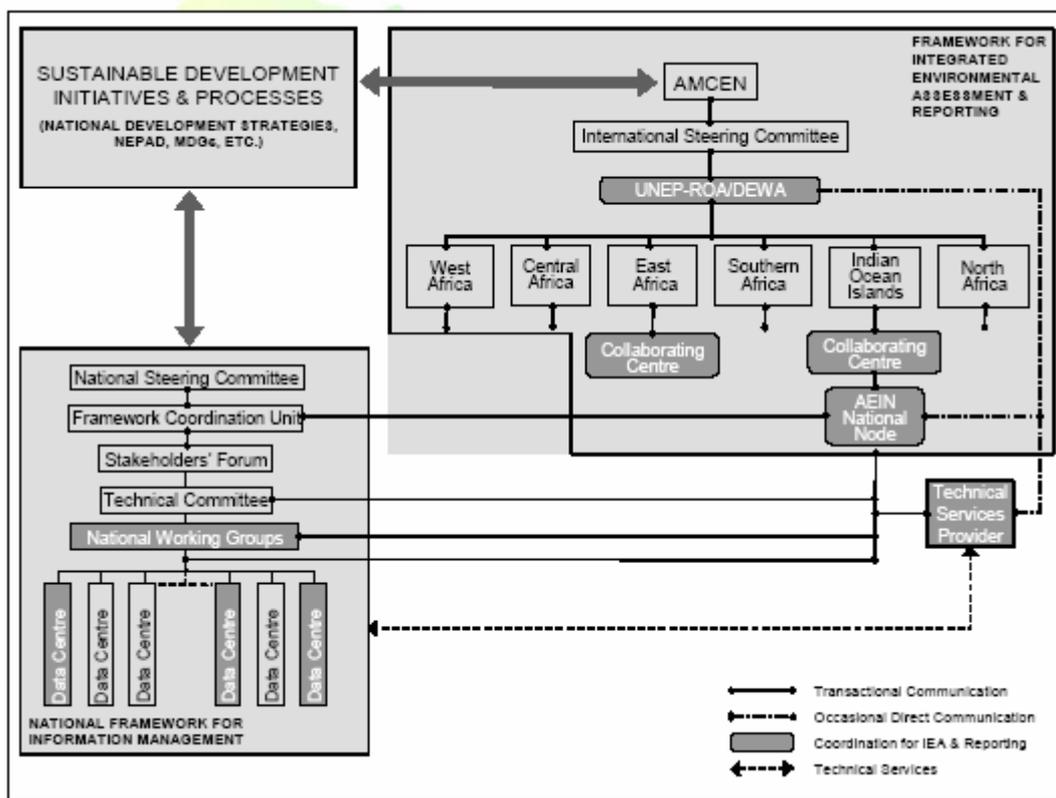


Figure 2: AEIN network structure and linkages to on-going initiatives

Source: <http://www.unep.org/dewa/africa/aeoprocess/aein/aein.asp>

The second set of objectives relates to the broader issues relating to the *development and exchange of essential data and information needed for sustainable development* activities at the national level. This is represented by the “national framework for information management” block. This representation acknowledges the fact that there could be other structures at the national, as well as the sub-regional levels, which respond to various other initiatives, such as national committees that would become part of the SDI initiative in Africa, or other such initiatives and processes. Linkages will be made to such structures where they exist to reinforce the synergy between AEIN and structures that could contribute to and support the implementation of AEIN. In such cases it will not be presumed that the AEIN focal point (National Node) institution would necessarily play the lead role within the national AEIN framework for information management. AEIN national partners will identify and work with those institutions within such national frameworks that will make direct contributions to the achievement of the first set of objectives relating to *assessment and reporting processes* as shown in Figure 3.

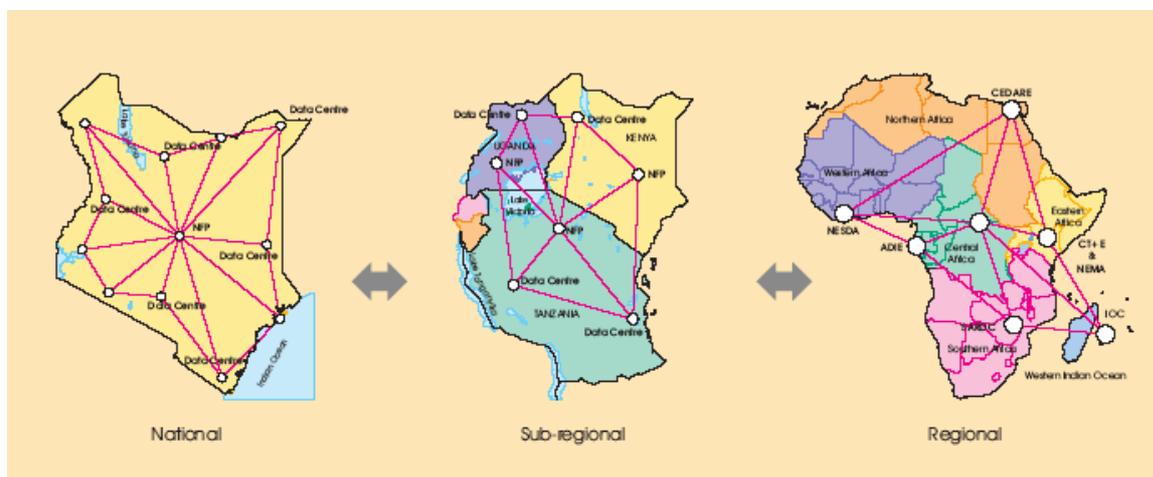


Figure 3 AEIN network multi-level linkages

Source: <http://www.unep.org/dewa/africa/aeoprocess/aein/aein.asp>

d) Activities

The Africa Environmental Information Network will generate a wide variety of information products and services that will serve the policy decision making at various levels. Amongst them are:

- increased networking amongst international and national institutions and agencies strengthen the access and exchange of relevant information;
- improved skills to carry out integrated environmental assessments;
- early warning and state of the environment reporting;
- reporting to international conventions;
- policy briefs;
- information catalogues and meta databases, amongst other.

e) Outputs

The principal outputs expected are:

- structures for managing the AEIN programme, including implementation guidelines and procedures, and an International Steering Committee;
- national EIS status reports and AEIN implementation strategies for 12 pilot countries;
- environment information management tools comprising: directory/profiles of national institutions involved in the management of the environment;
- catalogue of information needs and reporting requirements for the Conventions;
- catalogue of data and information resources;
- directory of experts and facilities;
- documentation (bibliographic) system;
- clearing house mechanisms;
- guidelines/sourcebook for environment policy analysis;
- guidelines for harmonized State of Environment reporting;
- a set of environmental indicators;
- intermediate products and packaged technical information including:
 - data compendia and related data products (thematic briefs, thematic vital graphics, and so on.)
 - policy briefs
 - fact sheets
 - thematic video scripts
- Africa river basins information system prototype;
- national State of Environment reports for 12 pilot countries;
- scope and structure of AEO-2;
- AEIN communication strategy; and
- National Action Plans for the implementation of Principle 10 in four countries.

Source: <http://www.unep.org/dewa/africa/aeoprocess/aein/aein.asp>

2.3 Inter-American Biodiversity Information Network (IABIN)

a) Background and Legislative Authority

The Centro del Agua del Trópico Húmedo para la América Latina y el Caribe (CATHALAC) houses the Inter-American Biodiversity Information Network (IABIN) which was created in 1996 as an initiative of the Santa Cruz Summit of America's meeting of Heads of State. There are now 34 countries in America that have officially named their IABIN focal points. Although endorsed by Governments, Non Governmental Organizations, universities, museums and the private sector belong to and play important roles in IABIN, which is based in Panama.

b) Objectives

The objective of IABIN is to provide the networking information infrastructure (such as standards and protocols) and biodiversity information content required by the American countries to improve decision-making, particularly for issues at the interface of human development and biodiversity conservation.

c) Structure

IABIN operates through a membership council called the "IABIN Council." The Council is policy focused and has the authority to make decisions and take action on behalf of IABIN. The main functions of the Council are to:

- provide the vision and strategic direction for IABIN;
- develop policy for IABIN;
- make any necessary recommendations for coordination or action to the Organization of American States;
- provide oversight of IABIN projects and progress;
- approve members to the Executive Committee;
- approve non-focal point membership to the Council;
- annually review the activities of the other IABIN governance bodies (Executive committee, Council Committees, Technical Working Groups, and so on.) to ensure the activities conform to IABIN objectives and address the needs of members; and
- approve a Budget and Program of Work for IABIN on an annual basis.

In order to effectively guide the operations of IABIN and to execute the policy decisions of the Council, a smaller governance body is needed. This body is called the IABIN Executive Committee (IEC) which is comprised of eight countries and an IGO/NGO member, currently Global Biodiversity Information Facility (GBIF). The main functions of the Executive Committee are to:

- execute the decisions of the Council;
- make operational policy decisions and commit network resources to facilitate projects;
- establish procedures for conducting the operational business of IABIN;
- approve the establishment and mandates for technical working groups and appoint chairs as necessary;
- determine minimum requirements for the Node and have responsibility for its selection, direction, and continuing oversight;
- approve the selection of the Hub Executive Secretary and monitor his/her performance;
- with support from the Hub, recommend an annual work program and budget to the Council;
- provide an annual report to the Council containing the progress and accomplishments of IABIN for the previous year; and
- approve an annual financial statement for submission to the Council containing current expenditures and balances, including activities of the previous year.

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

Day-to-day activities of IABIN are managed by the IABIN Secretariat. The Secretariat has functions and responsibilities as the coordinating organization of the IABIN Network and also has a role in coordinating many aspects of the implementation of a GEF World Bank project.

The IABIN Council is concerned with the role of the Secretariat in the implementation of the GEF Project, as it is the only major instrument currently available for channeling financial support to the network.

In summary, the principal functions of the Secretariat are the following:

Inter-operability and Access to Data:

- supervise the operation of the basic network infrastructure: IABIN Catalog Service and Thematic Networks;
- facilitate the development of the network (e.g., assess capacity, identify areas for restructuring or investment, seek support); and
- manage data on the status and availability of the network's capacity.

Data Content Creation:

- quality control and validation of information;
- digitization of biodiversity data;
- determine data content creation priorities; and
- data hosting.

Information Products for Decision Makers:

- identify the specific needs for value-added information products; and
- provide visualization and data integration tools to improve the usability of data in the decision making process.

Sustainability of IABIN:

- seek sources of funding for the operation of the Secretariat and other activities (e.g., IABIN Council meetings);
- support the IABIN Council, Executive Committee, ad hoc working groups, and particularly National Focal Points;
- promote cooperation amongst the network's partners through meetings, workshops, newsletters,
- preparation of strategic plans for product development and services; and
- liaison to a Development Gateway.

Administration:

- coordinate evaluation of proposals and consultants;
- report to donors; and
- monitor and evaluate the project's effectiveness.

d) Activities

IABIN is currently:

- developing an Internet-based platform to give access to scientifically credible biodiversity information that is scattered throughout the world in different institutions, such as government organizations, museums, botanical gardens, universities, and NGOs;
- assessing the information needs of the biodiversity community in the region and setting priorities among these needs;

- implementing network-level tools to allow network-wide searching and retrieval of relevant biodiversity data, information and knowledge;
- exchanging scientific expertise through collaborative projects and other efforts to build capacity in human and technological resources; and
- assessing the state of biodiversity in the Americas and Europe and identifying non-electronic data of interest.

Through their participation in the IABIN Work Program, IABIN Members will undertake some or all of the following types of activities:

- improve the accessibility, completeness and interoperability of biodiversity databases, and promote standards for data exchange and shared vocabularies;
- develop a digital library of biodiversity information;
- develop partnerships with existing organizations and initiatives, such as the Clearing-House Mechanism of the Convention on Biological Diversity, the Global Biodiversity Information Facility, the Man and the Biosphere Network, Species 2000, the North American Biodiversity Information Network, the Integrated Taxonomic Information System, and similar initiatives;
- develop partnerships with institutions and organizations that provide primary information, such as museums, herbaria, microbial culture collections;
- develop, implement, and promote model curricula for biodiversity informatics training for stakeholders (e.g., researchers, protected area managers, data managers and technicians, and policy and decision-makers) in the use and sharing of biodiversity information;
- coordinate IABIN Member activities with the activities of others stakeholders in order to avoid duplication and to benefit from existing resources and expertise;
- develop network policies concerning data quality control, access to data and information, metadata, and proper acknowledgement of the original sources of data and information; and
- identify sources of funding to support biodiversity information network development.

e) Outputs

Outputs envisaged from IABIN include:

- an Internet-based platform;
- catalogues and directories (either centralized or distributed); and
- electronic mailing lists and web sites.

Sources: <http://www.iabin.net/> ; <http://www.cathalac.org/>

3. Sub-Regional Networks

3.1 Southern Africa Sub-regional INFOTERRA Network (SASIN)

a) Background and Legislative Authority

The Southern Africa Sub-regional INFOTERRA Network (SASIN) was established in 1991 following a meeting of INFOTERRA national focal points (NFPs)² from the Southern African Development Community (SADC) region. Financial assistance from the United States Environmental Protection Agency (US-EPA) to the INFOTERRA NFP for Botswana was subsequently extended to other NFPs in the region. NFPs were equipped with computers, photocopiers and communications facilities to gain access to the Internet. The Department of Foreign Affairs of the Republic of Ireland provided additional assistance to strengthen the capacity of INFOTERRA NFPs to deliver information services on environmental matters.

Technical assistance was provided by ENFO - the Environmental Information Service of the Irish Department of the Environment and Local Government. National bibliographic databases were developed and merged into a regional database (www.enfo.ie/sasin), and fellowships for information specialists were provided by ENFO. An environmental information and awareness centre was built at Masianokeng in Lesotho. The NFP of Botswana acts as the regional service centre or hub for the SASIN sub-network.

b) Outputs

- The collaborative effort coordinated by SADC-SETU (Environmental Information Systems Technical Unit) resulted in the development of the region's initial EIS databases:
 - bibliographic databases;
 - contacts databases;
 - geo-spatial biodiversity meta-database.
- The Southern African Biodiversity Support Programme (SABSP)'s Regional Biodiversity Information Systems (RBIS) built on the national environmental information systems through Biodiversity Information Centres.
- SADC Water Resource Database (WRD) which evolved from the need to estimate the potential of small-water bodies fisheries development.

Source: <http://www.enfo.ie/sasin/>

² **INFOTERRA** is the global environmental information exchange network of the United Nations Environment Programme. The network operates through a system of government-designated national focal points which at present number 177. An INFOTERRA national focal point is essentially a national environmental information centre usually located in the ministry or agency responsible for environmental protection.

4. National Networks and Systems

4.1 Environmental Information System (ENVIS) - India

a) Background and Legislative Authority

Realizing the importance of environmental information, the Government of India, in December 1982, established an Environmental Information System (ENVIS). The focus of ENVIS since inception has been on providing environmental information to decision makers, policy planners, scientists and engineers, research workers, and so on all over the country.

Since environment is a broad-ranging, multi-disciplinary subject, a comprehensive information system on environment should involve effective participation of concerned institutions/ organizations that are actively engaged in work relating to different environmental issues.

ENVIS has, therefore, developed a network of such participating institutions/organizations so that programme will be meaningful. A large number of nodes, known as ENVIS Centers, have been established in the network to cover the broad subject areas of the environment with a Focal Point based at the Ministry of Environment & Forests.

Both the Focal Point as well as the ENVIS Centers have been assigned various responsibilities to achieve the long-term and short-term objectives as set out below. For this purpose, various services have been introduced by the Focal Point.

ENVIS due to its comprehensive network has been designed as the National Focal Point (NFP) for INFOTERRA, a global environmental information network of the United Nations Environment Programme (UNEP). In order to strengthen the information activities of the NFP, ENVIS was designated as the Regional Service Centre (RSC) of INFOTERRA for the South Asia Sub-Region countries in 1985.

b) Objectives

Long-term objectives:

- to build up a repository and dissemination centre in Environmental Science and Engineering;
- to gear up the modern technologies of acquisition, processing, storage, retrieval and dissemination of information of environmental nature; and
- to support and promote research, development and innovation in environmental information technology.

Short-term objectives:

- to provide a national environmental information service relevant to present needs and capable of development to meet the future needs of the users, originators, processors and disseminators of information;
- to build up storage, retrieval and dissemination capabilities with the ultimate objectives of disseminating information speedily to the users;
- to promote, national and international cooperation and liaison for exchange of environment related information;
- to promote, support and assist education and personnel training programmes designed to enhance environmental information processing and utilization capabilities; and
- to promote exchange of information amongst developing countries.

c) Structure

ENVIS is a decentralized system with a network of distributed subject-oriented Centers ensuring integration of national efforts in environmental information collection, storage, retrieval and dissemination to all concerned. Presently the ENVIS network consists of a Focal Point based at the Ministry of Environment and Forest and ENVIS Centers established in different organizations/establishments in the country in selected

environmental issues. These Centers have been set up in the areas of pollution control, toxic chemicals, central and offshore ecology, environmentally sound and appropriate technology, bio-degradation of wastes and environmental management, and so on.

ENVIS focal points ensure integration of national efforts in environmental information collection, collation, storage, retrieval and dissemination to all concerned.

ENVIS Nodes strengthen ENVIS in disseminating information pertaining to environment and sustainable development. ENVIS India is in the process of establishing eighty five ENVIS Nodes by involving organizations, institutions, universities and government departments working in diverse areas of the environment. Eighty-one partner nodes have already been established, which include thirty government departments, thirty-six institutions and fifteen NGOs. These nodes are supposed to create websites on specific environment related subject areas.

d) Activities

The roles and responsibility of the ENVIS Centers and Nodes are to:

- establish linkages with all information sources, and create a data bank on selected parameters in the subject area assigned;
- identify information gaps;
- publish newsletters and Bulletins;
- develop library facility and provide support to the focal point on the subject area; and
- most importantly serve as interface for the users on the assigned subject.

Both the Focal Point as well as the ENVIS Centers have been assigned various responsibilities as follows:

1. Focal Point :

- overall coordination of the ENVIS network;
- identification of ENVIS Centers in specialized areas, their location in selected institutes/organizations and their linkage with the Focal Point;
- developing guidelines and uniform design procedures for ENVIS Centers;
- collection, storage, retrieval and dissemination of information on areas in which ENVIS Centers have not been established, and in some general areas of environment like environmental research, environmental policy and management, environmental legislation, environmental impact assessment, and so on.;
- responding to user queries directly or through the ENVIS Centers;
- establishment of data bank containing data on selected parameters, and computerization in important areas of environment;
- identification of data gaps and knowledge gaps in specified subject areas and suggested activities to fill these gaps;
- liaison with relevant international information systems and other national information systems;
- publication of a quarterly abstracting journal *Paryavaran Abstracts*;
- producing various other publications on current services;
- organizing training and seminars;
- monitoring and reviewing of ENVIS; and
- assisting the Scientific Advisory Committee of ENVIS with inputs and providing other assistance.

2. Responsibilities of ENVIS Centers :

- building up a good collection of books, reports and journals in the particular subject area of environment;
- establishing linkages with all information sources in the particular subject area of the environment;
- responding to user queries;
- establishing a data bank on some selected parameters relating to the subject area;

- coordination with the Focal Point for supplying relevant, adequate and timely information to the users;
- Assisting the Focal Point in building up an inventory of information material available at the Centre;
- identification of information gaps in the specified subject areas and suggested activities to fill these gaps;
- Publishing newsletters/publications in the particular subject areas of environment for which they are responsible for wide dissemination.

e) Outputs

- data bank containing data on some selected parameters, and computerization in important application areas of environment;
- publication of a quarterly journal (Paryavaran Abstracts);
- good collection of books, reports and journals on the environment; and
- newsletters/publications.

Source: <http://envfor.nic.in/envis/envis.html>

4.2 Environment Information Network (EIN) - Uganda

a) Background and Legislative Authority

To effectively manage Uganda's natural resources and environment, it was recognized that information and expertise from the relevant sectors should be brought together. As a result an Environment Information Network (EIN) was established and the National Environment Management Authority (NEMA) was selected to be the Secretariat of the EIN to coordinate and supervise its activities.

b) Objectives

The main objective of the EIN is to enhance the capability of key data producers to exchange data and information in compatible formats and at minimal time and cost.

c) Structure

EIN operates as a network of members with open lines of communication between all members. It then coordinates its functions through a "Secretariat" whose membership is open to all with initial emphasis on ensuring the involvement of government agencies to ensure production of large quantities of data.

EIN provides a forum for communication on a range of technical, institutional and policy issues relating to the availability, dissemination and use of environment information.

Six participating institutions are being supported in terms of capacity building for this pilot phase, these include:

- Department of Agricultural Planning
- Department of Lands and Surveys
- Department of Meteorology
- Kawanda Research Station, NARO
- Makerere Institute of Environment and Natural Resources (MUIENR)
- The National Biomass Study, Forest Department

d) Activities

The EIN carries out a number of functions including:

- building awareness of information management needs and issues;
- capacity-building;
- promotion of data standards; and
- elaboration of data release policies by data-producing institutions.

e) Outputs

- information on crop zones, cropping calendar and crop suitability model at national, district and other appropriate levels;
- geo-referenced information;
- information on key aspects of weather and climate of the country;
- soils data especially a national soil map at a scale of 1:250,000 showing the distribution of the different soil types;
- information on biodiversity at various scales especially 1:250,000; and
- information on land cover/vegetation at various scales especially 1:250,000.

Source: <http://www.nemaug.org/ein.php>

4.3 Environment Information Network (EIN) – Ghana

a) Background and Legislative Authority

The Environment Information Network (EIN) of Ghana was the result of roundtable discussions between The International Institute for Communication and Development (IICD) and the Internet Society of Ghana in 1998, where the Environmental Protection Agency (EPA) highlighted the need for a centralized database of environmental information for Ghana. The project was launched in July 1999.

In recognizing the importance of accessible environmental information, the EPA has made the provision and dissemination of information one of the spearheads of its policies towards sustainable development.

Data from various government institutions are linked and made accessible to other stakeholders through the use of Information Communications and Technologies (ICT). By linking institutions, the use of new technologies has allowed for an enormous cost reduction in the retrieval of information. Likewise, by allowing more people to use existing information, the value of these existing sources of knowledge is greatly enhanced.

By investing considerable amounts of time and money in the development of in-house skills -Web development and information management, the EPA is assuring the managerial sustainability of the Network. Today, the project team at EPA is made up of six officers, including representatives of the library and other technical staff.

b) Objectives

The main objective of the EIN is to provide up-to-date information on the environment to all sectors of Ghanaian society, by making information accessible through enhancing the overall capacity for institutional networking information management.

c) Structure

The EIN has electronically linked the databases of two key environmental agencies in Ghana: the EPA- one of the oldest environmental agencies in Africa - and the Forestry Research Institute of Ghana (FORIG) - which deals extensively with deforestation issues but has also been mandated by the Ghanaian Government to do research into forest products. Important documents and records related to environmental management were scanned into an electronic database that can be accessed via local computer networks that connect the agencies' offices. Researchers from the two agencies are also linked by telephone and e-mail, and connected to the World Wide Web to give them access to international research.

As part of the EIN Project, librarians systemized bibliography entries from EPA and FORIG's libraries, scanned documents and records and uploaded these onto an electronic database.

The EPA central office's Local Area Network (LAN) was then connected to the Internet, and the EPA's ten regional offices were connected to the unified database via a Wide Area Network (WAN). EPA and FORIG also established their own website. Selected staff from the two agencies received extensive training to help them manage the in-house environmental information database.

d) Activities

- support and strengthen existing institutions;
- the establishment of a functioning and effective network among the EIN agencies;
- the availability of base map information and qualified personnel; and
- the creation of a forum for continuous dialogue for solution of environmental problems.

e) Outputs

The implementation of EIN in Ghana has not yet reached a stage where the contribution to operational environmental related issues can be measured. It has concentrated on producing data for use in the land sector. Despite this, there are some achievements. The EIN project now enables partner organizations to access information from each other's databases at the click of a mouse. As a result of EIS implementation there is a core of information including the issues that can be used for land use planning.

Source: <http://www.comminit.com/experiences/pdskdv22003/experiences-1185.html>

4.4 Estonian Environment Information Centre (EEIC)

a) Background and Legislative Authority

The Estonian Environment Information Centre (EEIC) was established in 1989 as an Information Centre for Environmental Exploitation. The regulation of 10th of December 1992 of the Minister of Environment gave the Centre its present name and the status of a state organization administered by the Ministry of Environment.

The primary function of EEIC is collecting, analyzing, processing and providing environmental information and data. At the moment EEIC collects data into five different databases or information systems. These include data about emissions into the environment, as well as monitoring data on the state of environment. The data collected is on air, waste, landfills, marine, surface and ground water, nature conservation, use of natural resources, waste water and waste water treatment plants. At the end of each year EEIC sends questionnaires on air emissions, waste and water Use to the County Environmental Departments who in turn send these to the stakeholders in their county. The enterprises fill in the questionnaires and send them back to the Environmental Department. The departments collect and check the data and then send the questionnaires to the EEIC.

b) Objectives

The EEIC aims to collect, process and generalize data on Estonian nature. State of environment reports and influencing factors provide reliable environmental information for Estonian decision-makers, Estonian and foreign public and organizations.

c) Structure

The institutions responsible for national environmental monitoring programs collect data, process it and then send it back to EEIC.

The responsibilities of participatory institutions are as follows:

- **Bureau of Information** – environment related data and information publishing;
- **IT Bureau** - IT support;
- **Bureau of Waste Data** – registration of waste flow and waste management facilities;
- **Bureau of Environmental State Assessment** – collection, processing and analyzing of state of environment data;
- **Bureau of Environmental Register** – collection, processing and analysis of state of environment data;
- **Nature Bureau** – management of duties related to the protection of biological diversity and ecosystems; and
- **Climate and Ozone Bureau** – administration of national greenhouse gases emissions trading registry, management of joint implementation projects related to Estonia, compilation of ozone depleting substances consumption and treatment database.

d) Activities

The activities of the EEIC include:

- collecting, analyzing and providing environmental data;
- compiling and issuing environmental reviews;
- participating in state environmental monitoring programme;
- transforming environmental data into geo-referenced data (GIS) and processing of spatial data;
- maintaining environmental information systems, e.g. system of environmental permits;
- contributing to development of environmental legislation;

- providing consultations, expertise and assessments in related fields;
- acting as a national focal point (NFP) for European Environment Agency and UNEP/Infoterra network;
- participating in EEA's ETC/NPB and ETC/WMF's consortia; and
- exchanging and reporting of environmental data to the EEA, Eurostat, European Commission, UNEP and other international institutions;

e) Outputs

- Environmental data;
- Environmental reviews.

Source: <http://www.keskkonnainfo.ee/english/overview>

4.5 National Environmental Information Exchange Network (Exchange Network) - United States of America

a) Background and Legislative Framework

The Environmental Information Exchange Network (Exchange Network) is a secure, Internet-based approach to exchanging data among partners (e.g., states and EPA). Using eCommerce technologies, data standards and agreed-upon templates for packaging data, Exchange Network participants control and manage their own data, while making it available to partners via requests over a secure Internet connection. Partners on the Exchange Network share data efficiently and securely over the Internet. This new approach is providing real-time access to higher quality data while saving time, resources, and money for partner states, tribes, and territories.

In 1998, state environmental agencies, through the Environmental Council of the States (ECOS), and the U.S. EPA formed the Information Management Work Group (IMWG) to address issues related to information management. The IMWG focused on the problem of how data is exchanged between partners.

In 2000, the IMWG completed the National Environmental Information Exchange Network Blueprint. The Blueprint became the conceptual design for how the Exchange Network would use the latest technologies to share and exchange environmental data more effectively and efficiently.

In 2002, the IMWG developed an implementation plan and formed the Network Steering Board (NSB) to guide the implementation of this national initiative. The NSB, equally represented by senior executives at EPA and the states, oversaw the early implementation of the Exchange Network.

The State/Environmental Protection Agency Information Management Workgroup (IMWG) approved an Exchange Network Business Plan in December 2004/March 2005. The Business Plan proposed the re-alignment of current Network and Standards governance into a new organization, the Exchange Network Leadership Council (ENLC). The ENLC is designed to provide high-level leadership and direction for the Network. The primary sub-group of the Council, the Network Operations Board (NOB), is focused on supporting the operational “day to day” issues of running the Network.

The ENLC and NOB are designed to replace and integrate the functions of the Environmental Data Standards Council (EDSC) and Network Steering Board (NSB). This re-organization will help support the continued growth of the Network and its transition from initial implementation into an operational system.

This Network Blueprint describes a practical vision for an alternative to the current approach. It outlines a National Environmental Information Exchange Network (Exchange Network) that applies the technologies and approaches that have transformed the Internet to the exchange of data between environmental agencies. The specific technologies, and their application, are detailed in this blueprint document.

b) Objectives

The objective of the Exchange Network is making environmental protection more efficient and helping to improve the quality of decision-making processes. The Exchange Network provides a better way of exchanging data between States and EPA, but equally important, provides the infrastructure to exchange new data with new partners. This will allow more data to be aggregated over secure sites on the Internet and will result in better quality data exchanges that can be used for making sound and defensible environmental decisions. The Exchange Network is helping participants reduce costs, save time, and overcome delays in making better decisions and responding to environmental emergencies.

c) Structure

Partners on the Exchange Network establish and maintain servers called Network Nodes that are securely connected to the Internet. A Node is a partner's single point of presence on the Exchange Network and serves

as the exchange point for all data requests and submissions. Network Nodes automatically listen for and submit requests for data from other information trading partners and then deliver or publish the data based upon pre-described methods. Nodes are secure and authenticate all requests for data to ensure they are coming from an authorized trading partner.

The power of the Network lies in the technology that the Nodes use to transmit data among partners. Extensible Markup Language, or XML, is an open standard that describes data through simple but rigid syntax rules. It provides a standards base from which anyone may exchange data regardless of computer system or platform. With XML, existing data management systems remain in place and the data is transformed as it enters and exits each system without changing the meaning or appearance of the data.

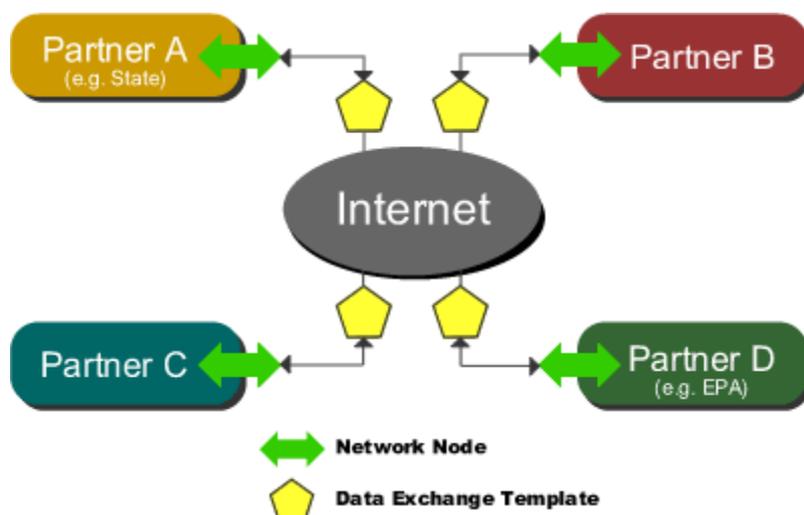


Figure 4: National Environmental Information Exchange Network

Source: <http://www.exchangenetwork.net/>

d) Activities

The Exchange Network is a fairly simple concept. States set up a node, or server, that is linked to a main database that collects all its environmental data. Using Extensible Markup Language schemas, the information is sorted into nationally agreed upon data sets. EPA gathers the information with an automatic data call. When EPA sends out a data call, the state server recognizes the EPA server, pulls the information from its database and uploads the requested records.

Most states send EPA data by building a translator application to create batch data formats so EPA's system can understand the information. Anytime EPA changes the data fields, state agencies scurry to keep up.

The Exchange Network works because partners agree to use a common vocabulary to define data exchanges. Incorporating data standards developed by the Environmental Data Standards Council, trading partners develop XML schemas and Data Exchange Templates (DETs) that standardize and identify the way information is shared, so partners can obtain and understand the data they need when they need it.

Data exchanges on the Network are governed by trading partner agreements (TPAs), which specify the data to be exchanged as well as the format, frequency, and other related issues. Trading Partner Agreements (TPAs) are formal agreements that detail the what, how, and when of data exchanges between trading partners.

e) Expected outcomes

- access to more current information;
- stage for the broader exchange of information to include non-regulatory partners;
- more timely, reliable, standardized and consistent data exchanges between Partners;
- opportunity to reduce current reporting burden;

- potential for data integration enhanced;
- agencies with more control over their own data, and ability to tailor other's data to their use; and
- trading Partners with maintained web service infrastructure.

Source: <http://www.exchangenetwork.net/>

4.6 National Environment Information System (SINIA) - Nicaragua

a) Background and Legislative Background

The National Environmental Information System (SINIA) is under development in Nicaragua by the Ministry of the Environment (MARENA) as a component of a World Bank project and according to the General Law of the Environment and Natural Resources of Nicaragua, Articles 31, 32 and 33 /1996.

SINIA is a joint process of national, regional and municipal stakeholders who work together with the aim of strengthening the national development process through efficient environmental management. To achieve this, technological platforms are being managed by participatory structures composed of governmental, academic and nongovernmental organizations that make their information accessible. In the country Regional Nodes are conformed to supervise the Center of Public Access, where the population is able to have access to the Internet as well as receiving information and training. This infrastructure is administered by Regional Councils of Environmental Information, where the municipal governments and their associations play a relevant role.

At the national level, SINIA is being coordinated by an Executive Committee made up of representatives of public organizations and supported in their management by a Coordinating Node and a Technical Secretariat. In its first stage, SINIA has established processes of diagnosis, promotion, awareness, organization and definition of a conceptual and methodological framework for its own design and the development of environmental indicators. Sectoral representatives from local governments and organized civil society in the territory have participated in this process.

b) Objectives

The main objective of the SINIA is to collect, integrate and disseminate data and information relevant to the state of the environment and the management of natural resources in Nicaragua, and the development and dissemination of information products relevant to environmental decision making that increase the utility of data in decision-making process at the national, state and municipal levels. Socio-economic information is considered very important to environmental issues and it is included in the SINIA. The information provided by SINIA will support the development of Municipal Environmental Plans and the National Plan for Development.

c) Structure

The SINIA operates under a scheme of participatory and multi-sectoral and multi-level consensus. The National Network of Environmental Information (RENIA) is the mechanism in which governmental and nongovernmental organizations participate and who are voluntarily commit to make information and databases on the environment and natural resources available to the general public. Each entity is known as an institutional node.

An Executive Committee leads the SINIA process and delegates responsibility for supervision to its Board of Directors. At regional and departmental levels there are the Councils of Environmental Information that take responsibility for the sustainability process. In order to do their work, the different levels of participation depend on technical personnel and technological tools. The Nodes can be regional or departmental and they count on centers that promote and facilitate public access to information.



Figure 5: SINIA Organigram

Source: www.sinia.net.ni/

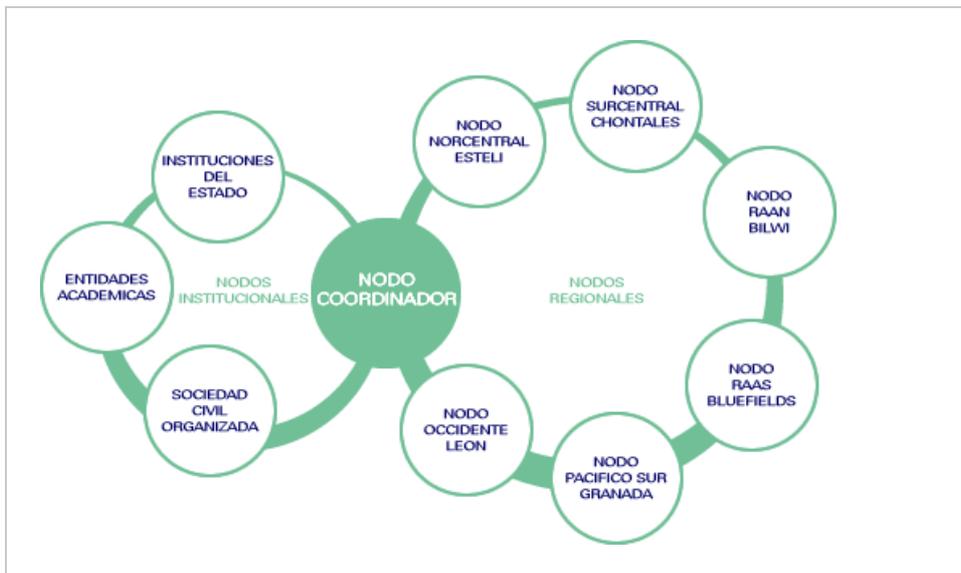


Figure 6: Node structure

Source: www.sinia.net.ni/

d) Activities

The main activities of the Coordinating Node of the SINIA consist of:

- agreements with private and public institutions;
- recommendations on standards and protocols to establish interoperability among institutions;
- the development of a technological platform to collect and provide access to data and information relevant to the environment;
- the development of a system of environmental indicators at the national and local levels; and

- the creation of information products that increase the utility of data in the decision-making process at the national, state and municipal levels.

The Regional Nodes provide service and assistance to users in the territories, facilitating access to institutional data and to information products, as well as providing training. The Regional Nodes consist of a regional center, where a server linked to the servers of the Coordinating Node manages local information, and a telecenter that provides Internet access to users and space for training activities. Associated with the Regional Nodes are the Regional Environmental Information Councils (CIARs), advisory bodies in which local governmental and non-governmental institutions, universities, and the private sector are represented.

The SINIA is developing a technical platform that allows electronic access to relevant data and information. This platform currently provides access to databases from government institutions and to a national system of environmental indicators. The SINIA is a distributed system, in which each participating institution provides access and maintains their data.

The Institutional Nodes provide reports on the databases held by each participating institution. The Environmental Indicator module defines the methodology for 52 environmental indicators in a number of thematic areas. Participating institutions provide data and calculate the environmental indicators, which reside in a server in MARENA. The Municipal Database module integrates environmental and socio-economic data provided by local governments. These data are accessible by municipalities. The module labeled Information Products integrates data and information provided by the other modules, providing usable information to decision-makers. The Information Products under development by the SINIA have been prioritized in the following thematic areas: Deforestation and Desertification, Water Quality, Solid Waste, Prevention and Early Warning of Disasters, Biodiversity, and Pesticides and Fertilizers.

Data and information are collected from and disseminated at the municipal level through the System for Integrated Municipal Information (SIIM). The SIIM customizes information for each municipality, which is delivered via CD. This mechanism is also used to build the Municipal Database module with data and information collected locally.

c) Expected Outputs

SINIA will:

- generate periodic reports on of the State of the Environment and Natural Resources in Nicaragua, which will allow the comparison between regions, municipalities and other countries;
- organize the information on environment related agreements, treaties and international treaties subscribed by the country;
- generate regional and municipal useful basic environmental indicators for the development and implementation of management instruments at territorial level (PAM, POT, PIM, PDM);
- provide environmental indicators for the creation of Environmental Accounts and to integrate them to the National Accounting; and
- assess the progress of Nicaragua in its aim to achieve a sustainable development that harmonizes environment, economic and social issues.

Source: www.sinia.net.ni/

4.7 Environmental Information System (SINIMA) - Brazil

a) Background and Legislative Authority

The Ministry of Environment of Brazil (MMA) is implementing an initiative called National Environmental Information System on (Sistema Nacional de Informação sobre Meio Ambiente SINIMA). The SINIMA is the instrument under the National Environment Policy (Law 6,938/1981) responsible for the organization, integration, sharing, access and accessibility of environment information in the scope of the National System of Environment (SISNAMA), in accordance with the national policy of decentralized environmental management; SINIMA covers the three spheres of government. The strategy of implementation of SINIMA is coordinated by the Executive Secretariat of the MMA (Decree 5,776/2006), through the Department of Institutional Cooperation.

c) Structure

The structure of SINIMA is composed of other systems of information and integrated environmental databases. The Managing Committee of the SINIMA was created to act as a coordinating body between the agencies and representations of the SISNAMA in order to determine the guidelines of the National Policy of Environment Information. The Managing Committee of SINIMA is composed of representatives of the Ministry of the Environment (MMA), the National Association of Municipal Agencies of Environment (ANAMMA), the Brazilian Association of State Entities of Environment (ABEMA), the Brazilian Institute the Environment and the Natural Resources (IBAMA), the National Water Agency (ANA), the Institute of Research of the Botanical Garden of Rio De Janeiro (JBRJ) and of the Brazilian Forum of Non-Governmental Organizations and Social Movements (FBOMS).The committee has five subcommittees and an administrative secretariat in order to provide forums for thematic discussions at the technical level and to organize the proper functioning of the proper committee.

d) Activities

SINIMA is based on three structural activities:

- the development of tools to access environmental information;
- the systematization of the production, collection and analysis of environment information; and
- the integration of data bases and systems of information.

Source: <http://www.mma.gov.br/index.php?ido=conteudo.monta&idEstrutura=58>

4.8 Environmental Information System (SINA) - Colombia

a) Background and Legislative Background

Law 99 of 1993 created the National Environmental System (Sistema Nacional Ambiental - SINA), which is defined as the set of directives, norms, activities, resources, programs and institutions for implementing the general environmental principles stated in the Political Constitution of Colombia of 1991 and Law 99 of 1993.

b) Objective

The Institute of Hydrology, Environmental Meteorology and Studies (IDEAM) is charged to direct and coordinate SINA activities with the purpose of promoting the exchange of information with regional corporations and providing data and information to the National System of Prevention and Attention to Disasters.

c) Structure

SINA is encompassed by the organizations of the State responsible for the policy and the environmental action, (the Ministry of Environment, House and Territorial Development and the institutes related to it), the civil society and nongovernmental organizations related to environmental issues, the economic sector, public and other organizations that undertake activities of production of information, scientific research and development. The National Environmental Council has the intention to assure the intersectoral coordination in the public scope of the policies, plans and programs in environmental matter and of renewable natural resources.

IDEAM coordinates the SINA which encompasses an observing system and information, data bases and modelling of environment and natural resources. Therefore, it has developed information modules and promotes harmonized cooperation with regional authorities to implement protocols, methodologies, data collection and analysis standards, as well as information outreach.

The reliable and up-to-date information gathered by the system is generated and shared with the public and private sectors as well as civil society organizations ensuring accessibility to high quality data for environmental management in the country.

The organizations that are part of SINA and the institutions of environmental research support the information system by providing information. There is a mechanism that allows all the organizations to interact and to exchange the information they generate, in accordance with the specific requirements of each one. The information system facilitates the development of environmental policies for the benefit of all society, acting in a coordinated way, but at the same time it requires a reliable, opportune and pertinent contribution by society to the information system.

Also, SINA provides information to all the institutions that are part of the System such as the productive sector and the society in general. In order to fulfill this intention, IDEAM has created software programs and specified the technology to improve the flow of information.

d) Activities

- carried out Studies and research to define criteria and to propose models and variables for the study of the global environmental change and the particular alterations of the environmental in Colombia;
- the delivery of the environmental information to the SINA organizations, the productive sectors and society; ensuring the availability and quality of environmental information that it is required for the benefit national sustainable development, such as basic information sources to the users and the development of dissemination programs.

Source: <http://www.ideam.gov.co/sina/index4.htm>

4.9 Environmental Information System (SINIA) - Peru

a) Background and Legislative Background

The Environmental Information System, (Sistema de Información Ambiental - SINIA), is a management tool made up of a network of technological integration, a network of institutional integration and a network of human integration that aims at guaranteeing the access, diffusion and exchange of environmental information generated in the country.

SINIA is governed by the following legal framework:

- Law 28245 of 2004 (SNGA) Title IV of art 29 to 35 its regulation D.S 008-2005 PCM.
- Law 27806 on Transparency and Access to public information.
- Law 26410 Art. 4 interjection I: To promote and to consolidate the environmental information of the different public organizations.
- D.S.N° 022-2001-PCM: The National Environmental Commission (CONAM) coordinates the interchange, registry, compilation; systematization, access and distribution of environmental information

Through SINIA the public can access general information on different aspects of the environment (air, water, soil, and so on.): environmental quality, specific policies, environmental norms and environmental legislation among others. Users will also find Web sites with content on the environment of different public and private institutions. The SINIA is a national system which compiles information with the purpose of providing governmental, nongovernmental organizations and the public in general with reliable information and data.

b) Objectives

The objectives of SINIA are to:

- contribute to the design, assessment and implementation of policies, plans, programmes and instruments of environmental management formulated by the CONAM and the different national public and private organisations;
- be an instrument for society's participation in environmental management;
- provide information for the preparation of integrated environmental assessment reports;
- support environmental education.

SINIA has been created to use the existing capacities in different public institutions with environmental competencies as well as private institutions that generate environmental information and are committed to share and disseminate it.

c) Structure

SINIA has five subcommittees and an administrative secretariat in order to provide forums for thematic discussions at the technical level and to organize the proper functioning of the proper committee.

SINIA was conceived as a coordinating system, a "window" that facilitates the connection between the demand for environmental information and the sources of such information, for general or individual use. The SINIA Web site also relies on related dynamic Web pages of the database of the system. SINIA is a national system, capable of compiling information with the purpose of making it available to governmental, nongovernmental and public organisations in general.

d) Activities

SINIA identifies institutions that have environmental information and gathers that information, maps and stores in a data base which is accessible via a web portal

e) Outputs

- web page that shows environmental information by means of a data base;
- national environmental indicators have been designed with a broad participation of environmental organizations;
- four State of the Environment Reports have been published (two of them were developed using the UNEP GEO methodology);
- an inter-institutional agreement between the CONAM and the *Instituto Nacional de Recursos Naturales* (INRENA) has been signed as a strategy to systematize and to exchange the information that both institutions generate. For this purpose guidelines are being defined to standardize information and thus to implement a suitable metadata that is integrated in the SINIA. It is expected that this strategy will be adopted by other organizations of the state; and
- a proposal for environmental reports on breaches and lack of compliance with the legislation which will make this information available to the public in general, by means of the CONAM's webpage;

Regional Environmental Information Systems (SIARs) are a component of the SINIA and have the purpose of facilitating information exchange, systematization and diffusion of the information generated by the organizations with regional environmental competencies and thus increasing the information of the SINIA.

Source: <http://www.conam.gob.pe/sinia/>

4.10 Egyptian Environmental Information System (EEIS)

a) Background and Legislative Background

Effective environmental management and protection relies on a sound decision-making process incorporating the formulation and implementation of policies, legislation, programs and projects based on the timely storage, retrieval, processing and analysis of the appropriate environmental information. In this respect, environmental information systems have come to present a primary tool within the Ministry of State for Environmental Affairs (MSEA) and its executive institution, the Egyptian Environmental Affairs Agency (EEAA), for the planning and decision making processes, as well as the dissemination of environmental information.

Within this context, a functional version of the Environmental Common Information System (ECIS) of the Egyptian Environmental Information System (EEIS) was operationalized in 2000-2001, an initiative launched in 1997 in partnership with the Canadian International Development Agency (CIDA), and the deployment of the ECIS to different users within MSEA and EEAA. This system, currently hosting some maps and environmental data, is gradually being expanded with the aim of eventually housing processed EEAA and MSEA data, and allowing on-line access to this data. Within the context of extending the ECIS to the area of nature conservation, the Saint Catherine protectorate was provided with a linkage in 2000/2001, and plans are underway to further extend this to other Red Sea protectorates.

Moreover, during 2000/2001 a number of special applications have been initiated and supported within the scope of the Egyptian Environmental Information System (EEIS), under the mandate of the Environment Protection Law 4/1994 which consists in collect, process, produce and distribute environmental information. These include the New Development Zones Information System (NDZIS) supporting the activities of MSEA and EEAA in carrying out environmental assessment of new development zones, as well as the Environmental Contingency Plan Information System (ECPIS). The Industrial Pollution Information System (IPIS) is another application is used as a management tool by the Environmental Inspection Unit for tracking information concerned with industrial compliance to environmental requirements and regulations. Furthermore, the development of an Executive Environmental Information System has started in 2000/2001, designed to support decision makers at the executive level in MSEA and EEAA by providing an overview of key environmental information. In this context, an initial focus has been placed on air quality in Greater Cairo, with support provided from the Cairo Air Improvement monitoring network.

Egyptian Hazardous Substances Information & Management System (EHSIMS) was initiated as a management system for hazardous substances in Egypt, through:

- Providing basic guidelines and information for safe handling.
- Information dissemination through information network.

Environmental Impact Assessment (EIA) Projects and Consultants Information System (EIAPC) is a decision support system capable of determining precisely the suitable consultant(s) to review each EIA project.

A database on ships carrying solid waste was developed to :

- Monitor all the ships carrying solid waste passing through the Suez Canal.
- Register all the information about importers and exporters.
- Identify the source country and if this solid waste will be recycled or disposable.

Another application/system was developed for Solid Waste Management to assist in the development of the Egypt Strategy and Action Plan. All of these systems and applications are within a GIS domain.

The Ministry and the Agency's web site (www.eeaa.gov.eg) has been developed to:

- Provide environmental information to the public, specialists, and researchers (free service).
- Identify the Ministry's and Agency's activities.
- Strengthen public service and support.

- Educate the community (Environmental Awareness).
- Receive community feedback.
- Ensure that the linkages among the MSEA, EEAA and other ministries, authorities, organizations and the general public is continuously strengthened through dissemination of environmental information. In this regard, the MSEA and EEAA web site (www.eeaa.gov.eg) is regularly updated with:
 - New information on the policies.
 - Activities, and services of MSEA, EEAA.
 - Public Complaints System, has also been established for receiving the environmental inquiries and complaints on the Internet.

The main users of the EEIS include:

- Executive management level of the EEAA
- The central department of planning: International Cooperation and Disasters Management
- Environmental Inspection Unit
- The Nature Conservation Sector
- The Environmental Management Sector
- The Environmental Quality Sector
- The EEAA Regional Branch Offices

b) Objective

- to provide to EEAA an operational and functional Environmental Information System (EIS) and to assist with the capacity building of EEAA staff.
- to enhance capacity to use environmental information for decision making and policy formulation through the implementation of a EIS.

c) Structure

The EEIA's structure is shown in Figures 7 and 8.

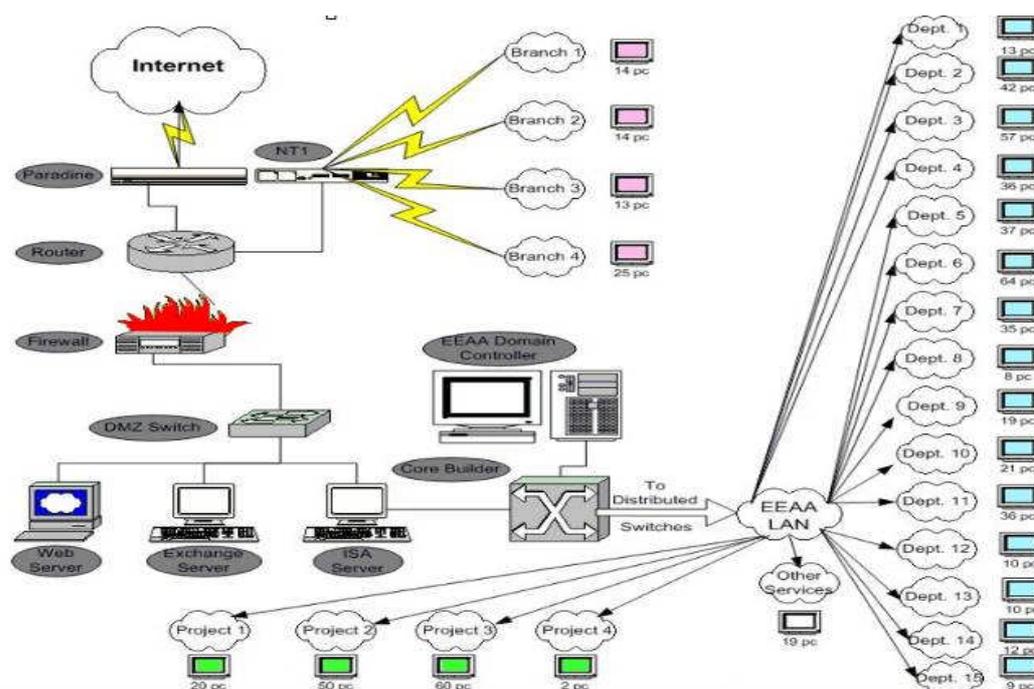


Figure 7: Egyptian Environmental Information System Structure

Source: <http://www.eaaa.gov.eg/English/main/about.asp>

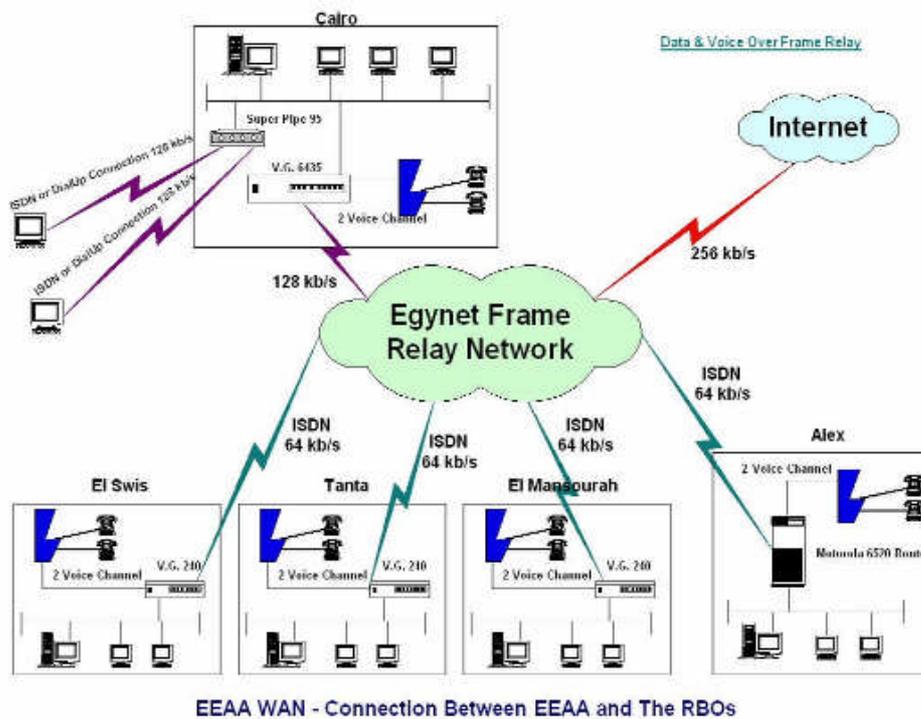


Figure 8: EEAA WAN Connection between EEAA and the RBOs

Source: <http://www.eaaa.gov.eg/English/main/about.asp>

d) Activities

The EEIS includes four major initiatives:

- Technical infrastructure;
- Development of IT applications;
- Environmental Information Strategic Plan; and
- Design of a Service Provision Plan.

Within these initiatives there are several activities being carried out; for example:

- support to the EIA database system, the Early Warning System for air quality in Greater Cairo, cement factories monitoring, the initiative concerned with the setting of municipal solid waste landfills in all Egyptian governorates, as well as the Egyptian Hazardous Substances Information Management System (EHSIMS), currently underway to be transformed into a web-based application;
- implementation of risk assessment models through the application of GIS;
- production of digital maps for Egypt;
- establishment of a database of all maps; and
- preparation of standards for map making and publishing.

e) Outputs

- publication of environmental reports such as the first Egypt State of the Environment Report 2004 and the second State of the Environment Report 2005 (have been done) ;
- reliable agency wide technical infrastructure such as hardware and software;
- effective and reliable collection of environmental information within and outside EEAA;
- enhanced EEAA capacity to use environmental information through the development of IT applications;

- effective environmental information exchange and access within and outside EEAA creating a environmental information management and dissemination committee;
- implementation of a standardized planning system;
- increased production of EEAA documents such as guidelines;
- a comprehensive Environmental Information Meta-database;
- establishment of Planning System Guidelines and Supporting Tools;
- production of Planning Documents;
- establishment of Planning System Guidelines and Supporting Tools; and
- production of planning documents.

Source: Egyptian Environmental Information System presentation prepared by Eng. Moheeb Abdel-Sattar Ebrahim, General Director of Systems, programs and Operation information and Computer Center, EEAA, 2 October 2006.

<http://www.eeaa.gov.eg/English/main/about.asp>

5. Conclusions

Conserving the global environment is an increasingly urgent imperative that will not be achieved without progress in concrete environmental conservation initiatives and without the implementation of diverse new environmental initiatives within countries and throughout regions.

The multidisciplinary nature of environmental issues and themes coupled with the fragmentation of data and information across different institutional custodians makes it imperative to have structures and systems in place to harness the best available scientific data to support scientific assessment and early warning, and report on the state of the environment from global down to local level.

Environment Information Networks and systems are the strategic tools by which national and local governments, environmental organizations, and the public in general can use current information technology to create meaningful improvements in conserving the environment. The proposed Environment Watch strategy: Vision 2020 seeks to capitalize on the opportunities offered by enhanced environmental information networking at multiple scales.
