

9 CASE STUDIES

9.1 Overview

Since the Earth Summit a number of publications have begun to address the challenge of generating information in support of the goals of the Convention on Biological Diversity. These include the *Guidelines for Country Studies on Biological Diversity* (UNEP 1993) which provides advice on assessing the conservation status and economic potential of living resources, *Guidelines on National Biodiversity Planning* (Miller and Lanou 1995), which examines how to develop biodiversity strategies, action plans and reports, and the more specific *Guide to Information Management* (UNEP/WCMC 1996) and *Guide to National Institutional Survey* (UNEP/WCMC 1998) which illustrate the steps necessary to build a national infrastructure for biodiversity information management.

Two fundamental lessons for information management can be drawn from the experiences captured by these publications, and from related projects and activities which have addressed the issue of managing information on living resources following the Earth Summit:

- 1 Information should be **relevant to policy and management goals**, whether these apply at the local, national or international levels. It follows that there is a need to find ways of converting the abundant information on environmental, economic and social issues into forms suitable for decision-making.
2. Information should reflect the real complexity of environmental concerns by involving an **appropriate range of stakeholders** in the information production process.

In accordance with these principles, many governments in both North and South have developed strategies for improving the accessibility, quality and relevance of national biodiversity information. Two examples follow.

9.2 The UK Biodiversity Database

Following the Earth Summit the United Kingdom prepared a biodiversity action plan in accordance with Article 6a of the Convention on Biological Diversity. One of the

key strengths of the plan, which was published in January 1994 (UK Government 1994), is that it draws together existing policies and programmes for nature conservation throughout the country.

To advise the UK Government on implementation of the Plan, a Biodiversity Steering Group was established with representation from key sectors and nature conservation institutions. The primary tasks of the Steering Group, which was chaired by the Department of Environment, were to develop costed targets for conserving threatened, declining or otherwise important species and habitats; to suggest ways of improving accessibility and coordination of biodiversity information; to recommend ways of increasing public participation and awareness of the need to conserve biodiversity; and to monitor and oversee implementation of the Plan.

The United Kingdom has a rich reserve of biodiversity data resulting from the efforts of dedicated amateurs and government agencies. However, much of this data is not available to decision-makers in a form which is relevant to their needs. There are also important gaps and overall coordination of data collection and management activities is lacking. For instance, policy-makers may be more interested in the reasons why species or habitats are disappearing than their rates of loss (i.e. information on pressures as well as status). This may demand a programme of monitoring and research drawing on a baseline of consistently structured data, which may not exist at the present time, despite the wealth of biodiversity data which have been collected in support of earlier, often uncoordinated priorities.

To make more effective use of what data already exist, and to coordinate activities in future, the Biodiversity Steering Group established three information management priorities: to improve access and coordination of existing biodiversity datasets; to provide common standards for future biological recording; and, most ambitiously, to examine the feasibility of a UK Biodiversity Database (UKBD). Planning was driven by the knowledge that the data requirements of most users are actually quite similar and that, as a consequence, the most efficient systems and mechanisms were those which resulted in data being recorded, checked and stored only once, but accessed and used many times for many purposes.

Emphasis was placed on prioritisation of datasets for decision-making processes, the management of data quality (validation, security and documentation), and the preparation of data exchange policies. It was recommended that major datasets should be managed to certain standards of content, quality and accessibility by an

agreed custodian, and made available to other users for legitimate purposes. This is in direct agreement with European information regulations on freedom of access to information on the environment, which state that public sector holders of data have an obligation to provide access to and ensure the quality of their data.

When considering whether (and how) to make datasets available to external audiences, the twin issues of charging for data and protection of intellectual property rights (IPR) are often cited by institutions and individuals as potential barriers. This need not necessarily be so if the right environment for data exchange is created at an appropriately high level, and the characteristics of good data exchange policies are agreed. For instance, the UK Biodiversity Steering Group recognises that different charges and conditions of use of data might be issued to different classes of user as, indeed, is already common practice amongst some of the institutions represented.

With regard to standards, three thematic areas were identified: biodiversity standards covering the data content (e.g. species nomenclature, vegetation classifications, threat categories); information standards covering data structures (e.g. the attributes recorded for a species distribution record); and technology standards covering the compatibility and interoperability of information and communications technology. The task of reviewing existing standards and addressing weaknesses with new standards has begun, on the premise that data will continue to be stored on a variety of media (e.g. paper, spreadsheet, database) and communicated in a variety of ways (e.g. by hand, post, CD-ROM, Internet).

Clearly, the most significant component of the Biodiversity Steering Group's information strategy is the UKBD. When established, this will comprise a network of cooperating partners working towards agreed standards of data quality and access. The UKBD will operate at two levels: the local level, where data are commissioned primarily for the development of local biodiversity action plans under the management of a consortium of competent local organisations; and the national level, where cooperation will be largely voluntary and will be facilitated by one body, most probably the Joint Nature Conservation Committee (JNCC). This approach encourages the provision of relevant information to local planning processes, but also enables integration of high-quality local- and national-level datasets for national biodiversity planning.

With so many datasets currently in existence or under development, an important first stage of the UKBD is a stock-taking exercise, or dataset catalogue. Presented in various forms, from a simple text directory to an electronic metadatabase, the

catalogue will document what datasets are available, assess their quality and accessibility, enable major gaps to be determined, and help to reduce duplication of effort and redundancy.

[Source: UK Government 1995]

9.3 The Indira Gandhi Conservation Monitoring Centre

India is one of the twelve 'megadiversity' countries which, together, possess 60-70% of the world's total biodiversity. Its ten biogeographic zones subsume a very wide range of ecosystems. India has about 7% of the world's flowering plant species, 14% of the world's bird species and, overall, 81,000 species of animals representing 6.4% of the world's identified fauna. Further, one third of its 15,000 flowering plants are endemic to India, plus 14% of its 1,228 bird species, 32% of 446 reptile species, and 62% of its 204 amphibians. The marine habitat covers 7,500 km of coastline extending 200 nautical miles off-shore into its Exclusive Economic Zone.

Presently, biodiversity data are held unevenly across the country in different, often incompatible formats. Information based on these data is urgently required by decision-makers and other users for different purposes, such as protected areas management, environmental assessment, land-use planning and development, awareness-raising and education, research, and prioritisation of conservation activities. A particularly important need is access to reliable data on the socio-economic factors affecting the potential for conservation and sustainable use of living resources in the regions around protected areas. Although many institutions collect data useful for biodiversity conservation (some are mandated to distribute this), data are rarely made accessible in reasonable time or in the formats users require, particularly where the data transcend institutional jurisdictions. This is because data are primarily collected for internal use by the institutions concerned, and there is little awareness of the need to build up essential datasets for common, nationally-agreed goals.

The Indira Gandhi Conservation Monitoring Centre (IGCMC) was set up by the World Wide Fund for Nature (WWF-India) in May 1994, with the support of the Ministry of Environment and Forests, Government of India, to support the conservation of biodiversity and natural resources in India through the provision of scientific and management information. IGCMC aims to support conservation by helping to coordinate the management and dissemination of information on India's living resources, the pressures they most acutely face, and on the performance of

government and private sector policies on land use, resource management (e.g. water, forests, wildlife) and protected areas. In cooperation with a series of major data management partners, the agreed mission of IGCMC is as follows:

“to support biodiversity and natural resources conservation in India through collecting, managing, disseminating and making accessible relevant data and knowledge, and by providing appropriate technical, analytical and networking services”

Considering IGCMC’s priority for producing biodiversity information and its current emphasis on protected areas, its short-term objectives are to gather, interpret and distribute information on threatened plants and animal species, trade in wildlife, wetlands, eco-development planning in and around protected areas, and the distribution and status of habitats and species in the Eastern Himalaya, Western Ghats and Andaman and Nicobar Islands.² The longer-term strategy is to provide more comprehensive information and capacity building services to a wider range of users, notably in the private sector, by consolidating existing data-management partnerships and developing new ones. IGCMC is implementing this strategy with support from the British Department for International Development (formerly Overseas Development Administration).

The sustainable management of natural resources depends on policies which reflect a wide variety of interests. The development of such policies depends upon a similarly wide base of data and information. One task of IGCMC is to increase access to key datasets via the promotion of common approaches (standards) for data management and exchange. This demands excellent coordination between IGCMC and its data-management partners, which can be facilitated by electronic networking. IGCMC has developed a model for the integration of diverse and distributed datasets which makes extensive use of Internet-based communication and presentation tools. These enable the growing network of data management partners to cooperate in the development and delivery of information to specific groups of users. No advanced technology will be required by users other than Internet connectivity, which is growing rapidly in India with significant governmental support.

2 Under the ‘Biodiversity Hotspots’ Conservation Programme of WWF-India.

IGCMC is set to play an important role in providing information to decision-makers in many sectors and at many levels in India. One example is the provision of objective information to environmental appraisal committees in the Ministry of Environment and Forests. The role of these committees is to review environmental impact assessments (EIA) for major development projects, and approve or reject the projects as necessary. IGCMC will also help the Government of India fulfil its reporting obligations under the Convention on Biological Diversity. Specifically, it will assist in the following areas: preparation of a national biodiversity conservation strategy (Article 6), identification and monitoring (Article 7), environmental assessment (Article 7), forecasting (Articles 7 and 10), *in-situ* conservation/sustainable development (Articles 8 and 10), *ex-situ* conservation (Article 9), research and training (Article 12), public education and awareness (Article 13), exchange of information (Article 12), technical and scientific cooperation (Article 18), and scientific and technical advisory committee (Article 25).

*[Source: S.K. Puri, Indira Gandhi Conservation Monitoring Centre,
WWF-India, New Delhi]*