

6 CASE STUDIES

6.1 Biodiversity Conservation Information System (BCIS)

Overview

BCIS is an evolving framework within which the Members' networks — thousands of conservation experts and organisations around the world — will work together toward a common goal: to support environmentally sound decision-making and action by facilitating access to biodiversity data and information. A consortium of 11 non-governmental conservation organisations and programmes¹, BCIS Members collectively represent a comprehensive resource for global biodiversity conservation information.

BCIS is developing as a flexible and decentralised network, governed by a common framework that complements and supports other data and information systems, including the clearing-house mechanism of the Convention on Biological Diversity (CBD-CHM). It endeavours to foster cooperation amongst its Members and a wide spectrum of other users. BCIS is building on existing data, information, expertise and networks by:

- identifying key data sources and promoting accepted indicators and standards;
- integrating and disseminating quality data and information to aid decision-making;
- linking experts to help address local problems, support national planning, and inform international policy debates; and
- building capacity of data owners and managers where needed — South and North — through a decentralised system of data custodians.

¹ As of July 1997: BirdLife International, Botanic Gardens Conservation International, Conservation International, IUCN Commission on Ecosystem Management, IUCN Environmental Law Centre, IUCN Species Survival Commission, IUCN World Commission on Protected Areas, The Nature Conservancy, TRAFFIC International, Wetlands International, World Conservation Monitoring Centre.

Characterising the Network

Underpinning the development of the BCIS network is the concept of BCIS as a ‘thematic network’ within a wider network including, but not restricted to, the CBD-CHM, i.e. part of a ‘network of networks’. This concept is very helpful in defining and characterising the membership of BCIS. If, as in this case, the thematic network is designed to primarily deal with large regional or global datasets held by non-governmental organisations, then the members are those non-governmental organisations dealing with those kinds of data. Governmental or intergovernmental agencies, or agencies dealing primarily with national level data, would not be appropriate members. Similarly, a national network would comprise governmental, non-governmental and corporate entities holding or using data primarily at or relevant to the national level.

Clarifying the subject domain and organisation type keeps the network focussed on its primary purpose and objectives and prevents it from growing large and unmanageable.

Network Inter-relationships

Since BCIS needs access to data and information that are not held by the component Members, e.g. topographic or socio-economic data, links need to be built to other networks or agencies that hold those data. Thus issues of custodianship and data access agreements need to be resolved both within and between networks.

Network Governance

Each Member of BCIS is, by virtue of signature by executive management, bound by an Agreement of Principles. This Agreement specifies the Goal, Objectives, Rationale, Principles, Participation and Governance of BCIS. Criteria for BCIS Membership have been developed.

BCIS is led by a Steering Committee, comprised of up to two representatives from each consortium member. The Committee currently meets twice per year and operates on the basis of consensus. A formal Terms of Reference Manual for the Steering Committee is being developed. Among other issues, the Manual lists the various responsibilities of the Steering Committee, which are as follows:

- to develop a long term vision;

- to coordinate fund-raising activities to optimise opportunities and avoid conflicts or duplication with individual consortium member's activities;
- to agree membership (including admitting new members and partners to the consortium) and establish management, administrative structures and procedures for electing Chairpersons of the Steering Committee;
- to prepare a business plan for developing BCIS and agree priorities and projects;
- to allocate management roles and duties and devise monitoring and evaluation procedures;
- to establish and maintain links with relevant, related initiatives, agencies and programmes and invite observers as appropriate;
- to oversee development of and agree to mechanisms, guidelines, and/or licensing arrangements for data collection, custodianship, management, validation, quality control and use, including conflict resolution;
- to ensure equitable and prudent financial management; and
- to establish sub-committees as needed.

The Manual also covers issues of joining and withdrawal from BCIS and the formation and management of Sub-committees. Observers can be invited to Steering Committee meetings, but do not participate in decision making.

Network Development

A comprehensive Framework has been developed for BCIS, including a Logical Framework Analysis. This includes background information on the origin of BCIS and its Members and the planned BCIS objectives, products, services and activities.

In any consortium, it is important for Members to have a thorough understanding of the capabilities and needs of all the other members. In BCIS, an Assessment of the Needs and Capabilities of the Members is being made. This comprises an analysis of the strategic and operational issues in bringing the Member agencies together, the Member capacities and links with each other and to external agencies and programs, any known gaps within the system, and comprehensive profiles on each Member.

Products and Services

The BCIS framework is being designed to benefit a variety of users and participants. It will enable multiple entry points into the system, ensuring widespread access to BCIS products and services for natural resource managers and decision-makers at all levels. BCIS will offer customised information products to support, for example, national planning and implementation of treaties.

The BCIS framework will benefit individual experts and NGOs that comprise the BCIS Member networks. First, these network members will have access to the information management tools, and training to make best use of them. Second, data harmonisation, encouraged under the BCIS framework, will enable easy access to a wide variety of data and information sources not previously available to the network members.

Finally, the information delivery vehicles exploited by BCIS, such as the Internet, will allow access beyond the participants and primary users, for example the educational community.

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6.2 East African Biodiversity Network

Although East Africa represents a region (Kenya, Tanzania and Uganda) rather than a single country, its attempts to network biodiversity data have been conducted in such close cooperation in recent years that it is treated as a single entity in this study.

In 1991, a number of organisations in East Africa began coordinating efforts to manage biodiversity data. This was achieved by means of annual workshops held in different locations throughout the three countries, in particular Bwindi (1991), Nairobi (1992, 1995), Kampala (1993, 1996), and Dar es Salaam (1994). The results of each workshop were published and circulated to participating organisations (for example, see NMK 1995).

The objective of this informal network was to standardise approaches to documenting and assessing biodiversity in the East African region, enabling

participants to access each other's data and expertise more easily for use in their own information programmes. Separate working groups (multi-partner teams) were established to deal with the development of standard taxonomic lists and habitat classifications; others reviewed data management procedures (including data exchange policy) and regional training needs.

As well as providing an opportunity to review the status of the datasets² being developed by the network's partners, the annual workshops enabled participants to present research progress and exchange experiences in seeking financial backing, applying information technology and accessing international datasets. Improved dialogue and coordination is one of the most important features of the network, enabling relatively ambitious information products to be developed, such as a regional red data list for birds and, in future, similar lists for other taxonomic groups.

As the network grew, in terms of the number of institutions participating, data holdings and internal capabilities, it became clear in 1993 that tighter coordination was necessary. The annual workshops, however useful, were too far apart to enable agreed targets to be monitored and achieved on time. Indeed, following the meetings, each institution tended to revert to its internal priorities and devote only modest time to regional goals.

None of the participating institutions were able to provide the facilities and staff time necessary for improved network coordination. As a result, in 1995 it was proposed to seek support for a secretariat, whose main task would be to enhance communications both within the region and with international organisations, such as IUCN, UNEP, WCMC and WRI. Specific tasks of the secretariat were envisaged to be: ensuring continuity of the annual workshops, including production of proceedings; production of a quarterly newsletter, reporting progress on development of essential datasets, reviews of hardware and software, and summary of international information programmes; maintaining and updating an existing database of institutions and datasets relevant to East African biodiversity; acting as a clearing house to promote data exchange; and identifying data development and other capacity building needs.

2 For example, electronic lists of birds and mammals, the List of East African Plants (LEAP), and a regional gazetteer.

A Steering Committee was elected in 1995, with a mandate to develop these ideas into a costed proposal for submission to a development assistance agency — and subsequently facilitate implementation of its objectives. It consisted of representatives from two institutions in each of the three countries as follows: National Environment Secretariat (NES) and National Museums of Kenya (NMK) in Kenya; University of Dar es Salaam (UDS) and National Environmental Management Council (NEMC) in Tanzania; and Makerere University Institute of Environment and Natural Resources (MUIENR) and the Uganda Forest Department in Uganda.

The initial proposal was limited in scope, since participants agreed that the network should develop slowly and sustainably on the basis of established goodwill and commitment. A range of organisations pledged their support to the secretariat, including the East African Natural History Society (EANHS), the East African Regional Office (EARO) of IUCN and WCMC.

*Source: Concept Paper, Regional Secretariat for Biological Databases,
November 1995.*

6.3 Environmental Resources Information Network (ERIN)

Overview

The Australian Environmental Resources Information Network (ERIN) is a national facility, using the latest computing technology to provide access to a vast reservoir of information on the Australian environment, and the analytical tools to interpret it. The ERIN unit is located within the Federal Department of Environment, Sport and Territories.

The information that ERIN makes available is drawn from many sources and includes maps, species distributions, documents and satellite imagery, covering environmental themes ranging from endangered species to drought and pollution. The information is used by a wide range of individuals and organisations ranging from government to industry, and from research workers to community groups.

Characterising the Network

The ERIN Program is based on cooperative efforts with those agencies interested in environmental information and effective decision-making. These cooperative efforts are based on the following principles:

- Environmental information should be made available through a network, so that it is available at the point where it is required.
- Data should not be stored centrally, but rather in a node where they are under the control of a custodian. This ensures the data will be updated and otherwise maintained by those best able to do so.
- All data, regardless of type, should be accessible through an easy-to-use interface, incorporating a comprehensive data directory.
- Analytical and modelling tools should be available through the same user interface as data.
- Priority must be given to the acquisition of point-based primary, rather than aggregated or interpreted, data. This ensures that conclusions based on those data can be rigorously reviewed, alternative analyses can be performed and baselines for monitoring established.
- Planning, research, development and management using environmental information must be based on established and well coordinated interdisciplinary and multi-agency collaboration and cooperation.
- There should be ready access to data, both at reasonable cost and without administrative encumbrances which would otherwise impede responsible environmental decision making.

ERIN launched its public on-line service in 1994, providing access to the ERIN network through the World Wide Web. This has evolved into Environment Australia Online, which can be accessed at <http://www.environment.gov.au/>.

Source: documents at Environment Australia Online, including <http://www.environment.gov.au/environment/ecpg/erin/about.html> and <http://www.environment.gov.au/portfolio/esd/csd95/case21.html>.

6.4 Environmental Change Network (ECN)

Overview

Founded in 1992, the Environmental Change Network (ECN) is the United Kingdom's integrated long-term environmental monitoring network. It is designed to collect, store, analyse and interpret long-term data based on a set of key physical, chemical and biological variables which drive and respond to environmental change.

The objectives of the network are as follows:

- To establish and maintain a network of sites within the UK from which to obtain comparable long-term data sets through monitoring a range of variables identified as being of major environmental importance.
- To establish agreed protocols for standard measurements of a range of environmental variables, to facilitate the collection and management of data to support integrated monitoring across a range of sites and organisations.
- To provide for the integration and analysis of these data, so as to identify natural and man-induced environmental changes and improve understanding of the causes of change, and to distinguish short-term fluctuations from long-term trends, and predict future changes.
- To provide for research purposes a range of representative sites with good instrumentation and reliable environmental information.

Characterising the Network

The network is a multi-agency programme sponsored by 14 different organisations, including government departments, research councils and other statutory authorities. ECN operates as a managed network (see Figure 3), although some of its activities require the hub to function more like the 'central unit' of a centralised network (see Figure 1). The structural components are:

- *Steering Committee*

The Steering Committee is ECN's main policy-making committee and is made up of representatives from the ECN sponsoring agencies. It normally meets annually

at one of the sites, though a sub-committee meets more frequently to deal with issues in more detail, and is empowered to take interim decisions on behalf of the Steering Committee.

- *Working Groups*

Technical matters relating to the core measurements undertaken at the network's monitoring sites are dealt with by Working Groups set up by the Steering Committee. A Technical Working Group and a Statistics and Data Handling Working Group, each consisting of experts from universities and research institutes, are responsible for proposals for core measurements, statistical procedures, and so on.

- *Central Co-ordination Unit*

The Natural Environment Research Council (NERC) is responsible for the management of the network on behalf of all the sponsoring agencies. Day-to-day management is carried out by the ECN Central Coordination Unit (CCU). CCU staff are responsible for coordinating all the network's activities, including data collection and transmission, and for managing a central database and geographic information system (GIS). The CCU also services ECN Committees, and is responsible for liaison with contributing and external agencies.

Use of ECN Data

The ECN database is managed and developed by the CCU. Data are collected by ECN Site Managers according to standard protocols, and are submitted in standard formats via email. Data are then validated and incorporated into the database with associated metadata describing their quality.

Data is made available to external users subject to the following **conditions of use** developed by the network's partner organisations, both to protect the rights of individual organisations and to ensure the appropriate involvement of the network in projects that use its data. The conditions of use are as follows:

- *Ownership*

The ECN Summary Database and its component datasets are proprietary products of NERC, on behalf of ECN, and thus protected by copyright law. Rights of ownership and copyright in these data are reserved.

- *Allowable uses*

Users may not: a) transfer, assign, rent, lease, sell, give or otherwise dispose of the data; b) release a product or tradable commodity based in whole or in part on data supplied by ECN, unless prior written agreement has been obtained, and any royalties due have been paid; and c) reproduce any digital or numerical data other than for back-up purposes.

- *Acknowledgement*

Users are required to acknowledge ECN in all reference or publications which involve use of the data. Users must offer ECN acknowledgement and/or co-authorship of any proposed publication arising from the use of the data. ECN will have the right to accept this offer, allow the user to publish in his/her own right, or refuse permission to publish.

- *Data quality and liability*

Although the data are subject to quality-assurance procedures, ECN are not able to warrant the accuracy of the data supplied, nor do they accept responsibility for determining the fitness of the data for their intended use. The provision of data carries no liability for its accuracy or reliability and ECN or its sponsors cannot be held accountable for any loss, damage, injury or any other occurrence arising from the use of their data.

- *Publications*

Copies of, or a reference to, any publications which refer to these data should be sent to the ECN Coordinator.

Source: ECN's web-site at <http://mwnta.nmw.ac.ukecn/index.html>.