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منظمة الأغذية
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para la
Agricultura
y la
Alimentación

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COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Eighth Regular Session

Rome, 19-23 April 1999

REPORTS FROM INTERNATIONAL ORGANIZATIONS ON THEIR POLICIES, PROGRAMMES AND ACTIVITIES ON AGRICULTURAL BIOLOGICAL DIVERSITY

PART I: UNITED NATIONS AND OTHER INTER- GOVERNMENTAL ORGANIZATIONS

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ON THEIR POLICIES, PROGRAMMES AND ACTIVITIES
ON AGRICULTURAL BIOLOGICAL DIVERSITY**

**PART I: UNITED NATIONS AND OTHER INTER-GOVERNMENTAL
ORGANIZATIONS**

INTRODUCTION

1. The Commission on Genetic Resources for Food and Agriculture is the only inter-governmental body where member countries, both donors of funds and technology, and users of genetic resources, discuss matters specifically related to agricultural biological diversity. The Commission, regularly receives reports from relevant international organizations, including FAO, on their policies, programmes and activities for the conservation and sustainable use of plant genetic resources. It has considered that such reports are of value both to the Commission, and to those organizations, which would thereby be able to better acquaint countries that are donors of germplasm and funds with their objectives and programmes, and benefit from their comments.

2. With the expansion of its mandate, the Commission for the first time received reports from organizations covering all fields of agricultural biological diversity at its Seventh Session. On that occasion, thirteen United Nations and other inter-governmental organizations, fourteen International Agricultural Research Centres of the Consultative Group on International Agricultural Research (CGIAR), and seven international non-governmental organizations provided reports.¹ The Commission welcomed these reports, and warmly thanked the organizations that had presented them. The Commission considered that these reports were an important contribution to its task in promoting coordination of activities in the field of agricultural biodiversity. It encouraged organizations to continue to submit such reports to its regular sessions.

3. This document contains reports from the following *United Nations and other inter-governmental organizations*, received by 5 February 1999:

the Asian Development Bank (AsDB), the the Inter-American Institute for Cooperation in Agriculture (IICA), the International Atomic Energy Agency (IAEA), the International Centre for Agriculture and Biosciences (CAB International), the International Fund for Agricultural Development (IFAD), the International Office of Epizootics (OIE), the United Nations Development Programme (UNDP), and the United Nations Environment Programme (UNEP).

4. The following *United Nations and other inter-governmental organizations* informed FAO that they would, for various reasons, not be able to report to this session:

the United Nations Industrial Development Organization (UNIDO) and the World Trade Organization (WTO).

¹ AsDB, Commonwealth Secretariat, CBD, GEF, IICA, IAEA, CABI, IFAD, UNESCO, OIE, UNEP, UNIDO, WB; CIAT, CIFOR, CIMMYT, CIP, ICARDA, ICRAF, ICRISAT, ICLARM, IITA, ILRI, ISNAR, IPGRI, IRRI, WARDA; ASSINSEL, EAAP, ICUC, IUFRO, ICAR, RAFI, RBI.

5. The Secretariat has limited itself to compiling the reports, as submitted. Each report is fully the responsibility of the organization submitting it. FAO's own activities are reported in documents CGRFA-8/99/10.1 and CGRFA-8/99/10.2.

6. Reports from the International Agricultural Research Centres of the Consultative Group on International Agricultural Research (CGIAR) are contained in document CGRFA-8/99/11.2, and reports from International Non-governmental Organizations in document CGRFA-8/99/11.3.

THE ASIAN DEVELOPMENT BANK (AsDB)

During 1998, the Bank has undertaken the following activities:

- (i) The Bank approved a technical assistance grant of US\$1.2 million in December 1997 to the International Plant Genetic Resources Institute (IPGRI) to support the collection, conservation and utilization of coconut genetic resources, and the strengthening of human resources in plant genetic resources in Asia and the Pacific. This Project commenced its implementation in March 1998 and is expected to be completed in December 2000.
- (ii) The Bank approved a loan of about US\$37 million in November 1998 for the Sundarban Biodiversity Conservation Project. The Project was cofinanced by the Global Environment Facility (US\$12.2 million) and the Nordic Development Fund (US\$4.5 million). The main objective of the Project is to achieve the development of a sustainable management and biodiversity conservation system for the Sundarbans Research Forest (SRF) resources on the basis of rational plans and participation by all stakeholders. The SRF is the world's largest remaining contiguous mangrove area containing habitats for fish, shrimp, birds, and wildlife, including the Bengal tiger.
- (iii) In addition, a preparatory technical assistance project on National Biodiversity Information Network for Indonesia was approved in July 1997 under Japan Special Fund financing for US\$700,000, with a possible loan for an investment project in the year 2000, aimed at biodiversity and natural resources management.

THE INTER-AMERICAN INSTITUTE FOR COOPERATION ON AGRICULTURE (IICA)

1. The strategic importance of biodiversity and genetic resources for sustainable agricultural development takes many forms. The countries of the Americas have managed to reduce their food deficit by using native and exotic plant germplasm in their crop breeding programmes, increasing yields and broadening the range of agricultural products through diversification. This has impacted on the level of their agricultural exports which virtually doubled between 1985 and 1995. Without taking into account the vast figures for local consumption, total 1995 exports of just five crops originating in the Americas (maize, potato, tobacco, tomato and cotton) exceeded US\$ 26 500 million. The significance of having introduced exotic germplasm into the Americas is demonstrated by the exports in the same year of just three crops introduced from other parts of the world (rice, coffee and banana) which totalled more than US\$ 12 500 million.
2. IICA activities are guided by its Medium-term Plan 1998-2002, approved by the Inter-American Board of Agriculture, which gives high priority to actions related to biodiversity and genetic resources. The primary objective is to strengthen member country institutional capacity (policy making, legal aspects, institutional models, strategy information, resource mobilization) by supporting the coordination of the efforts made by the various parties to conserve genetic resources and use these rationally for sustainable agricultural development in the Americas.
3. Given the magnitude of the genetic resource issue, IICA has entered into strategic technical cooperation alliances with renowned national, regional and international institutions recognized as authorities in the field. Such is the case with FAO and the CGIAR international centres, particularly IPGRI with whom a number of networks have been created, the Tropical Agricultural Research and Training Centre (CATIE) for Middle America and the GTZ. It also supports genetic resource actions by sponsoring reciprocal cooperation programmes and networks such as PROCIANDINO, PROCITROPICOS, PROCISUR and PROMECAFE. These alliances have produced a number of results, including the establishment of the Central American Network of Plant Genetic Resources (REMERFI), the Andean Network of Plant Genetic Resources (REDARFIT), the Plant Genetic Resource Network for South American Tropics (TROIPIGEN), the Sub-programme on Genetic Resources of PROCISUR and the new Caribbean Network for Plant Genetic Resources (CABNETGR). More support is also being given to collaborative research on vegetable and coffee germplasm in Central America under the REDCAHOR networks, with BCIE and AVRDC, and PROMECAFE. With assistance from CIRAD and CATIE, significant progress has been made under this last programme in producing coffee hybrids and propagating them by means of innovatory methods employing new biotechnologies.
4. A study has also been made on the institutional status of plant genetic resources in Latin America and the Caribbean, with the findings disseminated to the countries. In close collaboration with EMBRAPA-CENARGEN, the groundwork has been laid for a Regional Centre for Genetic Resource Training to strengthen national capacities in terms of human expertise in genetic resource management.
5. IICA helped FAO and IPGRI organize a regional technical consultation in September 1998, where the participating countries agreed important actions to give instrumental effect to the Global Plan of Action of the Global System on Plant Genetic Resources promoted by FAO in Latin America and the Caribbean. Preparatory work has also begun on establishing a platform to link the various sub-regional networks, the ulterior aim being to build an "integrated system" for the conservation and sustainable utilization of plant genetic resources in Latin America and the Caribbean.

6. Finally, the Global Plan of Action, the commitments undertaken by countries in the context of the World Trade Organization, the Convention on Biological Diversity, the International Undertaking on Plant Genetic Resources and respective national initiatives towards establishing the FTAA are forging the frame of reference that is directing actions and helping face the emerging challenges in the Americas. In this connection, IICA intends to provide many forms of basic support to these initiatives so as to facilitate interaction between the different national, regional and international players.

THE INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA)

Conservation and sustainable use of plant genetic resources in the Sub-programme Plant Breeding and Genetics

1. The activities and projects of the Plant Breeding and Genetics Sub-programme follow the relevant recommendations of the FAO's Global Plan of Action (GPA) for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture (1996). The programme supports Member States to use mutation techniques and related biotechnologies to enhance genetic diversity and breeding of improved crops by treating seeds, vegetative propagules, cells in culture or pollen grains with irradiation or chemical mutagens. The induction of useful mutations in one or two characters in well-adapted local germplasm of cultivated species or non-domesticated species results in their upgrading and in their continued cultivation by farmers. In vegetatively propagated plants induced mutations are often the only means by which genetic variation can be obtained. Radiations have been used also to create chromosomal mutations for gene transfer between different species (e.g. transfer of rust resistance in wheat from *Aegilops* species) and in enucleation of cells in somatic cell fusion (parasexual hybridization).
2. Co-ordinated Research Projects (CRPs) for enhanced biodiversity concentrate on the use of mutation techniques and related biotechnologies for improvement of local food crops in Latin America and in Low Income Food Deficit Countries (LIFDCs); for improvement of sesame and other industrial crops; for creation of improved banana genotypes; for production of crop mutants suitable for sustainable agriculture; for selection of mutants better adapted to environmental stresses; for the application of DNA fingerprinting and marker techniques in crop improvement supported through distribution of radioactively labelled DNA-probes.
3. Future CRPs will deal with mutational analysis of root characters related to crop performance; with improvement of tropical fruits; *in vitro* and mutation techniques for gene transfer through interspecific and intergeneric hybridization; and molecular mapping and characterization of mutations of agronomically important genes in seed and vegetatively propagated food crops. All these activities will be supported from the budget of the Joint FAO/IAEA Division. Additional resources will be provided through the Technical Co-operation Programmes to provide equipment, expert advice and training in biodiversity issues linked to induced mutagenesis for crop improvement.

Benefits

4. Radiation and especially gamma rays were most often used to generate desired characters for breeding various crops. At present the FAO/IAEA Mutant Varieties Database maintained at the Plant Breeding and Genetics Section includes 1824 officially released varieties of 164 plant species. Mutation techniques can be useful to enhance the often narrow genetic variation of local crops, and to improve specific characters or correct certain shortcomings in otherwise desirable, locally well-adapted cultivars. This is important in all crops but all the more so in vegetatively propagated ones. The spread of local germplasm improved through mutation techniques results in the *in situ* conservation of gene pools at the farm level, which can be sustained by strengthening seed production and distribution of the mutant cultivars and clones of crops propagated from vegetative parts *in vivo* or through micropropagation.

THE INTERNATIONAL CENTRE FOR AGRICULTURE AND BIOSCIENCES (CABI)

1. **Background:** CAB INTERNATIONAL (CABI) has restructured its scientific research and training activities, integrating the four discipline-based institutes (IIE, IMI, IIP, and IIBC) into one multidisciplinary cohesive entity named CABI Bioscience. The new division is focused under three sectors: a) Biodiversity and Biosystematics, b) Biological Pest Management, and c) Environment, and is dedicated to contributing to tackling some of the world's major challenges including: raising agriculture productivity in sustainable systems; understanding, conserving and making better use of the world's biological resources; protecting the environment from the damaging effects of human activities; controlling some lethal and debilitating tropical diseases.
2. **Genetic resources collection:** The genetic resources collection and reference collections referred to in the previous report continue to be maintained and made available to the scientific community. Developments are underway to mobilize resources to computerize the information on the 375,000 specimens in the reference collection, so that this information is readily available to the countries of origin and the international scientific community.
3. **Applications:** The main emphasis continues to be on the biological control and integrated management of pests of food fibre and forest crops, the management of alien invasive pest species in natural habitats, the use of micro-organisms to upgrade organic waste and to enhance degradation of reservoirs of pests and pathogens, and the development and management of systems to foster valuable biological diversity in agricultural habitats.
4. **Programmes:** In 1998-99 CABI Bioscience managed 155 projects in 45 countries with a budget of US\$9 million. The projects included:
 - the identification and testing of pathogens of invasive weed species, including Parthenium, Lantana, Rottboellia and Mikania;
 - the identification and testing of pathogens, parasitoids and predators of a broad range of insect pests including the larger grain borer, the coffee berry borer, and a range of mealy bug pests;
 - the use of micro-organisms to upgrade lignocellulosic waste for improved ruminant feed and the degradation of oil palm wastes to reduce reservoirs of pests and pathogens;
 - IPM in cotton, coffee, cocoa and vegetables in Asia, Africa and Latin America;
 - the management of cereal field margins to improve the survival and availability of natural enemies of insect pests.
5. **Capacity-building:** CABI's training programme continues to provide a broad range of training on the identification and characterization of fungi, arthropods and nematodes of agricultural and environmental importance. The training includes multiple participant courses, individual training study programmes, and the development of manuals and technical bulletins. In 1998 CABI Bioscience was host to 30 PhD students conducting their thesis research at and from CABI Bioscience Centres. CABI continues to host the Technical Secretariat of BioNET-INTERNATIONAL, provides administration and logistical support to this initiative, and assists in the training involved in the BioNET-INTERNATIONAL Fellowship Programme.

6. **Information resources:** In addition to the information products reported to the Seventh Session of the Commission on Genetic Resources for Food and Agriculture, CABI Information has launched a service to provide regularly updated information in the area of agricultural biotechnology, with the information being made available through the World Wide Web under the title of AGBIOTEC NET.

7. **Issues to address:** CABI continues to draw attention to the value of crop associated biodiversity (sometimes called functional agro-biodiversity), and is working with the Tropical Soils Biology Foundation (TSBF) in Nairobi and the Rockefeller Foundation to identify key areas for attention that will enable the utilization of the soil biodiversity to enhance agricultural productivity in smallholder farming systems in Africa. In recognition of the enormous threat posed by alien invasive pest species, now regarded as the second greatest threat to biodiversity after habitat destruction, CABI Bioscience together with IUCN and UNEP have launched a collaborative international initiative The Global Invasive Species Programme. The Programme aims to draw attention to and secure resources for a major international effort to manage the threat and damage caused by alien invasive species.

THE INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT (IFAD)

1 IFAD-financed projects and programmes are geared to enhancing food production systems and strengthening related policies and institutions within the national policy framework. Specific objectives are the achievement of food security, through increased agricultural production, and improved nutritional levels and incomes for the poorest rural populations and particularly poor rural women.

2. A key ingredient in IFAD projects involves harnessing the promise which plant genetic resources hold for food and agriculture. It has been recognized that the erosion of these resources severely threatens food security. Much genetic diversity is to be found in farmers' fields in developing countries, in the form of landraces, other traditional crop varieties and their wild and weedy relatives. In the biodiversity debate, the major focus has been on tropical forests for special protection, while the drier ecosystems, which are far more important for crop resources, have been neglected. The semi-arid and mountain areas where most IFAD projects are now concentrated, contain the richest diversity of plant genetic resources. The Fund's concentration on resource-poor farmers in areas untouched by Green Revolution makes it perhaps the primary multilateral agency impacting on the remaining areas of on-farm genetic diversity.

3. IFAD is building on the *in situ* conservation approach by supporting, through its Technical Assistance Grant (TAG) Programme, an initiative by the International Plant Genetic Resource Institute (IPGRI) to develop instrumentalities for IFAD interventions designed to address genetic erosion due to diversification in the dryland ecologies of Africa. The drylands of Sub-Saharan Africa are subject to harsh weather conditions, but possess a large number of genotypes and allele complexes ideally adapted to the dryland habitat, having evolved over the centuries, and providing the source of important smallholder crops, e.g., sorghum, millet, wheat, barley and pulses.

4. Another example involves IFAD support to the International Centre for Tropical Agriculture (CIAT) in its efforts towards developing improved cassava germplasm. Cassava can thrive under very unfavourable conditions, especially poor climate and soil, and represents a source of income for many farmers, as well as their only possibility of linkage to market economies. It can also contribute genetic diversity to support crop improvement for large areas of Latin America and Africa. This project is transferring cassava germplasm to Africa through a joint programme with the International Institute for Tropical Agriculture (IITA).

5. IFAD also supports, through IPGRI, a Programme for the Sustainable Use of Coconut Genetic Resources to Enhance Incomes and Nutrition of Coconut Smallholders in the Asia-Pacific Region -- building on the accomplishments of the International Coconut Genetic Resources Network (COGENT) the sub-network on Coconut Genetic Resources Network for Asia and the Pacific (CGRNAP). The objectives of the three-year collaborative research programme are: to support inter-disciplinary research involving coconut farmers and other end-users to identify, test, pilot and disseminate ways of increasing farm productivity, diversifying coconut products and use and conserving valuable germplasm through capacity-building, collaborative research and training.

6. In all of the above-mentioned initiatives, IFAD's interest in plant genetic diversity is driven by the importance of this resource for the small farmers themselves, who continue to be caretakers of much of the germplasm in the form of traditional varieties and landraces, and who depend on farming systems based on crops and genetic diversity. These initiatives are all consistent with IFAD's operational strategy and are seen as a direct contribution to the goals and activities of the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture, adopted in Leipzig in June 1996.

THE INTERNATIONAL OFFICE OF EPIZOOTICS (OIE)

1. The OIE, the World Organization for Animal Health, is comprised of 151 countries' official Veterinary Services. Its three main aims, established since its beginning in 1924 – the provision of information on animal health world-wide, the international coordination of research on, and control of, important animal diseases, and the harmonization of trade regulations for animals and products – remain unchanged.
2. Although the organization has no programmes or activities with the specific objective of conserving animal genetic resources, it is evident that most OIE activities have a significant effect on the success of efforts in this regard. The world's Chief Veterinary Officers convene annually for an agenda which includes hearing of recent scientific developments and agreeing on matters of international importance regarding public veterinary service. They also hold conferences every two years in their regions. In the interim, they receive reports of relevant Specialist Commissions and Working Groups. Prompt disease reporting, international surveillance, research and sharing of current knowledge about diseases enable countries to prevent or minimize animal losses.
3. Two publications periodically updated with the participation and approval of the OIE International Committee contribute to the liberalization of international movement of animals (mammals, birds and bees) and their products, including germplasm, while protecting animal health. The *International Animal Health Code* contains internationally agreed import/export requirements for the most important animal diseases. A companion volume, the *Manual of Standards for Diagnostic Tests and Vaccines*, has the also agreed scientific support information for this trade. There are also an *International Aquatic Animal Health Code* and a *Diagnostic Manual for Aquatic Animal Diseases* which provide similar assurances for the trade and control of diseases of fish, molluscs and crustaceans. These trade harmonizing volumes have led to OIE designation as the reference organization on issues regarding animal health for the World Trade Organization's Sanitary and Phytosanitary Agreement (SPS).
4. In order to avoid failures, it is particularly important for those considering international movement of valuable animals or germplasm (embryos or semen) to assure the sanitary status both at origin and destination.
5. The collective efforts of the world's official veterinarians to prevent and control the most serious transmissible animal diseases evidently contributes to the conservation of both domestic breeds and wild species, including those in need of special efforts for their conservation.
6. The OIE enjoys permanent working relations with more than 20 other international organizations, including the Food and Agriculture Organization of the United Nations (FAO), the World Health Organization (WHO), and the World Trade Organization (WTO). Information from the OIE, including current animal disease reports and the *International Animal Health Code* are available on the OIE Web Site (www.oie.int).

THE UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP)

1. The United Nations Development Programme is mandated to assist Governments and civil society groups in developing countries to advance sustainable human development. UNDP defines sustainable human development as comprising poverty elimination, empowerment of women, environmental protection and regeneration, and sustainable livelihoods. Promoting the conservation and rational utilization of genetic resources for food and agricultural is intrinsically related to all four themes. UNDP conducts programmes at global, regional and national levels in pursuit of these aims. All UNDP activities are guided by principles set out in the relevant international conventions, in particular: the Convention on Biological Diversity, the FAO Global Plan of Action for the Sustainable Conservation and Utilization of Plant Genetic Resources for Food and Agriculture, and the World Food Summit Plan of Action.
2. At global level, UNDP was one of the founders of the Consultative Group on International Agricultural Research (CGIAR), and is currently one of the CGIAR's co-sponsors. UNDP currently hosts the secretariat of the Impact Assessment and Evaluation Group (IAEG) of the CGIAR charged with monitoring, evaluating and communicating the outputs of CGIAR centers. In addition to its institutional support for the CGIAR, UNDP continues to be an important donor, with much of its support directed at genetic conservation and improvement activities. At present, UNDP's Global Programme supports applied research at CGIAR centers in Latin America and Africa aimed at developing stress-resistant maize and potato varieties utilizing both conventional breeding and biotechnology tools. In addition, UNDP/TCDC supports a highly innovative research initiative in West Africa aimed at creating radically new rice plants well adapted to resource-poor farmers through wide-crossing of African and Asian rice species.
3. UNDP recognizes that NGOs have a key role to play in improving farming systems' productivity while preserving biodiversity. With this aim, UNDP supports the global Sustainable Agriculture Networking and Extension (SANE) project that works with 15 local and regional NGOs in eight countries of Africa, Asia and Latin America. Through training and dissemination activities SANE builds the capacities of NGOs and civil society groups to promote the conservation and productive utilization of genetic resources through the application of agroecological principles.
4. At national level, UNDP supports programme countries through policy advice, investment and capacity-building in a wide range of initiatives. During UNDP's current sixth funding cycle, for example, more than 70 UNDP Country Offices have programmes in the following areas: strengthening national information systems for biodiversity and genetic improvement; reinforcing national research systems' capacities to develop, multiply and extend more productive and better adapted varieties of food crops as well as improved lines of livestock and fish; assisting in the development of national biodiversity strategies and action plans; promoting pilot programmes for *in situ* conservation; and enhancing public awareness of and concern for biodiversity.
5. UNDP-GEF also supports country-driven initiatives aimed at protecting agro-biodiversity. Protection of land races and wild relatives of cultivars is a main emphasis within the UNDP-GEF programme. All UNDP-GEF agro-biodiversity projects are consistent with overall GEF policies and with the guidance provided by the Conference of the Parties. The specific guidance which governs GEF operations are contained within: Operational Strategy; Operational Programmes; and a Framework for GEF Activities concerning Conservation and Sustainable Use of Biological Diversity Important to Agriculture. At present UNDP-GEF is supporting four projects at regional or national level with contributions of more than \$13 million.

THE UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP)

1. In view of the importance of the Ecosystem Conservation Group (ECG), which was established in 1974, the Executive Director of UNEP has taken the initiative to revive, revitalize and utilize the Group's expertise and experience to promote thematic joint programming and advise member organizations (FAO, UNESCO, IUCN, WWF) on the development and implementation of biodiversity-related work programmes. The revitalized ECG has held two meetings in 1998, at the FAO Headquarters in Rome on 9 July and at the IUCN Headquarters in Gland, Switzerland on 16 November. The third meeting will be held on 22-23 March 1999 to be followed by annual meetings thereafter. Under its aegis two issue papers are now under preparation covering: (i) Biodiversity and urban environment; and (ii) Large ecosystem management with special reference to the marine and coastal environment.
2. UNEP International Technical Guidelines for Safety in Biotechnology were developed to address safety in the use and application of biotechnology processes so that this technology can contribute to the improvement of agriculture, food production, health care and environmental protection.
3. UNEP is currently undertaking programmes to promote the environmentally sound application of biotechnology. This includes the implementation of the Pilot Biosafety Enabling Activity Project encompassing a series of Regional Workshops on Biosafety for each of the following four regions: Central and Eastern Europe, Africa, Asia/Pacific and Latin America and the Caribbean, which were held during October-December, 1998.
4. In the area of biosafety, UNEP provides support to the work of the CBD, including the work of the Open-ended *Ad-Hoc* Working Group on Biosafety negotiating the Biosafety Protocol. UNEP will also provide support to the work of the Inter-governmental Committee on the Biosafety Protocol, or such body as may be established upon the adoption of the Protocol on Biosafety in Cartagena, Colombia in February 1999.
5. The Tenth Global Biodiversity Forum held in May 1998 prior to COP-IV focused on the following themes of relevance to the Eighth Session of the FAO Commission on Genetic Resources for Food and Agriculture: (i) Sharing the Benefits Arising from the Utilization of Genetic Resources; and (ii) Influence of Tenure and Access Rights on the Sustainability of Nature Resources Uses.
6. UNEP is collaborating with the World Intellectual Property Organization (WIPO) to study the impact of intellectual property rights systems and traditional knowledge on the conservation and sustainable use of biological diversity and the equitable sharing of benefits derived from its use.
7. UNEP is collaborating with IPGRI to enhance scientific, technical and management capacity in human resources in countries in Sub-Saharan Africa for plant genetic resources conservation and use.
8. UNEP is also collaborating with FAO to enhance the dissemination and use of information on endangered animal genetic diversity and improved global, regional, and national programmes for the conservation and sustainable use of livestock genetic diversity.
9. UNEP funded a regional symposium on "Agrotechnologies Based on Biological Nitrogen Fixation for Desert Agriculture" that discussed and exchanged information, research results and experiences related to the understanding of the genetic manipulation of plant-microbes and their interactions to support desert agriculture and productivity while moving away from the use of environmentally polluting chemical fertilizers.

10. UNEP is supporting the Beijing MIRCEN in the development of new inexpensive biotechnologies that are native to the region for sound environmental management. UNEP is also supporting the Cairo MIRCEN in the fields of microbiology relevant to insecticides, bioremediation in the fields of microbial insecticides, the biodegradation of organic chemicals, the upgrading of agricultural wastes and the production of biomass and bioremediation.

11. During the 2000-2001 biennium, UNEP plans to undertake a number of activities in the area of the conservation and sustainable use of genetic resources; namely:

- (i) Development and application of methodologies for assessments of agricultural biodiversity, including the preparation of a state-of-the-art report on the status of agrogenetic resources and germplasm in key mountain areas.
- (ii) Identification and promotion of sustainable agricultural practices that enhance the ecological functions provided by biodiversity to agriculture.
- (iii) Inventorization of priority forest genetic resources in Africa for the development of appropriate conservation strategies.
- (iv) Capacity-building initiatives to address identified national, sub-regional and regional needs for the conservation and sustainable use of plant genetic resources with emphasis on Western and Central Africa.
- (v) Support to national and regional programmes for halting genetic erosion and/or restoration of plant genetic diversity with emphasis on Africa.