CHAPTER 4

Future Directions

The basic aim of the BDGR project, in line with the UNCED convention, is the conservation of biological resources to ensure sustainable development for survival of the human race on Earth. The components and activities also remain the same. However, they need to encompass the extra dimension of the biodiversity of animals, micro-organisms and their habitats.

The following three recommendations relate to measures that could be taken by Commonwealth member states to conserve their genetic resources and develop a programme for national and regional economic development based on their sustainable utilisation. The components, in contrast to Phase I of the BDGR project, need to encompass the extra dimension of the biodiversity of animals.

(a) Record the micro-organisms, animal and plant species found in a country and in a biogeographical region in a resource inventory along with their traditional uses, if any, whether as food, fibre or medicine. This will entail compiling a written dictionary or *materia medica* of ethnobotanical knowledge. It is important to involve local people in the gathering and recording of their accumulated understanding of traditional uses of plants and animals, for it is these people who will ultimately be responsible for the conservation of the genetic resources in the wild and who must be provided with incentives to conserve them.

(b) Develop *in situ* and *ex situ* protected areas, national parks, gene banks and botanical gardens museums as repositories of rare, threatened or endangered germplasm. For example, this could be achieved through expanding the role of the SADCC Regional Gene Bank in Lusaka to cover the entire Africa region. Similarly, a second regional gene bank could be established in another region to conserve species indigenous to the equatorial habitats and ecosystems including the tropical moist forests and dry forests in other areas. While botanical gardens are excellent focal points for plant conservation and related research, they should not be allowed to detract from the conservation of natural habitats.

(c) Develop the technology and methods to exploit on a sustainable basis the commercial potential of local biodiversity assets. Developing Commonwealth countries already have a strong tradition in the practice of herbal medicine, but the international pharmaceuticals industry is also looking for ways in which it can secure access to the now diminishing genetic resources of developing countries in order to develop novel products. The issue of biotechnology transfer for this very purpose is an area of current debate and is the subject of a biodiversity convention at UNCED. Improving access to the North's technologies which are based on the utilisation of the South's genetic resources will enable developing countries to utilise their genetic resources for their

own benefit. This is a highly contentious area, but one which is of significant importance to the conservation of biodiversity.

Whatever the outcome of UNCED, it is essential that regional bodies such as SPREP, SAARC, ASEAN, PTA, etc., build on their own skills to conserve and develop the indigenous resources of their own nations. Development of biodiversity assets needs can be based upon biotechnology and genetic engineering, and can begin with the harvesting and processing of natural products for the local market.

4.1 Identified Constraints and Challenges in the BDGR Programme

Since its inception in 1985, the CSC's BDGR programme has played a catalytic role in initiating national programmes in some components of the BDGR programme. It has been run on very precarious funding. With only one professional staff and minimal administrative support a major initiative for the conservation and utilisation of our biodiversity in a sustainable manner has been launched. To ensure that the programme does not lose momentum and is able to guide the preparation and implementation of practical action plans it is important that it be put on a secure footing. This is even more important with the signing of the Biodiversity treaty at the Earth Summit when substantial resources will become available for inventorising and conserving our biological wealth. The member countries of the Commonwealth need guidance to ensure that they are able to share their inherited biological wealth as **equal partners**. They stand to gain billions of dollars in new **non-aid** flow of funds while retaining control of their valuable resources. An agency like the Commonwealth Secretariat can, because of its acceptance by the North and the South, have a vital role to play to ensure that in various agreements that are made a fair deal is given to both the owners of the biological resources and the owners of technology and other capacities needed to harness these resources in a sustainable manner.

Extensive field work and interaction at all levels has helped in identifying the following constraints the programme faces at present:

- There is need for more effective integration of national BDGR policies with interfacing subjects such as agriculture, forestry, fisheries, wildlife, landscapes and advances in technologies;
- There is need for sensitising government planning departments to the importance and value of rational utilisation and conservation of indigenous germplasm of all species;
- Implementation of BDGR initiatives in member countries would require a large number of trained personnel. Although inexpensive techniques have been developed through CSC initiatives, their dissemination in the countries appear to be low key;
- Though the programme is advancing scientifically with a high momentum, lack of entrepreneurial and commercial interest, absence of linkages with the industry sector is affecting large-scale application/utilisation;
- National conservation needs and commercial interests/compulsions often tend to work at cross purposes due to lack of formal linkages with industry;
- Facility of access to international funds and national funds from donors and governments to launch effective implementation of specific components of the programme;

- Limited scope of the initial project due to focus only on plants;
- Lack of adequate professional support staff and administrative infrastructure to enable better co-ordination and implementation of the programme by the CSC Office in member countries.

4.2 Proposed Actions for 1992-1995

There are several distinct actions that could be undertaken or assisted by regional bodies such as ASEAN, PTA, SAARC, SADCC, SPREP, etc. The important ones are given below:

- Authentication and development of key species of plants, animals and micro-organisms which may be of considerable ecological and economic benefit;
- Promotion of inexpensive techniques and methods for the study, use and conservation of genetic resources. It would cover areas such as: conservation biology, taxonomy, tissue culture, ethnobotany, germplasm collection, documentation, creation of responsive databases, and herbarium techniques;
- Establishment of regional/national centres for the study and conservation of biodiversity;
- Development of a computerised database on a uniform basis for each of the regional networks to facilitate sharing of critical information, e.g. on medicinal plants within and between the networks;
- Establishment of nodal agencies for undertaking institutional development and dissemination of information;
- Provision of assistance for the training of member state nationals in ecological and economic management of tropical forests;
- Establishment of *in situ* and *ex situ* conservation programmes and facilities, e.g. setting up of gene banks and national parks;
- Provision of assistance for developing BDGR centres at national and regional level, especially for training and research related to survey and authentication of key species in Africa, Caribbean, Asia-Pacific and small islands;
- Formulation and implementation of training courses using standardised methodologies for pharmacognostic authentication and use of medicinal plants in the pharmaceutical industry, initially for Africa with possible extension to Asia;
- Provision of assistance for *in situ* and *ex situ* preservation of priority key species of life support value and economic plants (jointly with IUBS, IUCN, IBPGR and World Bank);
- Use of remote sensing techniques to develop guidelines for estimation of biodiversity in small islands and other tropical countries;
- Development of a Regional Information Service on survey and authentication of indigenous germplasm of potential economic value;
- Establishment of regional centres offering training courses and research facilities for taxonomy and herbarium development for Africa and Asia, jointly with IUBS, FAO and IUCN, with possible extension to the Caribbean region;

- Preparation of international and regional training manuals on conservation biology, ethnobotany and herbarium techniques for Africa and South Asia;
- Establishment of ethnobotanical training and research centres;
- Provision of training in tissue culture through attachments to laboratories;
- Provision of assistance in building national herbaria for small islands and other tropical countries through attachments and material support;
- Development of educational linkages and information networks for each regional centre (audio-visual methods, satellite linkages, computerised databases);
- Technical attachments of scientists from the Caribbean with institutes in other countries in the Commonwealth, e.g. Kenya Medical Research Institute, Kenya and the Central Drug Research Institute, India;
- Training of scientists/technicians for pharmacological, toxicological, screening, phytochemistry and botany in the Caribbean, Africa, Asia and the Pacific;
- Assisting human resource capability building through national training and awareness programmes, involving medical professionals, herbalists and ethnobotanists;
- Development of guidelines and methodologies for identifying key species, jointly with IUCN;
- Development of an action plan which will provide relevant criteria (ecological, agronomical) and indicators for preparing inventories of key species;
- Encouragement and initiation of co-ordinated research on key species using experimental, theoretical and predictive approaches.

For implementing the above action it would be necessary for the CSC to collaborate with other international programmes and agencies and draw on funding sources, e.g. the Global Environment Facility.

4.3 Timeframe and Estimated Costs

Work on the project for the next five years would comprise extensive field surveys, identification and authentication of key species. This would involve a large number of consultants and specialists from each of the seven regional networks and is estimated to cost US$200,000 per country per annum. Experts would be needed in the fields of taxonomy, biosystematics, conservation biology and ethnobotany. During this period steps would also need to be taken to strengthen the regional and national institutions and on the training of member state nationals. The costs would amount to US$450,000 per country per annum. Finally, the project would need to establish conservation areas and programmes within a region. This is estimated to cost US$20 million per annum per region and about US$110 million for six regions if done in parallel.

The whole of the above programme is considered to be crucial for the protection of fragile and ecologically valuable ecosystems. Requests for funding different components of it will need to be targeted at specific donors and backed up by specific project proposals.