5 CASE STUDY: BIODIVERSITY DATA MANAGEMENT (BDM) PROJECT, GHANA

5.1 Overview

Several policies and programmes exist in Ghana for sustainable development of natural resources and the environment. Ghana's *Vision 2020*, for example, sets the framework for Ghana to become a middle income country by the year 2020, recognising that success will depend on the integration of science and technology in the various development programmes to ensure the integrity of the environment.

The *National Environmental Policy* seeks, among other objectives, to maintain ecosystems and ecological processes essential for the functioning of the biosphere, and to ensure the sound management of natural resources and the environment. Other framework documents include the *National Forestry and Wildlife Policy* (1993), *Ghana Wildlife Policy* (1994), and the *Forestry Development Master Plan* (1996), which provide for the establishment of a viable system of ecologically-representative protected areas, and seek to increase public awareness of the benefits of conservation and biodiversity. Further, a policy and legislative framework for bioprospecting is currently in preparation.

Key project initiatives include the *Ghana Environmental Resource Management Project* (GERMP), which commenced in 1993 for five years and whose primary objectives are to support implementation of the *National Environmental Action Plan* (1988), and to strengthen the capacity of both government and society at large to manage environmental resources. A component of this project is the development of an environmental information system for:

1. the collection of information to monitor environmental quality against agreed threshold levels; and

2. for the collection, interpretation and presentation of topographic, present land use, land ownership, land suitability and meteorological information determined by the needs of information users, planners and managers of environmental resources (World Bank 1992).

Other landmark initiatives include the *Forest Resource Management Project* (World Bank 1988), and its successor, the *Natural Resources Management Project*

aimed at sector policy reforms, management strengthening and institution building to facilitate the sustainable use and development of forest, wildlife and natural resources.

Actions Ghana has taken specifically in support of the CBD include the *Biodiversity Country Study*, which is providing baseline information on the status of biodiversity in the country, the *Biodiversity Strategy and Action Plan*, and the *Biodiversity Data Management Strategy*, which is an output of the *Biodiversity Data Management (BDM) Project*.

5.2   The BDM Project

In order to assist countries with the implementation of the CBD, the United Nations Environment Programme (UNEP), in collaboration with WCMC and others initiated a GEF-funded project entitled Biodiversity Data Management Capacity in Developing Countries and Networking Biodiversity Information (BDM).

The overall objective of the Project is to facilitate the building of national capacity for biodiversity data management and exchange as required by the CBD. Focusing on developing countries and initially on biodiversity data compiled in the parallel Biodiversity Country Studies Project, it aims to mobilise these data as a key instrument in building advanced national capacity for planning biodiversity strategies and actions for conservation and sustainable use.

The Project provided for ten countries (including Ghana) to participate in the following activities:

- conducting a national institutional survey, to report on the existing national capability for data management;

- preparing a national plan for the management and application of biodiversity data in support of the CBD;

- developing a series of basic guidelines to support efficient information management; and

- compiling a resource inventory as a 'toolbox' of available methods and technologies from which countries can draw upon selectively to suit their needs, involving both North-South and South-South cooperation.

The Project is now almost complete in Ghana. Key outputs include the *Institutional Survey Report* and the *Ghana Biodiversity Data Management Strategy*.

5.3 Institutional Survey

In support of the *Ghana Biodiversity Data Management Strategy*, an institutional survey was conducted focusing on three main topics:

1. the information management capability of organisations within Ghana, notably the availability of human resources (expertise) and technical facilities;

2. linkages between the organisations surveyed, notably those involving the transfer of data (including some overseas);

3. the national coverage of datasets on biodiversity themes.

In compiling the survey report, over 120 organisations (government, research/academic organisations, information centres, NGOs and international agencies) were approached, using a questionnaire similar to that provided in Annex 2. In addition, a national workshop on the institutional survey was held in July 1996. It should be noted that Ghana was one of three counties (with Poland and Thailand) which tested and reviewed the preliminary questionnaire developed for the Project by WCMC.

Of the organisations approached, 30 were fully assessed in the report. Some of the major findings were as follows:

- There is a need for both facilities (e.g. hardware, software and electronic communications) and human resources (e.g. computer scientists, information analysts) in the majority of organisations surveyed.

- The use of computers for managing biodiversity data was generally low.

- There is a relatively high degree of data flow between organisations, with around half considered to be major providers and users of biodiversity data.

- There is a high degree of dataset complementarity between organisations surveyed and the data are generally considered to be well maintained.

- Most datasets are available during working hours.

- Although there is a wide range of taxonomic groups, biomes and land-use categories covered, gaps in dataset coverage do exist and are present due to lack of funds, absence of trained manpower, and unavailability of equipment and/or laboratory facilities. Further, whatever data exist tend to be scanty, scattered and not in forms that lend themselves well to policy-relevant analysis.

- It would be beneficial to extend the study to organisations that did not initially respond.

The full survey report, providing results and analysis, is given in Oteng-Yeboah and Bamfo, 1996.

5.4   Ghana Biodiversity Data Management Strategy

A key output of the BDM Project in Ghana is a strategy for how to translate the country's biodiversity data into information products and services for decision-makers capable of influencing implementation of the CBD. The *Strategy* comprises the following sections:

- Introduction: provides background to preparation of the Strategy.

- National development context: this section considers development of the Ghana Biodiversity Data Management System (GBDMS) in the context of Vision 2020 and current environmental policy.

- Biological resources in Ghana: an outline of the resource base of the country, conservation concerns, and resource management, particularly in the context of the wildlife and forestry sectors.

- Biodiversity information: key issues in the production of information in support of decision-making, potential users of the GBDMS, and definition of priority information products and services are considered. The standard products which are suggested include:

  1. Ghana Biodiversity Report: envisaged to be a series of reports on specific natural resource conditions, changes and policy measures which affect biodiversity;

2. Biodiversity Data Compendium: an indicator-based product aimed at collating and presenting accurate and reliable data and other facts related to biodiversity in Ghana, and providing a tool for referral, forecasting and action planning;

3. Ghana Biodiversity Update: intended to be a bulletin to inform on the status of implementation of the Convention on Biological Diversity; and

4. National Biodiversity Assessment: an annual report to review issues and problems affecting biodiversity; highlight key concerns; present data; outline achievements of on-going interventions; document new knowledge and experience; and propose new policy directions and follow-up actions.

- Data resources: following from the institutional survey, this section provides an overview of data types available in the country and further requirements in the production of priority information products.

- Data handling: consideration of system requirements in the development of the GBDMS, which is envisaged to be a distributed network of integrated information centres and custodians managing and sharing data in accordance with agreed procedures and standards. The GBDMS, in being a GIS-centred data management system, is to build on and complement the spatial framework developed for land-related datasets within the Environmental Information System under the GERMP initiative. A prototype GBDMS will demonstrate how such a system can be used to highlight biodiversity and sustainable development issues.

- Management of biodiversity data: considerations include the national framework for managing data within GBDMS (e.g. through constitution of an inter-agency Steering Committee; Technical Committee to oversee development of the system, with responsibilities such as identifying and prioritising data and information requirements, carrying out needs assessments, identifying data gaps and recommending relevant custodians, developing quality standards, along with procedures and protocols for data exchange, and making inputs into national environmental information policy; establishing a network of data centres, and a GBDMS hub to facilitate the flow of data and information), issues of custodianship, data management standards and guidelines, and data exchange, with attention being given to GBDMS adopting a standard framework for standardising and harmonising date to enhance exchange and use.

- Capacity development: the final section considers institutional strengthening, human resources and training, network strengthening, and technology issues. The long-term goal for institutional strengthening is to build a strong, self-sustaining basis for the management of biodiversity data in Ghana. Actions necessary to implement the GBDMS over a three-year period are outlined and an indicative budget is presented (RSAU Draft).

To date, the institutional survey has helped to identify those organisations most appropriate to serve as data centres and custodians of priority datasets. The development of biodiversity data infrastructure under GBDMS will involve further detailed surveys of organisations and their data holdings. This will allow for an assessment of capacity, identification of important data gaps, and will enable capacity building within the GBDMS network for the production of priority information products.