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Item 5 of the Draft Provisional Agenda

COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

WORKING GROUP ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Third Session

Rome, 26 – 28 October 2005

MONITORING THE IMPLEMENTATION OF THE *GLOBAL PLAN OF ACTION* AND PREPARATION OF THE *SECOND REPORT ON THE STATE OF THE WORLD'S PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE*:

RELEVANT ACTIVITIES AND PROCESSES IN OTHER FORUMS

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1. INTRODUCTION

1. At its Tenth Regular Session held in November 2004, the Commission on Genetic Resources for Food and Agriculture (the Commission) considered the issue of the preparation of the second *Report on the State of the World's Plant Genetic Resources for Food and Agriculture* (second *Report*), and “encouraged Members and other countries and relevant organizations, such as IPGRI, to participate in the preparatory process”.¹ The Commission also reviewed the progress made on the state of the implementation and monitoring of the *Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture*. It “recognized the importance of an efficient system for monitoring the implementation of the *Global Plan of Action*”, and “supported the application of the new monitoring approach to all countries, in view of the integration of these monitoring activities with the preparation of the second *Report on the State of the World's Plant Genetic Resources for Food and Agriculture*”. The Commission invited the Future Harvest Centres of the Consultative Group on International Agricultural Research (CGIAR) to collaborate with FAO in both processes.²

2. Regarding the future work of its Working Group on Plant Genetic Resources, the Commission requested to “review and provide guidance on monitoring the implementation of the *Global Plan of Action*, and provide guidance concerning the *State of the World's Plant Genetic Resources for Food and Agriculture*. An information document identifying and providing comment on relevant activities and processes in other forums is requested, including linkages to the work of the FAO”.³ The working document CGRFA/WG-PGR-3/05/3 was prepared to respond to the first of these requests. It reports on the progress made in monitoring the implementation of the *Global Plan of Action* and in preparing the second *Report*, specifically on the activities undertaken or promoted by FAO and the International Plant Genetic Resources Institute (IPGRI).

3. In accordance with the second part of the Commission's request, FAO contacted individuals in a number of key international organizations and forums to gather information on their work relevant to the monitoring of the implementation of the *Global Plan of Action* and to the preparation of the second *Report*. A total of 23 organizations were contacted, including United Nations and other inter-governmental organizations, the Future Harvest Centres of the Consultative Group on International Agricultural Research (CGIAR), civil society and non-governmental organizations, and other international forums involved in the management of plant genetic resources for food and agriculture. They were invited to report on their activities and programmes related to:

- monitoring the implementation of the *Global Plan of Action* in their organizations;
- assessment of the state of the world's genetic resources for food and agriculture;
- participation, funding or other support provided to other organizations or governments to monitor their implementation of the *Global Plan of Action* and in the preparation of Country Reports for the second *Report*; and
- knowledge that could be provided to contribute to the development of thematic background studies for the second *Report*.

4. This document presents, with some editing for context and clarity, the information provided by the organizations that responded to FAO's request. A number of international organizations work for the conservation and sustainable use of plant genetic resources for food and agriculture. Most of their activities in this field are in line with the 20 priority activity areas of the *Global Plan of Action*. However, with the exception of three Future Harvest Centres, no

¹ CGRFA-10/04/REP, para. 22.

² CGRFA-10/04/REP, para. 26.

³ CGRFA-10/04/REP, para. 38.

institution has reported formal participation in a monitoring process of the implementation of the *Global Plan of Action*.

5. Some international institutions generate knowledge on biodiversity and the conservation and use of plant genetic resources, through publications, research and public awareness. The results of these activities could be valuable sources of information in monitoring implementation of the *Global Plan of Action* at the national level, and in the process of development of the second *Report*.

2. UNITED NATIONS AND OTHER INTER-GOVERNMENTAL ORGANIZATIONS

A. TROPICAL AGRICULTURAL RESEARCH AND HIGHER EDUCATION CENTRE (CATIE)

6. The Tropical Agricultural Research and Higher Education Centre (CATIE) is a regional Latin American center dedicated to research and graduate education in agriculture and agroforestry as well as the management, conservation and sustainable use of natural resources. Specific major activities of the Plant Genetic Resources Unit include: maintenance and improvement of the international collections of cacao, coffee and other crop species; germplasm distribution; promoting the domestication and development of under-utilized native species; support to small-scale farmers and indigenous groups; and policy issues in agricultural biotechnology, biosafety and biodiversity conservation and reactivation of the regional network of plant genetic resources. More information on CATIE's programmes and activities for the conservation and sustainable use of plant genetic resources is contained in the document *Reports from international organizations on their policies, programmes and activities on agricultural biological diversity: (1) United Nations and other Inter-governmental Organizations*⁴ which was presented to the Commission in 2004.

B. CONVENTION ON BIOLOGICAL DIVERSITY (CBD)

7. At its Eighth Regular Session, the Commission stressed the importance of FAO's continued collaboration with relevant international organizations and institutions, including the Convention on Biological Diversity (CBD). The Convention is primarily a user and beneficiary of information derived from monitoring the implementation of the *Global Plan of Action* and from the forthcoming second *Report*. At the same time however, the implementation of the CBD Programme of Work on Agricultural Biological Diversity, relevant targets of the *Global Strategy for Plant Conservation*, and targets and indicators for assessing progress towards the CBD's 2010 biodiversity target are coherent with and support implementation of the *Global Plan of Action* and may contribute data relevant to the second *Report*.

8. The Conference of the Parties has welcomed the contribution that the *Global Plan of Action* provides to the implementation of the Convention and has endorsed its priorities and policy recommendations⁵. Both the *Global Plan of Action* and the *Report on the State of the World's Plant Genetic Resources for Food and Agriculture* were recognized as contributing to the CBD's multi-year Programme of Work on Agricultural Biological Diversity, which was adopted by the COP at its fifth meeting⁶. Indeed, in Decision V/5, Annex 5, the Conference of the Parties affirmed that the Programme of Work on Agricultural Biodiversity was developed "*bearing in mind the need [...] to build upon existing international plans of action [...] that have been agreed by countries, in particular the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture*". The implementation of

⁴ CGRFA-10/04/11.1.

⁵ COP Decision III/11, paragraph 19.

⁶ COP Decision V/5.

relevant parts of this Programme of Work is therefore a direct contribution to the implementation of the *Global Plan of Action*.

9. At its Fifth Meeting, the Conference of the Parties requested the Executive Secretary of the CBD to invite FAO to support the development and implementation of the Programme of Work on Agricultural Biological Diversity. In addition to its work on plant and animal genetic resources, FAO is facilitating and coordinating the International Initiative for the Conservation and Sustainable Use of Pollinators and the International Initiative for the Conservation and Sustainable Use of Soil Biodiversity within the framework of the Programme of Work on Agricultural Biodiversity.

10. In addition, several decisions of the Conference of the Parties to the CBD appealed to Parties and other Governments to give priority consideration to the signature and ratification of the *International Treaty on Plant Genetic Resources for Food and Agriculture*, of which the *Global Plan of Action* is a supporting component, recognizing the role of the Treaty as an important instrument for the conservation and sustainable use of genetic resources leading to hunger reduction and poverty alleviation.

11. Following the adoption of the CBD *Global Strategy for Plant Conservation*⁷, the Executive Secretary of the CBD invited FAO, as lead organization in collaboration with the International Plant Genetic Resources Institute (IPGRI), to support its further development and, more specifically, to consider facilitating the organisation of the stakeholder consultations of:

- Target 6 “*At least 30 per cent of production lands managed consistent with the conservation of plant diversity*”;
- Target 9 “*70 per cent of the genetic diversity of crops and other major socio-economically valuable plant species conserved, and associated indigenous and local knowledge maintained*”;
- Target 12 “*30 per cent of plant based products derived from sources that are sustainably managed*”; and
- Target 13 “*The decline of plant resources and associated local and indigenous knowledge innovations and practices that support sustainable livelihoods, local food security and health care, halted*”.

During the stakeholder consultations, it was recognized that FAO’s work would contribute towards the implementation of many of the targets of the *Global Strategy for Plant Conservation*, especially through the *Global Plan of Action*, the Forest Resources Assessment and the *International Treaty on Plant Genetic Resources for Food and Agriculture*. New datasets developed in the preparation of the second *Report* and the process of monitoring the implementation of the *Global Plan of Action* can further contribute to developing baseline data and tools to assess progress towards the implementation of the targets of the *Global Strategy for Plant Conservation*, in particular Target 9. More information on the *Global Strategy for Plant Conservation* and its linkages with the *Global Plan of Action* is available in document CGRFA/WG-PGR-3/05/Inf.3.

12. The Ecosystem Approach is described by the CBD Secretariat as a strategy for implementing its objectives. The Ecosystem Approach integrates management of land, water and living resources that promotes conservation and sustainable use in an equitable way⁸. The new monitoring approach for the implementation of the *Global Plan of Action* provides an opportunity for analysing how countries are implementing the *Global Plan of Action*, in light of synergies with the Ecosystem Approach. An overview of the Ecosystem Approach and the *Global Plan of Action*, and a preliminary analysis of the synergies between the application and implementation of these, are presented in document CGRFA/WG-PGR-3/05/Inf.4.

⁷ COP Decision VI/9.

⁸ COP Decision V/6.

13. The Conference of the Parties adopted a Strategic Plan for the CBD⁹ in which Parties commit themselves to more effective and coherent implementation of the three objectives of the Convention to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth. The CBD Secretariat has invited FAO to contribute to and participate in task forces to identify or develop appropriate indicators for assessing progress towards, and communicating the 2010 target at the global level. One of the indicators considered ready for immediate testing and use, for which FAO has been invited to contribute to, is “*Trends in genetic diversity of domesticated animals, cultivated plants, and fish species of major socio-economic importance*”, which is part of the strategic framework for assessing progress towards this target.

14. The CBD recognizes the particular value of the second *Report* where it updates information reported in the first *Report*, helping to identify trends on plant genetic resources and to inform relevant indicators. In this context, work undertaken in several of the CBD’s programmes and issues, such as the Programme of Work on Agricultural Biodiversity and the CBD 2010 biodiversity target, is closely related to the following proposed thematic background studies:

- Thematic Study C “Indicators of genetic diversity, genetic erosion and genetic vulnerability”;
- Thematic Study F “The contribution of plant genetic resources to health and dietary diversity”, which is particularly relevant for the development of indicators on biodiversity for food and health in progress in the context of the 2010 Biodiversity Targets;
- Thematic Study G “Managing plant genetic resources in the agro-ecosystem; global change, crop-associated biodiversity and ecosystem services”, which could contribute important information for the implementation of the programme of work on agricultural biodiversity and should *inter alia* draw upon relevant findings of the Millenium Ecosystem Assessment; and
- Thematic Study I “The impact of national, regional and global agricultural policies and agreements on conservation and use of plant genetic resources for food and agriculture”, which could draw upon ongoing work on the impacts of trade liberalization on agricultural biodiversity, including the new trade and biodiversity initiative of UNEP carried out in support of the CBD and focusing on the impacts of agricultural biodiversity.

15. A comprehensive assessment of the status and trends of agricultural biodiversity is envisaged to be completed in 2007, as part of the CBD Programme of Work on Agricultural Biological Diversity¹⁰. FAO is a key actor in the preparation of this assessment. Given that the Commission on Genetic Resources for Food and Agriculture is due to consider the second *Report* in 2008, there would appear to be an opportunity to align data gathering and other preparations for these two initiatives to ensure harmony between them and to minimize duplication of efforts and reduce the reporting burden at national level. In particular, relevant information from the preparatory process of the second *Report* that is made available during the course of 2007 may be useful to Convention’s Subsidiary Body on Scientific, Technological and Technical Advice and to the Executive Secretary, as they finalize the assessment of status and trends and prepare for in-depth review by the Conference of the Parties. This would be consistent with the recommendation of the Commission at its Tenth Regular Session that FAO work closely with the Executive Secretary of the Convention, and play a leading role in the in-depth review of the Convention’s Programme of Work on Agricultural Biological Diversity, which will be considered at the Ninth Conference of the Parties in 2008.¹¹

⁹ COP Decision VI/26.

¹⁰ COP decision VI/5, paragraph 2 & annex I, amended by decision VII/3, paragraph 2.

¹¹ CGRFA-10/04/REP, para. 76.

C. INTER-AMERICAN INSTITUTE FOR COOPERATION ON AGRICULTURE (IICA)

16. The Inter-American Institute for Cooperation on Agriculture (IICA) is a specialized agency of the inter-American system, and its purpose is to encourage and support the efforts of its Member States to foster agricultural development and rural well-being in their territories. IICA's work in the area of conservation and sustainable utilization of biodiversity and plant genetic resources includes:

- Support to the reciprocal cooperation among the plant genetic resources networks of the subregions of the Americas;
- Development and implementation of a regional conservation strategy for plant genetic resources, a Hemispheric Program on Biotechnology and Biosafety, and Regional Strategies on Agrobiotechnology;
- Technical Secretariat of the Forum of the Americas on Agricultural Research and Technological Development (FORAGRO). The theme of agricultural biodiversity and genetic resources is one of the five thematic lines for priority action at the hemispheric level. A study on the present state of the art of plant genetic resources perspective is being carried out by FORAGRO; and
- Project on Conservation and Sustainable Use of the Native Plant Genetic Resources of the Central American Region, with the support of the Global Environment Facility (GEF) and the World Bank.

D. THE WORLD BANK

17. Between 1988 and 2004 the World Bank approved biodiversity investments totalling more than US\$4.7 billion apportioned over approximately 426 projects from 1988 to 2004. The World Bank has invested in 200 biodiversity-related projects since 1999, and over 100 biodiversity-related projects are in the pipeline for 2004 and beyond.

18. Many of the World Bank's biodiversity-related projects are either fully or partially financed by funds from the Global Environment Facility (GEF). In 2004, nine new projects were approved by GEF Council for financing with the World Bank as the implementing agency. Six of the projects are fully GEF funded and three co-financed. In the co-financing arrangements the World Bank lending focuses on agricultural productivity and rural livelihoods, while the GEF input supports the environmental and conservation aspects of the projects. Four of the projects are in Latin America, three in the Europe and Central Asia region and the remaining three in the Sub-Saharan Africa region. All nine projects address both the development of sustainable rural livelihoods and the promotion of sustainable natural resource management. The balance between these two elements varies from region to region. In the African region emphasis is placed on support to sustainable rural livelihoods through integrated production systems; in Europe and Central Asia the focus is more on natural resource conservation with community management; and in Latin America the project focus is more mixed depending on the country and specific area.

3. FUTURE HARVEST CENTRES OF THE CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH (CGIAR)

19. Eleven of the Future Harvest Centres work with plant genetic resources for food and agriculture (PGRFA). The Future Harvest Centres were involved in the development of the *Global Plan of Action* and the first *Report on the State of the World's Plant Genetic Resources for Food and Agriculture*. They provided scientific and technical inputs to the preparation of the *Report* and the *Plan*, and in the case of IPGRI in particular, assisted FAO and countries with the process that culminated with the adoption of the *Global Plan of Action* at Leipzig in 1996.

20. The Centres are committed to furthering the objectives of the *Global Plan of Action*. Their programmes on the conservation and sustainable use of PGRFA address priority activities of the *Plan*. A primary emphasis is the conservation of plant genetic resources of importance to

world food security and sustainable agricultural development. The Centres hold more than half a million accessions of PGRFA in trust for the global community under agreements with FAO. These collections will be managed according to the terms of the multilateral system of access and benefit-sharing of the International Treaty on PGRFA, once its Governing Body is in place and agreements are established with the Centres. To further the aims of the Treaty and specifically the priority of the *Global Plan of Action* to develop a rational, cost-efficient and financially-sound global system for conserving PGRFA, the Centres under IPGRI's lead have established the Global Crop Diversity Trust in partnership with FAO. The development of the Trust and the Centres' contribution to the *Global Plan of Action* on capacity-building for the sustainable use of PGRFA, are described in documents CGRFA/WG-PGR-3/05/7 and CGRFA/WG-PGR-3/05/Inf.8, respectively. Updates on the activities of the Centres with national programmes and other partners relative to all priority activities of the *Global Plan of Action* are provided in the biennial reports of the CGIAR Centres to the regular sessions of the Commission on Genetic Resources for Food and Agriculture.

Contributions to the Monitoring of the Implementation of the Global Plan of Action

21. IPGRI has been the main partner with FAO in the development of the information system for monitoring the implementation of the *Global Plan of Action* and in its pilot testing with countries. Progress with the development and application of the system, including IPGRI's involvement, is described in document CGRFA/WG-PGR-3/05/3.

22. Other Centres are providing assistance to countries and regions regarding implementation of the *Global Plan of Action*. For example, the Centro Internacional de la Papa (CIP) has provided capacity building to the national agriculture research institute of Peru and been involved in FAO meetings on implementation of the *Global Plan of Action* in the Americas region. In June 2005, the International Center for Agricultural Research in the Dry Areas (ICARDA) organized with FAO a workshop in Cairo for countries of North Africa and the Nile Valley region that addressed the implementation of the *Global Plan of Action*. The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and the International Rice Research Institute (IRRI) have participated in the meetings of the FAO project on the implementation of the *Global Plan of Action* in seven countries of South and South-East Asia¹². The Centres are committed to the implementation of the *Global Plan of Action*, and contingent on the resources available, stand ready to assist countries and FAO with the monitoring effort.

23. In 2004, three Centres, IPGRI, IRRI and ICRISAT, embarked on pilot testing the information sharing mechanism for monitoring the *Global Plan of Action* for its use to record information on Centre activities relevant to the implementation of the *Plan*. ICRISAT has uploaded information relative to the twenty priority areas and IRRI has tested the upload on information on partners and projects. IPGRI is assessing requirements for the information that needs to be collated and eventually transferred to the information sharing mechanism. This is being done as part of the restructuring of the Institute's information management system. Once complete it will upload the relevant information on the Centre's activities into the monitoring system of the *Global Plan of Action*. With FAO guidance and assistance, feedback from the pilot testing is being used to adapt the system and develop the procedures that will facilitate other Centres with relevant activities to contribute to the monitoring effort.

24. Information on the identity and characteristics of the collections of PGRFA that the Centres hold in trust is available through SINGER - the System-wide Information Network for Genetic Resources. SINGER is accessible on the Internet¹³ and is providing updated information to FAO's *World Information and Early Warning System* (WIEWS) on a regular basis. The Centres also maintain a range of specialized databases relevant to the priority activities of the

¹² Bangladesh, India, Malaysia, Philippines, Thailand, Sri Lanka and Vietnam.

¹³ <http://singer.cgiar.org>

Global Plan of Action. For example, the Centro Internacional de Agricultura Tropical (CIAT) and the International Livestock Research Institute (ILRI) have collaborated with CSIRO (Commonwealth Scientific and Industrial Research Organization) and other partners in Australia to produce a tool for selecting forage germplasm of potential value in tropical environments. In addition, the GFAR Global Facilitation Unit on Underutilized Species that is hosted by IPGRI has established a database of “Who is doing what in the field of under-utilized plant species”. This database contains information from different stakeholders about their involvement in work on under-utilized plant species and thus can contribute to the monitoring of the *Global Plan of Action* priority activities 12 “*Promoting Development and Commercialization of Under-utilized Crops and Species*” and 14 “*Developing New Markets for Local Varieties and ‘Diversity-Rich’ Products*”, as well as priority activity 11 “*Promoting Sustainable Agriculture through Diversification of Crop Production and Broader Diversity in Crops*”. This database is available on the Internet¹⁴.

Contributions to the Preparation of the Second Report on the State of the World’s PGRFA

25. IPGRI assisted FAO with the development of the Guidelines for the preparation of country reports¹⁵. IPGRI and other Centres are ready to assist the process of country reporting with the provision of information, advice and other support that may be requested within the limits of available resources.

26. The Centres welcome the opportunity to contribute to the preparation of the second *Report*, as they did to the first *Report*, with scientific and technical inputs from their research and activities with national and other partners. They have expressed interest to be involved in the development of the thematic background studies as authors, reviewers or through the provision of knowledge and information. The Centres have produced a number of publications and other products from their research and projects with partners that are relevant to the various thematic areas. In addition, there are a number of projects and initiatives underway that can contribute to assessments of the state of PGRFA. Below is information on the potential for Centre involvement in the thematic studies plus some examples of publications and on-going projects that could be sources of knowledge for the studies. Additional sources can be sought from the publications pages of Centre websites.

- A) ***Forage, pasture and rangeland genetic resources***. These genetic resources are the focus of research at ILRI, CIAT and ICARDA. These Centres hold collections of forage, pasture and rangeland species and have produced databases and studies concerning their management and use.
- B) ***Wild relatives of crops***. The collections of crop diversity that the Centres hold in trust include samples of the related wild species. The Centres have undertaken studies on the taxonomy, ecogeographic distribution and characteristics of crop wild relatives. They have endeavored to secure their representation in *ex situ* collections and they have identified and used traits from wild species for crop improvement. Significant literature and expertise exists among the Centres regarding the use of crop wild relatives and their diversity. Some examples of work regarding the status of crop wild relatives include the atlas of wild potato species produced by CIP and studies by ICARDA on the diversity of wild wheats and goat grass. CIAT has documented wild *Phaseolus* bean populations and CIMMYT (Centro Internacional de Mejoramiento de Maíz y Trigo) has worked with the national agricultural research institute in Guatemala to monitor populations of teosinte *in situ*.

¹⁴ http://www.underutilized-species.org/pok/institutional_mapping/who_is_who.html

¹⁵ CGRFA/WG-PGR-3/05/Inf.5

IPGRI embarked on a major UNEP/GEF funded project in 2004 that brings together five countries, Armenia, Bolivia, Madagascar, Sri Lanka and Uzbekistan with IPGRI, as the project manager, and five other international agencies: FAO, Botanic Gardens Conservation International (BGCI), UNEP-World Conservation Monitoring Centre, The World Conservation Union (IUCN) and the German Centre for Documentation and Information in Agriculture (ZADI). The aim is to enhance the conservation status of selected crop wild relatives in each of the target countries. The outputs of the project will be: (1) an international portal for information on crop wild relatives to serve as a gateway for access allowing users to search for information through a single web address; (2) national information systems in each of the five countries using existing information and new information collected during the course of the project; (3) improved capacity of national partners to use information to develop and implement conservation strategies for *in situ* conservation of crop wild relatives; and (4) enhanced awareness of the importance of crop wild relatives across all sectors of society. Knowledge and information generated by this project will be an important input to the thematic study on crop wild relatives.

- C) ***Indicators of genetic diversity, genetic erosion and genetic vulnerability.*** All the Centres have significant knowledge and expertise to contribute on the application of molecular techniques for genetic diversity assessment. In addition, IFPRI (International Food Policy Research Institute) and CIMMYT in particular, have produced a number of publications regarding the economic analysis of diversity in wheat and other crops and ICARDA, for example, has experience with community participatory assessment of threats to diversity in West Asia. IPGRI has collaborated with FAO on the development of indicators of genetic diversity and erosion. For example, it presented a methodology for measuring genetic erosion at the meeting on the World Information and Early Warning System on Plant Genetic Resources (WIEWS) organized by FAO in 1999. In addition, IPGRI joined with FAO in organizing a workshop on the review and development of indicators for genetic diversity, genetic erosion and genetic vulnerability in Rome in 2002. The main focus of this meeting was to: (1) review the state of the art of indicator development and use for genetic diversity, genetic vulnerability and genetic erosion at various scales, including an assessment of the feasibility of assessing these at the national level; and (2) identify or develop indicators that could be used for the second *Report*. The proceedings of this workshop are available on the Internet¹⁶.
- D) ***Methodologies and capacities for crop improvement.*** Information on the Centres' involvement in building capacity to support the utilization of PGRFA is presented in document CGRFA/WG-PGR-3/05/Inf.8. Regarding new methods and approaches in crop improvement, the Centres provide a substantial repository of knowledge and expertise. Numerous publications on this topic are available in the literature and listed on Centres' publications web pages. Of particular note is a book jointly developed by FAO and IPGRI on the topic of broadening the genetic base of crop production¹⁷. The Generation Challenge Programme, a consortium of Centres, national and specialized institutes, is bringing advances in genomic science and bioinformatics molecular biology to bear on harnessing the diversity in genetic resources collections to develop a new generation of crops for poor farmers¹⁸.

¹⁶ <http://www.biodiv.org/doc/meetings/ind/tegind-01/information/tegind-01-01-inf-10-en.pdf>

¹⁷ *Broadening the Genetic Base of Crop Production*, 2001, ed. H.D. Cooper, C. Spillane and T.Hodgkin, CABI Publishing in association with IPGRI and FAO.

¹⁸ <http://www.generationcp.org>

- E) ***Seed security for food security.*** A number of Centres are engaged with work on the rehabilitation and strengthening of seed systems. CIAT, ICARDA, ICRISAT, IPGRI and The Africa Rice Center (WARDA), among others, have been active in germplasm restoration and the rehabilitation of seed systems in countries affected by natural disasters and civil unrest. CIAT in particular, has worked closely with FAO on these issues. A number of ICARDA publications in the literature relate to policy and economic issues in developing both formal and informal seed systems. ILRI has activities on forage seed systems and IPGRI has several projects with partners around the world concerning plant genetic resources management and informal seed systems.
- F) ***The contribution of plant genetic resources to health and dietary diversity.*** Through the Global Challenge Programme Harvest Plus, Centres and partners are developing staple food crops that are rich in micronutrients. This work on biofortification includes, for example, the development of vitamin A rich rice and beta-carotene rich sweet potato. More information on Harvest Plus can be found at <http://www.harvestplus.org>. Dietary diversity and research on the nutritional and health-related attributes of wild and cultivated PGRFA is an expanding area of work in many Centres. This work also includes studies on the value of underutilized species and minor crops, for example the role of minor millets and leafy vegetables in diet and health. The Global Facilitation Unit for Underutilized Species provides access to information on the nutritional value of underutilized species¹⁹.
- G) ***Managing plant genetic resources in the agro-ecosystem.*** This is a topic of increasing emphasis within Centre programmes. A number of projects are underway with partner organizations that are generating a wealth of knowledge about the role of PGRFA and associated biodiversity in agricultural systems. For example, a UNDP-GEF project in Jordan, Lebanon, Syria and the Palestinian Authority, executed by ICARDA, has produced numerous publications on community-based conservation and sustainable use of dryland agrobiodiversity. The book “Managing Biodiversity in Agricultural Ecosystems”, currently in press by IPGRI and Colombia University Press, presents the state of knowledge on various aspects of agricultural biodiversity management including of PGRFA in agro-ecosystems, from a range of organizations, including Centres. This will be a valuable source of information for the thematic paper.
- H) ***Interactions between plant and animal genetic resources.*** The CGIAR System-wide Livestock Programme is focused on food-feed and related natural resources research. It aims to develop dual purpose crops to meet the nutritional needs of both animals and people. More information on the programme can be found at <http://www.vslp.org>
- I) ***Impact of national, regional and global agricultural policies and agreements.*** This is a major area of work of the International Food Policy Research Institute (IFPRI). In addition, several other Centres are engaged in policy research relative to genetic resources conservation, use and exchange, including the impacts of intellectual property and of regulations such as the European Commission’s Novel Food regulation. How the latter impacts on the trade of products from exotic biodiversity is the object of study by the Global Facilitation Unit on Under-utilised Species. The genetic resources policy initiative, a project led by IPGRI, aims to strengthen the capacity of developing countries to design comprehensive policy frameworks for genetic resources. Work is taking place with six pathfinder countries (Egypt, Ethiopia, Nepal, Peru, Vietnam and Zambia) and two sub-regions (East Africa and West and Central Africa). The CGIAR System-wide Program on Collective Action and Property Rights (CAPRI) analyses and disseminates knowledge on

¹⁹ <http://www.underutilized-species.org>

the ways that collective action and property rights institutions influence the efficiency, equity, and sustainability of natural resource use, including PGRFA²⁰.

- J) **Biosafety and biosecurity issues.** CIAT, CIMMYT, CIP, ICARDA and IITA (International Institute of Tropical Agriculture), among others, have undertaken studies on these issues together with national programmes and other organizations. The results of these studies are published in the literature and available on the publications pages of Centres' web sites.

4. CIVIL SOCIETY AND NON-GOVERNMENTAL ORGANIZATIONS AND OTHER INTERNATIONAL FORUMS

E. INTERNATIONAL FEDERATION OF ORGANIC AGRICULTURE MOVEMENTS (IFOAM)

27. IFOAM is the worldwide umbrella organization uniting over 750 member organisations and institutions in some 103 countries. The federation's activities on genetic resources are integrated into work around biodiversity, and IFOAM actively cooperates on this issue with the World Conservation Union (IUCN) and the Federal Agency for Nature Conservation (BfN) in Germany. These organizations have held two international conferences (1999 and 2002) on the relationship between organic agriculture and biodiversity. In September 2004, the organizations joined forces with UNEP for the 3rd International Conference on Biodiversity in Nairobi, Kenya. In regard to genetic resources and food, IFOAM is engaged in the drafting of a chapter on biodiversity for the IFOAM Basic Standards. The federation published a brochure on the relationship of organic agriculture and biodiversity

28. IFOAM is also cooperating on biodiversity-related matters with FAO. In July 2004, the federation, along with the FAO and the International Seed Federation (ISF), successfully organized the 1st International Conference on Organic Seeds.

F. INTERNATIONAL SEED FEDERATION (ISF)

29. The International Seed Federation (ISF) is a non-governmental, non-profit organization representing the seed industry and members from over 65 developed and developing countries. ISF serves as an international forum where issues of interest to the seed industry are discussed. ISF:

- Represents the interests of its members at an international level and maintains regular official contacts with bodies such as UPOV, OECD, ISTA, FAO and the CBD;
- Seeks to improve relationships between its members through internal communication on recent developments in seed trade and plant breeding and an annual congress, to help identify matters of mutual concern to the seed industry, enable strategic thinking and adopt common positions;
- Promotes the establishment and protection of intellectual property rights for seeds, plant varieties and associated technologies, which follow from research investments in plant breeding, plant biotechnology, seed technology and related subjects;
- Develops and facilitates the free movement of seed within the framework of fair and reasonable regulations, whilst serving the interests of farmers, growers, industry and consumers. The development of seed health testing methods and pathogen coding are examples of some of the activities undertaken in this area;
- Facilitates the marketing of planting seeds and other reproductive materials by publishing rules for trading seed and licensing technology;
- Provides for the settlement of disputes through mediation, conciliation and/or arbitration;

²⁰ <http://www.capri.cgiar.org>

- Increases recognition of the importance and value of its members' major contributions to world food security, genetic diversity and sustainable agriculture, in particular through the development, production and use of high quality seed and modern technology;
- Promotes the development of national and regional seed associations and encourage and support the education and training of seedsmen and seedswomen throughout the world;

Recently, ISF together with the Asian Vegetable Research and Development Center (AVRDC) made information related to vegetable crop diversity available on the World Wide Web through the System-wide Information Network for Genetic Resources (SINGER).

G. INTERNATIONAL SEED TESTING ASSOCIATION (ISTA)

30. The mission of the International Seed Testing Association (ISTA) is to develop, adopt and publish standard procedures for sampling and testing seeds, and to promote uniform application of these procedures for the evaluation of seeds moving in international trade. ISTA develops rules for methods of seed testing and promotes its implementation through publications and training activities.

H. INTERMEDIATE TECHNOLOGY DEVELOPMENT GROUP (ITDG)

31. The Intermediate Technology Development Group (ITDG) is a specialist international development NGO working on a range of technological issues with and in support of communities in developing countries. ITDG works on agricultural biodiversity issues with farmers, pastoralists and fisherfolk in many countries. Through publications, fieldwork, research, seminars and policy advocacy, ITDG promotes the conservation and sustainable use of agricultural biodiversity, especially on-farm and *in situ*, not only for food production but also for providing sustainable livelihoods, living landscapes and life support systems. ITDG seeks to support small-scale producers to develop and maintain diverse agroecological production systems, which both generate and depend upon agricultural biodiversity and are an essential component of food sovereignty.

32. To achieve increased conservation and sustainable use of plant genetic resources for food and agriculture, ITDG has, for example: researched, with farmers, the methods used to maintain diversity of plant genetic resources on-farm in Kenya, Peru and Zimbabwe; initiated and supported processes to promote diversity and exchanges of seeds between farmers at Seed Fairs, especially in Africa; played a role in the development of diverse agroecological farming systems; and contributed to the direct involvement of farmers and their organizations in national and international meetings on plant genetic resources, including those organized through the Commission on Genetic Resources for Food and Agriculture and the CBD, and at other UN and CGIAR meetings at regional and international levels. ITDG works closely with FAO and CBD on agricultural biodiversity issues and programmes including FAO, IPGRI, Diversitas, and the UNEP-GEF project on "Best Practices for *In Situ* Conservation of Economically Important Wild Species" in the Mediterranean region.

I. SLOW FOOD

33. Slow Food is an international association that promotes food and wine culture, but also defends food and agricultural biodiversity worldwide. Slow Food's activities seek to defend biodiversity in food supply, spread the education of taste, and link producers of excellent foods to consumers through events and initiatives. Through the Ark of Taste and Presidia projects (supported by the Slow Food Foundation for Biodiversity), the Slow Food Award for Biodiversity and Terra Madre, Slow Food seeks to protect our invaluable food heritage. The Ark of Taste has catalogued hundreds of extraordinary products from around the World, thus making an important contribution to the documentation of the existence of diverse traditional foods. The aim of Presidia projects is to assist groups of artisan producers to promote their products; to stabilize production techniques; to establish stringent production standards and, above all, to guarantee a

viable future for traditional foods. The Slow Food Award for the Defence of Biodiversity spotlights activities of research, production, marketing, popularization and documentation which benefit biodiversity in the agro-industrial field. In 2004, Slow Food organized the event “Terra Madre – World Meeting of Food Communities”, to promote meetings, exchanges and mutual acquaintance between producers and workers in the world food and agricultural industry. Terra Madre was attended by 4,888 delegates from 130 countries.