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Item 4 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

**FAO ACTIVITIES IN RELATION TO THE SUPPORTING
COMPONENTS OF THE INTERNATIONAL TREATY ON PLANT
GENETIC RESOURCES FOR FOOD AND AGRICULTURE AND
PRELIMINARY ANALYSIS ON HOW TECHNICAL
COOPERATION BETWEEN THE COMMISSION ON GENETIC
RESOURCES FOR FOOD AND AGRICULTURE AND THE
GOVERNING BODY OF THE INTERNATIONAL TREATY ON
PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE
MAY BE ADVANCED**

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ANNEX

General Considerations for the Development of a Global Information System on PGRFA.

1. INTRODUCTION

1. At its Tenth Regular Session, the Commission on Genetic Resources for Food and Agriculture (the Commission) requested the Intergovernmental Technical Working Group on Plant Genetic Resources for Food and Agriculture (WG-PGR) to “Identify and advise on activities undertaken by FAO, including through its Commission, to support the work of the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture (the International Treaty), in relation to the Supporting Components of the International Treaty, in order to move the process forward in a cost-effective and rational manner.” It also noted that “the goal should be to prepare a preliminary analysis, for the Commission to consider, of how technical cooperation between the Commission and the Governing Body of the International Treaty might be advanced.” This document has been prepared to address this request.

Table 1: Supporting Components of the International Treaty (Part V)

<i>Global Plan of Action for the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture</i>	Articles 14 and 17
<i>Ex Situ</i> Collections of Plant Genetic Resources for Food and Agriculture held by the International Agricultural Research Centres (IARCS) of the Consultative Group on International Agricultural Research and other International Institutions (CGIAR)	Article 15
International Plant Genetic Resources Networks	Article 16
Global Information System on Plant Genetic Resources for Food and Agriculture	Article 17
<i>State of the World’s Plant Genetic Resources for Food and Agriculture</i>	Article 17.3

2. For each of the supporting components listed in *Table 1*, this document provides a brief review of FAO’s most relevant activities undertaken during the previous biennium (2002-03) and the current biennium (2004-05). It describes the responsibilities of the Commission in relation to that particular component and presents options to consider how technical cooperation between the Commission and the Governing Body could be developed, as an input to the possible future development of a wider cooperation framework between the Commission and the Governing Body of the International Treaty.

2. THE GLOBAL PLAN OF ACTION FOR THE CONSERVATION AND SUSTAINABLE USE OF PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

3. The *Global Plan of Action* was adopted by 150 countries during the Fourth International Technical Conference on Plant Genetic Resources, which agreed that “overall progress in the implementation of the *Plan* and of the related follow-up processes would be monitored and guided by the national governments and other members of FAO, through the Commission on Genetic Resources for Food and Agriculture”. The Commission has reviewed reports on its implementation and provided guidance at each regular session, in 1999, 2002, and 2004. As it is a rolling plan, the Commission may wish, during its next session, to plan the next iteration of the *Global Plan of Action* in the context of the Commission’s consideration of its Multi-Year Plan of

Work (MYPoW), and, in due course, to take into account any relevant representations by the Governing Body of the Treaty.¹

4. The *Global Plan of Action* is identified as a supporting component of the International Treaty in Article 14. References to the *Global Plan of Action* appear in several other articles of the Treaty. The Preamble notes that the *Global Plan of Action* is “an internationally agreed framework for activities on plant genetic resources for food and agriculture”. In Article 13, Contracting Parties agree that benefits arising from the use of PGRFA from the Multilateral System shall be shared, “taking into account the priority activity areas in the rolling *Global Plan of Action*... The Contracting Parties recognize that the ability to fully implement the *Plan*, in particular of developing countries and countries with economies in transition, will depend largely upon the effective implementation of Article 13 and of the funding strategy”.

5. In Article 18, Financial Resources, the *Global Plan of Action* is mentioned in relation to the Funding Strategy: “In order to mobilize funding for priority activities, plans and programmes, in particular in developing countries and countries with economies in transition, and taking the *Global Plan of Action* into account, the Governing Body shall periodically establish a target for such funding” (Article 18.3).

FAO's activities in relation to the Global Plan of Action

6. The Leipzig Conference emphasized that the *Global Plan of Action* would be implemented by many partners, mainly by national programmes. FAO has a particular responsibility vis-à-vis promoting, facilitating and monitoring the implementation of the *Plan*. In 1997, FAO Conference encouraged the Organization to facilitate and promote implementation of the *Plan* by all stakeholders. The Commission at its Eighth Regular Session “underlined the need for FAO to allocate adequate resources from its Regular Budget to support the tasks of monitoring and facilitating implementation of the *Global Plan of Action*”. It further identified a number of activities which FAO should undertake: “the development of case studies and guidelines; advice to countries on establishing national programmes and plans; capacity building; and support to community PGRFA management”. The Commission agreed that FAO’s work should be developed in cooperation with the International Plant Genetic Resources Institute (IPGRI), other CGIAR centres, the United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP), the World Bank, other international organizations, NGOs, the private sector and funding agencies.

7. Since the adoption of the *Global Plan of Action*, FAO has devoted substantive amounts of its Regular Budget to promote, facilitate and monitor the implementation of the *Plan*, including providing support to the Commission and its WG-PGR. FAO reports relevant activities to each session of the Commission, including in support of direct implementation of the *Global Plan of Action*. Specific activities, reported during the Commission’s Tenth Session², included collaborative action with IPGRI in further development of the new monitoring approach on implementation of the *Global Plan of Action*, support and technical advice provided on activities on minor millets to other international organizations, in particular to the International Crop Research Institute for the Semi-Arid Tropics (ICRISAT), further work with ICRISAT on understanding the contribution of crop and crop associated biodiversity for sustaining agricultural productivity and enhancing livelihoods in the semi-arid tropical agro-ecosystems, a UNEP/GEF funded project approved in June 2003 addressing pollinator related issues at global level and in eight countries, and guidance provided at meetings of regional PGR networks (e.g. European

¹ See document CGRFA/WG-PGR-3/05/8.

² See CGRFA-10/04/10.1. *Report from FAO on its policies, programmes and activities on agricultural biological diversity: (1) sectorial matters*, para. 3-13.

Common Programme on Genetic Resources, and the Genetic Resources Network for West and Central Africa).

8. From a total regular budget of US\$4,719,952 allocated in the 2004-05 biennium in support of the International Treaty, including its supporting components, a total of US\$1,977,388 including FAO staff salaries is allocated in support of the wide dissemination and use, as well as conservation, of PGRFA and related biodiversity, through strengthening the seed sector and plant breeding, including appropriate biotechnology, building capacities at national level, and effective implementation of the *Global Plan of Action*.

9. The most recent progress report on implementation of the *Plan* showed that countries confirmed recognition of the *Global Plan of Action* as the basis for their national programmes and plans on PGRFA. Yet, in spite of international cooperation efforts, lack of sufficient funding is leading to strong differences among countries and regions in the progress achieved.

10. In an attempt to find innovative ways to promote the *Global Plan of Action*, the Commission requested FAO to establish a Facilitating Mechanism, in partnership with other relevant international organizations, to facilitate its implementation building on the information provided through the new monitoring approach.

Facilitating Mechanism for implementing the GPA

11. At its Tenth Regular Session in 2004, the Commission adopted the objective, the operational principles, the activities and the operational structure of the Facilitating Mechanism. The operational structure specifies that the Commission and its WG-PGR will provide overall guidance to the Facilitating Mechanism. It provides for the Facilitating Mechanism to be hosted by FAO and to operate in partnership with IPGRI in a way that attracts and accommodates other international organizations to become partners, as agreed by the Commission. The current partners are FAO, IPGRI and the Global Forum for Agricultural Research (GFAR).

12. In addition, at its Ninth Regular Session (2002), the Commission affirmed that “the Facilitating Mechanism should give high priority to assisting in the development of the funding strategy to be adopted by the Governing Body of the International Treaty ... However, the Commission noted that there should be no ambiguity in the roles of the Commission and the Governing Body of the International Treaty, or duplication of activities under the Facilitating Mechanism and the funding strategy of the International Treaty”.

13. An operational plan was proposed³, which identified regular budget allocations and extra-budgetary resources needed to carry out proposed activities. It has not yet proven possible for FAO to raise the extra-budgetary resources required, but with the limited resources available, FAO has started, in collaboration with its partners, the implementation of selected activities. A meeting of the partners of the Facilitating Mechanism took place in June 2005 to identify concrete activities to be carried out supported by their regular budget funding. Extra-budgetary resources received from Germany have allowed initiating the development of an information portal to carry out Activity A agreed by the Commission⁴.

³ See CGRFA-10/04/5, Appendix I.

⁴ Provide information on: sources and availability of financial, technical, material and information resources; linkages among stakeholders; donor and recipient priorities, roles and conditions; best practices and standards and procedures; success stories; networking; plans, commitments, targets and indicators; and any other information regarding resources necessary to implement the Global Plan of Action.

Options for Technical Cooperation between the Commission and the Governing Body of the International Treaty

14. The success of the Facilitating Mechanism will rely on its capacity to carry out its activities in a way that complements and does not overlap with implementation of the International Treaty. However, regular budget resources of its partners are not sufficient to carry out all of the Facilitating Mechanism's mandated activities in a comprehensive way. Taking into account the US\$200,000 provided by the Government of Germany, approximately US\$475,000 additional extra-budgetary resources would be required to achieve the proposed operational plan over 2005 and 2006.

15. In accordance with Article 14, the Contracting Parties of the International Treaty should promote the effective implementation of the *Global Plan of Action*, including through international cooperation. Adoption of the International Treaty's Funding Strategy might contribute to this process. Cooperation between the Commission and the Governing Body of the International Treaty in facilitating the implementation of the *Global Plan of Action* is therefore required. It is proposed that:

- a) The Facilitating Mechanism will report on its activities to the Commission and its WG-PGR. The reports will include information about priorities for action that have been identified by stakeholders, and project proposals developed by the Facilitating Mechanism upon request from stakeholders.
- b) On this basis, the Commission can propose priorities to the Governing Body of the *Treaty* for consideration as appropriate under the *Treaty's* Funding Strategy.
- c) The Facilitating Mechanism will take into account priorities established and activities carried out by the Governing Body under the Funding Strategy.

Monitoring implementation of the Global Plan of Action

16. FAO proposed to this WG-PGR and to the Commission a new approach to monitor the implementation of the *Plan*. The new monitoring approach promotes a country-driven, participatory and capacity building process, leading to the establishment of national information-sharing mechanisms, which are further described in section 5 of this document. Information on FAO's activities and progress achieved in the operations of the new monitoring approach is provided in document CGRFA/WG-PGR-3/05/3.

17. The Commission, at its last session, "acknowledged the successful pilot phase and its evaluation, and adopted revised indicators and a reporting format for monitoring implementation of the *Global Plan of Action*." It also "supported the application of the new monitoring mechanism 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 PGRFA*."⁵ Needs and priorities identified by countries through this participatory process will serve the Commission in future updating of the rolling *Global Plan of Action*.

Options for Technical Cooperation between the Commission and the Governing Body of the International Treaty

18. National governments are responsible for monitoring implementation of the *Global Plan of Action* through the Commission, which could report progress in implementing the *Global Plan of Action* to the Governing Body of the Treaty. In this context, countries could provide information on their financial needs and expenditures, thereby helping the Governing Body to define needs and priorities and to set a target for its Funding Strategy. Cooperation in updating the *Global Plan of Action* may need to be considered in the future.

⁵ CGRFA-10/04/REP, para.26

3. EX SITU COLLECTIONS OF PGRFA HELD BY IARCS OF THE CGIAR AND OTHER INTERNATIONAL INSTITUTIONS

19. In 1989, the Commission called for the development of the International Network of *Ex Situ* Collections under the Auspices of FAO, in line with Article 7.1a of the *International Undertaking on Plant Genetic Resources*.

20. Twelve International Agricultural Research Centres (IARCs) of the CGIAR signed agreements with FAO on 26 October 1994, placing accessions of PGRFA in the International Network⁶. FAO has signed agreements with other international institutions such as the Tropical Agricultural Research and Higher Education Centre (CATIE) and the International Coconut Genetic Resources Network (COGENT).

21. *Ex situ* collections held by IARCs and other international institutions are now a supporting component of the International Treaty. Article 15 calls upon them “to sign agreements with the Governing Body with regard to such *ex situ* collections.” “The Governing Body will also seek to establish agreements for the purposes stated in this Article with other relevant international institutions.”

FAO activities regarding the international network of *ex situ* collections under the auspices of FAO

22. A *Report on the International Network of Ex Situ Collections under the Auspices of FAO* was presented to the Commission at its Tenth Regular Session in 2004⁷. FAO has periodically visited IARCs and provided advice to ensure that the collections are maintained according to international standards.

Options for Technical cooperation between the Commission and the Governing Body of the International Treaty

23. International centres signing the new agreements will recognize the authority of the Governing Body to provide policy guidance relating to their *ex situ* collections. The Commission could continue to provide technical assistance, particularly in relation to monitoring and updating Genebank Standards to be used by such international centres.

4. INTERNATIONAL PLANT GENETIC RESOURCES NETWORKS

24. At its Eighth Regular Session, in 1999, the Commission underlined the importance of networks in promoting the application of the *Global Plan of Action*. Their relevance in this process is recognized in Priority Activity Area 16 of the *Global Plan of Action*. Article 16 of the International Treaty recognizes such networks as a supporting component.

25. During its Second Session in November 2003, the WG-PGR recommended that “case studies on successful networks should be made available to the Commission ... to advance understanding of the characteristics of successful networks and to encourage greater collaboration”. A

⁶ The agreements have been renewed twice, on 26 October 1998, and on 26 October 2002, and currently run until 26 October 2006.

⁷ Document CGRFA-10/04/6

Background Study Paper was prepared⁸, which analyzed the characteristics of successful networks, by assessing the effectiveness of selected networks using criteria such as the degree to which the network is closed or open; network organization and leadership; funding mechanisms; network benefits and outputs; and network communications. Other criteria, in particular synergies among networks, were also considered. The study provided an overview of the factors that determine the success of a network and identified indicators that could be used to assess them.

26. At its Tenth Regular Session, the Commission “considered the criteria for, and characteristics of, effective and efficient crop, regional and thematic networks, as well as the process initiated by the Secretariat regarding the further contribution of networks in the implementation of the *Global Plan of Action*. It agreed that support for the functioning of effective networks, and strengthening of collaboration among networks, should be promoted, and that case studies on successful networks should be made available”. To this end, in 2005, FAO is reviewing and updating the inventory of networks, and preparing a comprehensive analysis of the information gathered.

Options for Technical Cooperation between the Commission and the Governing Body of the International Treaty

27. It is proposed that the Commission continue to promote support for effective networks through regular surveys, case studies and innovative approaches, which will be made available to the Governing Body of the Treaty. Activities taken by Contracting Parties to promote international networks, including encouraging the participation of relevant governmental and non-governmental institutions, can also be brought to the attention of the Commission.

5. THE GLOBAL INFORMATION SYSTEM ON PGRFA

28. Article 17 of the International Treaty establishes that “Contracting Parties shall cooperate to develop and strengthen a global information system to facilitate the exchange of information, based on existing information systems, on scientific, technical and environmental matters related to plant genetic resources for food and agriculture, with the expectation that such exchange of information will contribute to the sharing of benefits by making information on plant genetic resources for food and agriculture available to all Contracting Parties ... Based on notification by the Contracting Parties, early warning should be provided about hazards that threaten the efficient maintenance of plant genetic resources for food and agriculture, with a view to safeguarding the material.”

29. Article 13.2 (a) indicates the type of information to be exchanged among the Parties, as part of the benefit-sharing arising under the Multilateral System including: “catalogues and inventories, information on technologies, results of technical, scientific and socio-economic research, including characterization, evaluation and utilization.”

FAO’s activities in support of a Global Information System

The State of the World’s Plant Genetic Resources for Food and Agriculture

30. In 1989, the Commission “recommended that the Secretariat should periodically prepare a report on *The State of the World’s Plant Genetic Resources* ... analyze the current plant genetic resources situation, and describe activities and programmes being carried out by regional, international and non-governmental organizations, with the aim of identifying gaps, constraints

⁸ Background Study Paper No. 16, *A Summary and Analysis of Existing International Plant Genetic Resources Networks*, by Electra Kalaugher and Bert Visser.

and emergency situations; this would allow the Commission to recommend priorities and ways of harmonizing the overall effort". The first *Report*⁹ was prepared for the Fourth International Technical Conference, held in Leipzig, Germany in 1996, and was welcomed as the first comprehensive worldwide assessment of the status and use of plant genetic resources for food and agriculture.

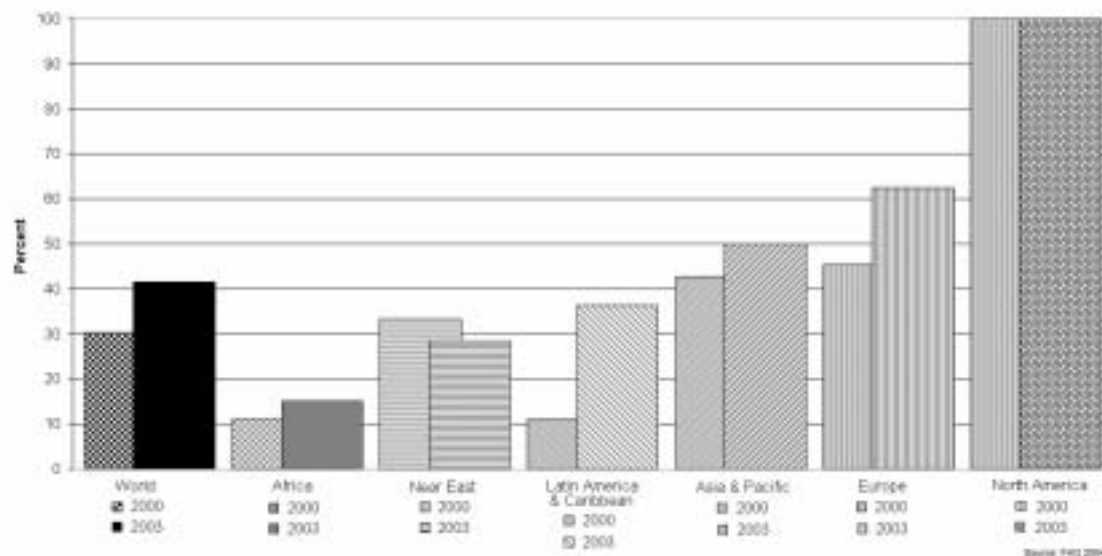
31. Article 17.3 of the International Treaty states that "the Contracting Parties shall cooperate with the Commission ... in its periodic reassessment of the state of the world's plant genetic resources for food and agriculture in order to facilitate the updating of the rolling *Global Plan of Action*".

32. Plans for updating the *State of the World's Plant Genetic Resources* are reported in the document, *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*,¹⁰ and reflected in the document, *Input of the Working Group to the Commission's Multi-Year Programme of Work*.¹¹

Information management assessment

33. Periodic FAO surveys in preparation for reports on progress in the implementation of the *Global Plan of Action* have included questions relative to information management. The 1998 survey reflected generally modest national commitment to information activities on PGRFA and a lack of quantitative indicators and assessment; however, the 2000 and 2003 surveys showed that countries were attaching increasing priority to activities related to the establishment of a comprehensive information system. There were great differences among regions, as shown in Figure 1.

Figure 1. Countries with at least one Information System on PGRFA and/or Seed shared at national level in 2000 and 2003



34. Since 1998, there was little increase or improvement in developing monitoring mechanisms for the sustainable use of PGRFA, or for loss of *ex situ* and *in situ* genetic resources, as shown

⁹ See http://www.fao.org/WAICENT/FAOINFO/AGRICULT/AGP/AGPS/Pgrfa/wrlmap_e.htm.

¹⁰ CGRFA/WG-PGR-3/05/3.

¹¹ CGRFA/WG-PGR-3/05/8.

below.

Table 2. Monitoring threats of genetic erosion *in situ* and *ex situ* (% of countries).

	Threats are monitored and action is taken*	In situ			Ex situ		
		1998	2000	2003	1998	2000	2003
World	Yes	10	10	16	24	26	31
	in part	33	42	45	36	37	39
	no/no answer	57	48	39	40	37	30
Africa	Yes	8	13	5	8	17	10
	in part	33	38	45	50	58	40
	no/no answer	59	49	50	42	25	50
Asia + Pacific	Yes	20	15	7	40	40	14
	in part	15	25	50	25	25	57
	no/no answer	65	60	43	35	35	29
Europe	Yes	13	13	25	35	39	67
	in part	35	45	50	39	35	25
	no/no answer	52	42	25	26	26	8
Latin America + Caribbean	Yes	0	0	18	6	6	18
	in part	44	56	36	33	33	45
	no/no answer	56	44	46	61	61	37
Near East	Yes	0	0	14	13	13	14
	in part	38	50	43	25	25	43
	no/no answer	62	50	43	62	62	43

*yes: threats are monitored, action can be taken as needed

in part: partial monitoring of threats, partial preventive action is possible

no: no mechanism for monitoring; no mechanism in place for taking action to prevent genetic erosion

Note: 1998 and 2000 data are based on replies from 102 countries; 2003 data are based on replies from 77 countries

The World Information and Early Warning System on PGRFA

35. The World Information and Early Warning System (WIEWS) on PGRFA was established by FAO as part of the FAO Global System, pursuant to Articles 7.1(e) and (f) of the *International Undertaking on Plant Genetic Resources*, to foster exchange of information among member countries, to support the periodic assessment of the state of the world's PGRFA and to alert the international community about threats of erosion of PGRFA.

36. WIEWS has been further developed under the guidance of the Commission. It's accessible through the Internet since 1998. In 2000, an improved web version including remote updating features was released to allow countries to directly manage their own information via the Internet.

37. The information in WIEWS derives from (i) direct contributions from Member Countries, (ii) regional, crop and thematic PGRFA networks and (iii) automatic capture of accession-level information on *ex situ* collections from international, regional and national web databases (e.g. the Nordic Genebank, SINGER, USDA-GRIN, etc.).

38. Direct data contributions from Member Countries are channeled through a network of 177 officially appointed National Focal Points for reporting on the implementation of the *Global Plan of Action* and 103 WIEWS correspondents nominated by them. They update the WIEWS database either on-line or through standard email formats, and submit reports (e.g. country reports on

PGRFA) and replies to surveys (e.g. progress in implementation of the *Global Plan of Action*).

39. Capacity-building activities include training in information management and establishment of information-sharing mechanisms on the implementation of the *Global Plan of Action*.

National Information Sharing Mechanisms on GPA implementation

40. As a result of the application of the new monitoring approach, a National Information Sharing Mechanism on implementation of the *Global Plan of Action* is being established in each Member Country through a participatory reporting process, which can be periodically reiterated. The information gathered during the first iteration serves as a basis for the preparation of a Country Report as the national contribution to second *Report on the State of the World's PGRFA*.

41. WIEWS has developed a prototype portal for accessing all the established National Mechanisms, to broaden their usefulness from a national perspective to regional and global levels, by allowing distributed searches.

The development of a Global Information System

42. FAO hosted an Informal Consultation in 2002, involving major actors in the information and PGRFA sector. It provided an opportunity for preliminary discussions concerning the development of a Global Information System on PGRFA, in line with Article 17 of the International Treaty. The main results are available in Annex 1 to this document¹².

43. Regardless of how the Global Information System is developed, some means of pooling or connecting existing information systems is essential, and in countries devoid of adequate information infrastructure, programmes for strengthening institutions, training staff and establishing partnerships for information flow and exchange at national and sub-regional levels are vital. "Pooling" existing information systems would require the adoption of common basic standards and a code of conduct with clearly stated principles, to encourage sharing and exchange of information by providers and users.

44. The Global Information System on PGRFA envisaged under Article 17 of the Treaty might consist of a decentralized network of systems rather than one single system, with decentralized management. It could be a "community of practice" with its information providers and partners being as diverse and disparate as its users. The development of this community in terms of access to information sources could evolve through a Common Portal, set up and monitored by the partners to ensure its effectiveness in meeting users' needs.

45. The process of developing a Global Information System will take time and effort. Preparatory activities would include collaboration by key organizations to identify and characterize the full range of existing information systems and partners, end-user needs, information gaps and new resources needed to satisfy needs and fill gaps.

Options for Technical cooperation between the Commission and the Governing Body of the International Treaty

46. The necessary partnership required for the development of a Global Information System may be advanced by a series of consultations to address pertinent issues, established under the guidance of the Governing Body of the International Treaty, in association with the Commission, in order to benefit from synergy with WIEWS.

47. The Commission's role in guiding the application of the new approach for monitoring the implementation of the GPA, with its main outputs, the establishment of national information sharing mechanisms and capacity building, as well as the information provided, will constitute

¹² The full document can be found at: http://apps3.fao.org/wiews/ICMGS_2002.pdf

essential elements contributing to the Global Information System.

6. GUIDANCE SOUGHT FROM THE WORKING GROUP

48. Technical cooperation between the Commission and the Governing Body is essential to ensure full synergy in developing the four supporting components of the International Treaty. The WG-PGR may consider recommending the Commission to:

- a) Endorse the options regarding how technical cooperation between the Commission and the Governing Body of the International Treaty might be advanced, presented in paras. 14-15, 18, 23, 27 and 46-47 of this document;
- b) Identify other cooperation processes as appropriate;
- c) Consider these options as inputs in the preparation of a paper on actions taken by the Commission, and on its future work in relation to the FAO Global System for the Conservation and Sustainable Use of PGRFA, that the Commission requested be presented to the Treaty's Governing Body; and
- d) Consider the supporting components of the International Treaty as a priority for future FAO activities, under its Regular Programme.

Annex I

General Considerations for the Development of a Global Information System on PGRFA

General Considerations

1. While significant progress has been made towards a coherent Global Information System for PGRFA, more efforts are required to ensure the system will provide the necessary support for the GPA and the International Treaty.

2. Building a Global Information System requires an inventory of existing relevant information systems, including some data mapping, and identification of the organisations that manage these systems. In addition, sound design and development of a Global Information System requires analysis to determine:
 - (i) the primary users;
 - (ii) user's requirements; and
 - (iii) the range of anticipated functions of the System.

Primary users of a Global Information System

3. The primary users and beneficiaries are many and diverse, and would include:
 - (i) nominated officials (focal points) responsible for PGRFA issues in a particular country;
 - (ii) policy makers and scientific and technical services in agriculture, education, natural resources, environment and other sectors;
 - (iii) agricultural development agencies and civil society organisations;
 - (iv) collection managers and curators, plant breeders, farmers and gardeners;
 - (v) other researchers working in the field of genetic resources; and
 - (vi) the general public/consumers.

Users' requirements for a Global Information System

4. *Providing information on PGRFA and agricultural biodiversity, inter alia* for conservation, plant breeding, broadening the genetic base of crops and increasing the range of genetic diversity available to farmers.

5. *Facilitating the exchange of information on scientific, technical and environmental matters related to PGRFA to benefit all Contracting Parties*, not least through improved accessibility to cross-cutting issues addressed in both structured and unstructured information (i.e. in data-bases and publications, respectively).

6. *Early warning of depletion/erosion of PGRFA*. Article 17.2 of the Treaty specifically mentions early warning of threats to the efficient maintenance of plant genetic resources. Examples of types of risk might include:

- (i) *displacement of farmers' varieties by modern varieties and loss of landraces;*
- (ii) *destruction of habitats of wild relatives and of agricultural landscapes and traditional production systems;*
- (iii) *breakdown of in or ex situ collections and on-farm conservation and sustainable use practices.*

The contribution of a Global Information System for PGRFA to early warning mechanisms could be carried out through effective support for methodologies to monitor bio-indicators relating to loss of landraces, and monitoring qualitative and quantitative indicators in sensitive wild habitats.

7. *Monitoring and facilitating implementation and updating the rolling Global Plan of Action and the periodic reassessment of the State of the World's PGRFA* - An implicit user requirement of the Global Information System for PGRFA is mentioned in Article 17.3 of the Treaty, which calls upon all Parties to cooperate with the Commission in the periodic reassessment of the *State of the World's PGRFA* in order to facilitate updating the rolling *Global Plan of Action*. Making the information deriving from the monitoring activities accessible through WIEWS and the National Information-Sharing Mechanisms contributes to assess achievements, needs and priorities at national, regional and global levels within the preparatory process for the second report on the *State of the World's PGRFA*. Through the Facilitating Mechanism, this information could help identify funding needs for donor support, encourage the mobilization of technical and financial resources and assist in the development of aid-funded projects.

8. *Facilitate and strengthen capacity-building* - This might especially take the form of tools, training materials and information services to support the establishment and/or development of national programmes for PGRFA through institutional strengthening and human resources development. It might include identifying national, regional and global needs and formulating, promoting and implementing PGRFA projects.

9. User requirements could be facilitated through a range of anticipated functions of the System including:

- (i) retrieving information on specific thematic areas;
- (ii) downloading documents and data-sets for conducting local analyses;
- (iii) uploading documents and data-sets for publishing results of PGRFA research and development;
- (iv) accessing guidelines and methodologies;
- (v) downloading tools for PGRFA information management, risk analysis or project formulation.

Needs, Challenges and Opportunities

10. Monitoring implementation of the *Global Plan of Action* has highlighted the need to facilitate the exchange of data and information to ensure the conservation and sustainable utilization of PGRFA. The Global Information System on PGRFA, as foreseen in the Treaty, specifically addresses this need. Its development would involve at least two major exercises:

Pooling Existing Information Systems

- (i) Bringing together relevant information systems/services to allow access to corporate information sources (i.e. the joint information holdings of these information systems/services) and enable and facilitate exchange of information between these systems/services, and others.

- (ii) Important sources of structured and unstructured information include those created by the Contracting Parties. Relevant international, regional and national sources in the public sector include those of organisations such as the CGIAR centres, the CBD (CHM), ECP/GR, IPGRI, EcoPort, OECD, UPOV and FAO. Private sector sources may include information on seed availability held by FIS, whilst various regional organizations and others within civil society may also be contributors.
- (iii) Problems of unnecessary overlapping, gaps, information uses, incompatibilities and harmonization together with time and cost commitments can be anticipated in forming and fashioning the best possible Global Information System on PGRFA.
- (iv) The effectiveness of pooling would be greatly facilitated by the adoption of common basic standards.
- (v) Individual information systems could be made available to end-users by means of a Common Portal, including a dynamic directory of information sources organised under appropriate thematic categories. It could be set up and monitored under the guidance of an expert group to ensure that its form and function effectively meet current and evolving needs.

Building Capacity in Information Management

- (i) This will require the establishment (largely within existing infrastructures) of national mechanisms and building functions for the gathering, storage, dissemination and exchange of PGRFA information and knowledge in countries presently lacking such mechanisms, and/or strengthening existing mechanisms as necessary.
- (ii) In the case of information on PGRFA, what is known and recorded is not always assimilated into and used through any formal information flow system, where it might benefit from the expertise of other stakeholders in terms of evaluation and transfer of knowledge to the end-users. Much more attention needs to be given *inter alia* to gathering information of use to farmers.
- (iii) To serve its various purposes in support of sustainable agricultural development, food security, conservation and sustainable use of the environment and biodiversity, a national information service needs to be dynamic – ever increasing and improving and developing with new technologies to be inter-active and linked to other sources. It follows that the system/service, which is also essential for assuring equitable sharing of benefits deriving from PGRFA, must be permanent and needs to be sustained by governments.
- (iv) The service would need to enable information flow, in both directions, from the wild and farmers' fields through farmers' organizations and the extension sector to the national genebanks and agriculture research centres, and onwards to executive and decision making levels of government. It would

need to draw in data and knowledge from not only the agricultural sector but also natural resources and the environment, as well as from private/commercial organizations, e.g. seed providers and civil society organisations.

- (v) The type of information mechanism envisaged to provide the tools for management of information needs to be created without any significant extra costs to governments. Models for such mechanisms (dedicated to other activities) already exist.
- (vi) National Committees for PGRFA and designated Focal Points in individual countries, as well as the institutional entities mentioned above, are all part of national institutional mechanisms and infrastructures. In many developing countries relevant institutes are not as well resourced as necessary. Also individuals involved are not adequately trained in gathering, characterizing, evaluating, processing, storing, disseminating and exchanging information. The existence of the “digital divide” i.e. the haves and have-nots of access to the Internet is a continuing impediment to access to information in many parts of the developing world.
- (vii) Capacity building is needed to remove barriers to information flow. Existing infrastructures, sustained by local governments, offer opportunities for donor-funded programmes on conservation and utilization of PGRFA through institutional strengthening and human resource development programmes. As an alternative to the Internet, a Global Information System on PGRFA might explore how to offer other data delivery services, such as the provision of thematic data sets and documents extracted from existing information systems, via hardcopies and/or CD-ROMs.