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联合国粮食及农业组织
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
ORGANISATION DES NATIONS UNIES POUR L'ALIMENTATION ET L'AGRICULTURE
ORGANIZACION DE LAS NACIONES UNIDAS PARA LA AGRICULTURA Y LA ALIMENTACION

CPGR/93/5

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COMMISSION ON PLANT GENETIC RESOURCES

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PROGRESS REPORT ON THE GLOBAL SYSTEM FOR THE CONSERVATION AND UTILIZATION OF PLANT GENETIC RESOURCES

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I. INTRODUCTION

1. In recent years, broad intergovernmental consensus on plant genetic resources has been achieved through the discussions of the Commission on Plant Genetic Resources which provides ways and means for coordinating intergovernmental action at a global level, in order to avoid duplication, and foster complementarity among the national, regional and international organizations involved. Successive meetings of the CPGR have contributed to the development of a Global System for the Conservation and Utilization of Plant Genetic Resources (see figure). The Global System is concerned with the conservation and sustainable use of biodiversity of interest to forestry and agriculture and aims to benefit all participants by taking fully into account the rights of donors of germplasm, funds and technology and the obligations of the recipients.

2. This paper is intended to provide the general context for, and to complement, other documents to be considered by the Fifth Session of the Commission. It gives an overview of the Global System and describes progress made during 1991-92 in the development of some of its technical components, namely the World Information and Early Warning System for Plant Genetic Resources[1], the *ex situ* network of base collections under the auspices of FAO and the *in situ* network of conservation areas, as well as on Farmers' Rights and the International Fund on PGR. The Commission is invited to review the progress made, and to make comments and recommendations as appropriate, particularly on the components of the Global System covered in sections IV, V and VI of this document which are not covered in detail in the other documents. Progress reports on the development of other components of the Global System are presented to the Commission under separate documents as described in section II below.

II. OVERVIEW OF THE GLOBAL SYSTEM

3. The Global System is based on the following principles:

- that nations have sovereign rights over their plant genetic resources in their territories;
- that plant genetic resources should be available without restriction on agreed terms, for plant breeding and other scientific purposes of human benefit;
- that plant genetic resources, and the information, technologies and funds necessary to conserve and utilize them, are complementary and of equal importance;
- that all nations are potentially donors and users of plant genetic resources, information, technology and funds;
- that the best way to guarantee the maintenance of plant genetic resources is to ensure their effective, sustainable and beneficial utilization, in all countries;

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1. The term and acronym "World Information and Early Warning System for Plant Genetic Resources (PGR/WIS)" is proposed rather than the previuosly used term and acronym of "Global Information and Early Warning System for Plant Genetic Resources (PGR/GIEWS)" to avoid confusion with either the "Global System" itself or the "Global Information and Early Warning System" on food security (GIEWS).

- that the farmers of the world have, over the millennia, domesticated, conserved, developed, improved and made available plant genetic resources, and continue to do so today;
- that advanced technologies, and local rural technologies, are both important and complementary in the conservation and utilization of plant genetic resources;
- that *in situ* and *ex situ* conservation are important and complementary strategies for maintaining genetic diversity.

4. The objectives of the Global System are to ensure the safe conservation, and to promote the unrestricted availability and sustainable utilization, of plant genetic resources for present and future generations, by providing a flexible framework for sharing the benefits and burdens. The System covers the conservation (*ex situ* and *in situ*) and utilization of plant genetic resources - genes, genotypes and genepools - at molecular, population, species and ecosystem level.

The Components of the Global System

5. The basic institutional components of the system are:

- **the Commission on Plant Genetic Resources** - a unique intergovernmental global forum, where countries which are donors or users of germplasm, information, technology and funds, can discuss, on an equal footing, with the aim of achieving consensus and compromise on matters of global interest related to plant genetic resources; the Commission receives reports of relevant organizations working in the field of PGR and makes recommendations as appropriate (these reports are presented in document CPGR/93/6);

- **the International Undertaking on Plant Genetic Resources** - a non-binding agreement to ensure that plant genetic resources, especially species of present or future economic and social importance, are explored, collected, conserved, evaluated, utilized and made available, for plant breeding and other scientific purposes. The International Undertaking has been qualified by three annexes negotiated through the Commission and unanimously endorsed by the FAO member countries;

- Additionally, the **international fund on plant genetic resources,** as foreseen in Resolution C 3/91, will give practical expression to the concept of Farmers' Rights and to finance plant genetic resources conservation and utilization programmes such as those identified in the Global Plan of Action (see progress report in part III. of this document).

To date, **131 countries are formally part of the Global System**, either as members of the Commission or adhering to the International Undertaking, or taking both steps (see Appendix A).

6. One of the most important tasks of the Commission has been the development, as part of the Global System, of international agreements, mechanisms and instruments to facilitate the conservation and use of plant genetic resources. The following paragraphs summarize these other components of the Global System and give cross references to progress reports on their state of development provided in other sections of this document, or to other documents.

7. International agreements being negotiated through the Commission to complement the Undertaking and its annexes encompass:

- **the International Code of Conduct for Plant Germplasm Collecting and Transfer** which will form an important tool in guiding the collection and transfer of plant genetic resources, with the aim of facilitating access to these resources, and promoting their utilization and development. A draft Code is presented to the Commission for its endorsement as requested by the Commission at its Fourth Session and by FAO Conference (CPGR/93/8);

- **a Code of Conduct for Biotechnology** as it affects the conservation and use of plant genetic resources, which is being prepared as requested by the Commission (CPGR/93/9);

- **basic agreements on genebanks** with more than 30 countries and institutions that have offered to put their base collections under the auspices of FAO and with those that have offered space in their genebanks to store international collections (see progress report in paras 36 and 37 of this document);

8. The following global mechanisms are being developed to promote the conservation and exchange of germplasm and the access to funds and technology to manage and utilize it:

- **the World Information and Early Warning System on Plant Genetic Resources** to collect and disseminate data and facilitate the exchange of information on plant genetic resources and related technologies and to draw rapid attention to hazards threatening the operation of genebanks and the loss of genetic diversity throughout the world (see part IV of this document);

- **a network of *ex situ* base collections** under the auspices of FAO and with the technical assistance of IBPGR (see progress report in part V of this document);

- **a network of areas established or demarcated for the *in situ* conservation of genetic resources** of wild relatives of cultivated plants and wild or semi-domesticated species of actual or potential socio-economic value for food and agriculture, and the promotion of "on farm" conservation and utilization of land races (see progress report in part VI. of this document);

9. Global instruments to facilitate the rationalization and coordination of efforts and the intergovernmental monitoring role of the Commission:

- **the State of the World's Plant Genetic Resources**, a periodical report which will cover all aspects of the conservation and utilization of plant genetic resources with the aim of identifying gaps, constraints, and emergency situations (CPGR/93/10).

- a **Global Plan of Action on Plant Genetic Resources** with programmes and activities aimed at filling in the gaps, overcoming the constraints and facing the emergency situations identified in the State of the World's PGR. It will permit the Commission to recommend priorities and to promote the rationalization and coordination of efforts in this area (CPGR/93/10).

10. The first State of the World report and Global Plan of Action are being produced as part of the preparatory process of **the International Conference on Plant Genetic Resources** expected to be convened in 1995. (CPGR/93/10). Through this Conference the Global System is expected to become fully operative.

The Global System in relation to UNCED and the Convention on Biological Diversity

11. The United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in June 1992 gave a great deal of attention to Plant Genetic Resources, supporting the central role of Global System for Plant Genetic Resources and the development of its components. Chapter 14 of Agenda 21, a genuine action plan for the twenty-first century, negotiated and approved with the consensus of all countries, includes a programme area on the "conservation and sustainable utilization of plant genetic resources for food and sustainable agriculture". This programme area requests that measures be taken to strengthen the Global System for Plant Genetic Resources, and recommends *inter alia*: the acceleration of the development of the World Information and Early Warning System; taking the necessary steps to realize farmers' rights; developing networks for the conservation of plant genetic resources *in situ* and *ex situ*; the preparation of periodic State of the World reports on plant genetic resources in the world and a rolling Global Plan of Action on plant genetic resources; and the convening of the an International Technical Conference on Plant Genetic Resources.

12. During the UNCED, 154 countries also signed a binding Convention on Biological Diversity which includes aspects related to the conservation and sustainable utilization of plant genetic resources. The Nairobi Final Act, by which the Convention was adopted, also contained a Resolution on the "Interrelationship between the Convention on Biological Diversity and the Promotion of Sustainable Agriculture" which noted "the need to seek solutions to outstanding matters concerning plant genetic resources within the Global System for the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture, in particular: access to *ex situ* collections not acquired in accordance with [the] Convention; and the question of farmers' rights".

13. The Implications of UNCED and the Convention on Biological Diversity for the Global System on PGR are further discussed in CPGR/93/7.

III. FARMERS' RIGHTS AND THE INTERNATIONAL FUND FOR PLANT GENETIC RESOURCES

14. In the context of an agreed interpretation of the International Undertaking proposed by the Commission, the FAO Conference in 1989 formally and unanimously recognized (i) that Plant Breeders' Rights are compatible with the Undertaking; and (ii) the concept of Farmers' Rights as those rights "arising from the past, present and future contributions of farmers in conserving, improving and making available plant genetic resources, particularly those in the centres of origin/diversity. These rights are vested in the International Community, as trustee for present and future generations of farmers, for the purpose of ensuring full benefits to farmers, and supporting the continuation of their contributions, as well as the attainment of the overall purposes of the International Undertaking" (C 89/REP: Res.C 4/89 and C 5/89). The resolution on Farmers' Rights provides an agreed conceptual base for the development of mechanisms that could promote equitable sharing of benefits between the users and donors of germplasm.

15. Following the recommendation of the Commission at its Fourth session, the FAO Conference in 1991 (C 91/REP: Res. C 3/91) also unanimously approved a complementary resolution, prepared by the Commission on Plant Genetic Resources, whose operative paragraphs endorse the following:

- "that Farmers' Rights will be implemented through an international fund on plant genetic resources which will support plant genetic conservation and utilization programmes, particularly, but not exclusively, in the developing countries;
- that the effective conservation and sustainable utilization of plant genetic resources is a pressing and permanent need, and therefore the resources for the international fund as well as for other funding mechanisms should be substantial, sustainable and based on the principles of equity and transparency;
- that through the Commission on Plant Genetic Resources, the donors of genetic resources, funds and technology will determine and oversee the policies, programmes and priorities of the fund and other funding mechanisms, with the advice of the appropriate bodies".

All these documents/resolutions have been incorporated as annexes to the International Undertaking on Plant Genetic Resources.

16. Matters such as the amount and nature of contributions for the international fund[2]

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2. It should be noted that Resolution 3/91 does not refer to the "international fund for plant genetic resources" established by FAO in 1988, on an interim basis, to provide a channel for countries, inter-governmental and non-governmental organizations, private industry and individuals to support activities for the conservation and utilization of plant genetic resources. In order to avoid confusion with the "International Fund on PGR" designated by Resolution 3/91 with the fund established by FAO in 1988 (pursuant to Article 6 of the Undertaking), it is proposed to refer to the latter as the "FAO fund on PGR".

and other funding mechanisms referred to in Res. C 3/91 above were discussed but no agreement was reached in previous sessions of the Commission. It was, however, recommended to determine and quantify the technical and financial needs to ensure conservation and promote sustainable use of the world's PGR. Consequently the Fourth Session of the Commission asked FAO to prepare the first State of the World and Global Plan of Action through the preparatory process of the International Conference on Plant Genetic Resources (ICPGR) mentioned above. The Seventh Session of the Working Group recommended a bottom-up approach during the preparatory process of the ICPGR, in order to ensure the full involvement of countries in the preparation of these two documents (see CPGR/93/10). The Plan of Action will identify the activities, projects and programmes needed to overcome present constraints in line with the relevant part of Agenda 21. By financing the Global Plan of Action through the international fund and other funding mechanisms as foreseen in Res. C 3/91, the international community will contribute to the practical realization of Farmers' Rights.

17. A number of questions, however, remain open and will need to be addressed in due time by the Commission, including the following: (i) what should be the nature of the funding? (voluntary, mandatory); (ii) should the financial responsibilities be linked to the benefits derived from the use of PGR as a way of sharing the benefits? (iii) who should bear the financial responsibilities? (countries, users, consumers); (iv) on the recipient side, how should the relative needs and entitlements of beneficiaries especially developing countries be estimated? (v) how would farmers and local communities benefit from the funding? The debates on these and related issues have been significant in FAO, UNEP and UNCED as well as in a number of NGO fora. Some consensus is already emerging and this is reflected in Agenda 21 and the Convention on Biological Diversity (CPGR/91/7). Nonetheless, much conceptual thinking is still needed to answer these questions and determine appropriate mechanisms for the full implementation of Farmers' Rights.

IV. THE WORLD INFORMATION AND EARLY WARNING SYSTEM ON PLANT GENETIC RESOURCES

18. The establishment of a World Information and Early Warning System for Plant Genetic Resources (PGR/WIS) is provided for in Article 7.1 (e) and (f) of the International Undertaking on PGR. According to Article 11 of the Undertaking the major source of information would be the reports by governments to FAO on national programmes and plans in the field of plant genetic resources. The Third Session of the Commission on PGR has recommended that FAO develop a "flexible but comprehensive information system".

19. The Fourth Session of the Commission on PGR agreed that the purpose of the World Information and Early Warning System is to collect and disseminate data which would facilitate the exchange of information on PGR and related technologies. An Early Warning System is being developed, as part of PGR/WIS, to draw rapid attention to hazards threatening the operation of genebanks holding base collections, and to the

danger of the extinction of plant species and the loss of genetic diversity throughout the world (see part V.).

20. Improved provision of information, necessary as a basis for informed action, is seen as an important element in UNCED Agenda 21. The development of the PGR/WIS will contribute to the implementation of the programme area "Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Sustainable Agriculture" of Agenda 21. It will facilitate implementation of the Convention on Biological Diversity. The Country Case Studies on Biological Diversity prepared under the auspices of UNEP, and the process to refine and revise them, may provide useful inputs to the PGR/WIS.

21. The existing Seed Information System which forms the basis of information on crops has been integrated into the World Information and Early Warning System on PGR to form the new Plant Genetic Information and Exchange Unit within the Seed and Plant Genetic Resources Service of FAO. The position of the Information Systems Officer within the Seed and Plant Genetic Resources Service of the Plant Production and Protection Division of FAO was filled in September 1992.

The World Information System on Plant Genetic Resources

22. A major objective of the World Information and Early Warning System is to provide detailed information on which to base the 'State of the World's Plant Genetic Resources' (PGR/SW) report, the first of which will be elaborated as part of the ICPGR (CPGR/93/10). The PGR/SW report will include *inter alia*: an overview of country and sub-regional reports including descriptive and analytical reviews of ongoing programmes; an assessment of genetic erosion; and identification of gaps in knowledge and approaches to genetic resources conservation and use.

23. The primary function of PGR/WIS will be the information service providing facts and figures on conservation and utilization of plant genetic resources. This will include:

(i) description of national programmes on PGR in each country;
(ii) register of institutions involved in PGR activities, plant breeding and seed production with the list of focal points, types of activities and crops;
(iii) register of *ex situ* collection with the number of accession held for each species, its geographical distribution, types (wild/cultivated etc.), duplication site;
(iv) variety lists;
(v) information on *in situ* conservation of plant genetic resources, within and outside of Protected Areas;
(vi) description of activities on country level on collection, regeneration, training, research, assessment of diversity, biotechnology, health and quarantine factors, utilization for research and agricultural development.

24. In this work FAO collaborates with relevant organizations working on plant genetic resources, especially with IBPGR. The Memorandum of Understanding signed between FAO and IBPGR covers the development of the PGR/WIS. In line with this MOU FAO/IBPGR established a joint staff subcommittee on Plant Genetic Resources Information which aims to coordinate common activities in the field of documentation and information management of PGR and which met five times during 1991-2.

25. Information for PGR/WIS is being solicited from Member Countries of the Commission principally through a plant genetic resources national programme questionnaire and fact sheet. This lists the data currently maintained in the PGR/WIS, and asks the relevant authorities to confirm, update and complement the existing information. The questionnaire, entitled "Survey of National Plant Genetic Resources Activities for Agricultural Species", was developed in the framework of the FAO/IBPGR Subcommittee on PGR Information and distributed through a Circular State Letter from the Director General to the member and non-member countries in June 1992. To date (December 1992) 25 countries have provided information in response, and 7 others have made preliminary replies. It contained questions on the following aspects:

(i) organization of national programme;
(ii) profile of national collections;
(iii) germplasm acquisition;
(iv) genetic resources utilization within the country;
(v) analysis of national needs and priorities.

Additionally, an appendix included all information already held in FAO and IBPGR databases.

26. A complementary questionnaire related to forest genetic resources will be sent in early 1993 by FAO's Forestry Department to heads of national forest services. The PGR/WIS will include data on socio-economically important woody perennials, and will complement information available through the work of the FAO Panel of Experts on Forest Gene Resources.

27. Because of the number and variety of organizations involved in the establishment of PGR/WIS, and the sheer amount of potentially useful data involved, FAO will not undertake to maintain all data areas covered by the various databases and other information sources operated by individual organizations working on plant genetic resources. Instead the PGR/WIS is intended to be a dynamic, constantly updated database of databases (including, but not limited to those held on computer) and other important information sources on all potential areas of interest of a very wide scientific community. For the purpose of designing this "database of databases", organizations maintaining relevant databases are being contacted to ascertain if subsets of the information they maintain will become suitable inputs to PGR/WIS and to ensure complementarity with the overall system. This would extend the usefulness of the individual information sources, and reduce duplication of efforts. The extent, type and amount of relevant information maintained in such databases, in several cases, is already known to FAO and IBPGR.

28. There are a considerable number of crop databases held at the International Agricultural Research Centres (IARCs) of the CGIAR. In addition, a number of central crop databases have been developed with support of FAO and IBPGR. A large number of organizations and institutions are currently being asked by the Secretariat for information on the content of appropriate databases and information systems on plant genetic resources. The tool for gathering this type of information is another questionnaire entitled "Information Systems Questionnaire". This questionnaire is divided in two sections: (a) related to the management and responsibility of the database / information source, and (b) related to the kind of information in the database / information source.

29. One of the important functions of the PGR/WIS will be the information service regarding various data on plant genetic resources. The system will be open to and responsive to queries from the wide community of genetic resources workers and users including national programmes, international organizations, NGO's, private industry, individual scientists etc.

The Early Warning System on Plant Genetic Resources

30. The Fourth Session of the Commission, in line with Article 7 of the International Undertaking, confirmed that an Early Warning System should form part of an Information System on PGR. According to the Agenda 21 of UNCED the Early Warning System has a particular role to play in assessing the danger of erosion of plant genetic resources for food and agriculture. The system will cover the need for early information leading to emergency action against drastic genetic erosion or extinction *in situ* resulting from natural disaster or human activity.

31. Various factors, both natural phenomena, and the results of human behaviour, can put plant genetic resources at risk. Although the phenomena may not be reversible, action may be taken to prevent or minimize the plant genetic erosion they cause. Opportunities of detecting changes and identifying the likely results include the country reports under Article 11 of the International Undertaking, collector's reports and the systematic monitoring of the causal phenomena, as a part of the PGR/WIS.

32. The Warning System's main function will be to continuously monitor key elements of genetic resources conservation (*in situ* and *ex situ*), in order to alert of any threats. Warnings will be directed to the decision-making bodies when needed. All critical situations which are likely to occur in genebanks, or in the field, will activate a warning so that the problem can be reported to the international community by the appropriate means, which may be the State of the World report, a specific report to the Commission, a periodic newsletter, or through an appeal by FAO to donors.

V. INTERNATIONAL NETWORK OF *EX SITU* BASE COLLECTIONS IN GENEBANKS UNDER THE AUSPICES OR JURISDICTION OF FAO

33. The International Undertaking on Plant Genetic Resources refers in Article 7.2 to an international network of base collection in genebanks under the auspices or the jurisdiction of FAO. Following the recommendation of the Commission at its Second Session, the Director General approached governments, the international Agricultural Research Centres and other bodies, with a view to ascertaining their readiness to bring their base collection under the auspices or jurisdiction of FAO, and to indicate the arrangement they favoured.

34. At its Fourth Session, the Commission reviewed document CPGR/91/13, Second Progress Report on Legal Arrangements with a view to the Establishment of an International Network on Base Collections in Genebanks Under the Auspices or Jurisdiction of FAO. The Commission noted that 34 replies from governments and institutions had been received. Since then the N.I. Vavilov Institute of Plant Industry, Russia informed FAO that it would be willing to take part, under Model C agreement.

35. At the Fourth Session of the Commission, the United States of America informed the Commission that it was offering to place within the international network 30 cubic metres of storage space at the long-term storage facility at Fort Collins in the State of Colorado, following the completion of the expansion to the facility in 1993. Other spontaneous offers to provide space in genebanks for the establishment of international collections had already been made by Argentina, Ethiopia, Kenya, Spain and Norway. These offers are being followed up with the Governments concerned.

36. Basic agreements covering Types B, C and D on the basis of the models which have been earlier prepared were reviewed and discussed at the Fourth Session of the Commission. Letters for the establishment of the International Network Base Collections in Genebanks, accompanied with the relevant basic agreements, were sent to those governments and institutions that replied positively, including Argentina, Bangladesh, Chile, Costa Rica, Czechoslovakia, Denmark, Ethiopia, Finland, France, Germany, Indonesia, India, Italy, Japan, Iraq, Madagascar, Morocco, Netherlands,

Norway, Philippines, Russia, Senegal, Spain, Sweden, Switzerland, Syria, Togo, Tunisia, United Kingdom, Uruguay and Yemen.

37. At its Fourth Session, the Commission noted that the model basic agreements were a basis for negotiation which would be necessary to take into account the requirements of individual countries or institutions. Under this framework, the Consultative Group on International Agricultural Research is in a process of developing a modified Model for their International Centres to take part in the international network of genebanks

introducing the concept of "trusteeship" of PGR and is planning to request that the Commission endorse the concept[3].

Svalbard International Seedbank

38. Discussions concerning the establishment of the Svalbard International Seedbank in permafrost conditions for long term deposit of germplasm continued between FAO, IBPGR and the Government of Norway. The Svalbard International Seed bank would fill an important need and the widespread interest shown by developing and developed countries and by international centres attests to this need. The facility would be available for the deposit of national collections that member Nations may wish to deposit , as well as for long term storage of germplasm in the collections of International Agricultural Centres. Space would also be reserved for truly international collections under international jurisdiction. In 1991 FAO sent a questionnaire to institutions in developing and developed countries in the field of germplasm to survey the overall interest of the use of the Svalbard International Seedbank facilities. The analysis of the 46 replies received showed that 70% of them were willing to use the facilities. In addition, 9 International Agricultural Research Centres responded positively in a previous FAO/IBPGR survey.

39. Progress on the project is pending the commitment of funds to ensure its long-term financial viability. A number of potential donor governments and funding agencies have been contacted but no positive replies have been received to date.

Technical standards for Genebanks.

40. At its Fourth Session, the Commission agreed that a panel of technical experts should be convened to assess and, if necessary, to redefine genebank standards. Accordingly, an FAO/IBPGR Expert Consultation Group on Genebank Standards held, in Rome, Italy in May 1992, brought together curators from national and international genebanks, experts on wild germplasm materials, seed physiologists, experts on forestry and experts from FAO and IBPGR. The Group paid particular attention to providing standards which would minimize the loss of genetic integrity in seed accessions during storage and regeneration. The standards would apply to wild species, forest tree species and crops species, but limited to species produced orthodox seeds[4].

41. Based on the conclusions of the Expert Consultation Group on Genebank Standards, FAO and IBPGR jointly recommend the set of standards presented in CPGR/93/5

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3. Therefore, the letter mentioned in paragraph 34 was not sent to the International Centre for Tropical Agriculture, although this Centre selected Model D previously.

4. That is those species whose seed can be dried to low moisture content levels and stored at lows temperature without losing viability

Annex as appropriate for genebank operation within the international network. The Commission may wish to endorse these standards in order that they acquire universal value and be more easily adopted by countries.

VI. THE NETWORK OF *IN SITU* CONSERVATION AREAS

42. The International Undertaking on Plant Genetic Resources stresses the complementarity of *ex situ* and *in situ* strategies in the conservation of plant genetic resources. A number of recommendations have, over the years, been passed by the Commission related to activities in *in situ* conservation, focusing on safeguarding intra-specific variation in species of actual or potential socio-economic importance, including wild relatives of crops and wild and weedy species of importance for food and agriculture.

43. At its Fourth Session, the Commission reviewed a report prepared by the Secretariat related to the feasibility and *modus operandi* for the establishment of a "Network of *in situ* Conservation Areas", as recommended by the Third Session of the Commission (CPGR/91/6). In so doing, the Commission agreed that *in situ* conservation must be based on the efforts of local communities, non-governmental organizations and national institutions working within an international framework. It further agreed that *in situ* conservation implies sound land use planning and implementation of comprehensive land use plans in which protective, productive and genetic conservation aspects are considered complementary; and within the framework of which genetic conservation concerns are addressed both within and outside of Protected Areas.

44. In line with the above philosophy of building upon national efforts in the creation of a global network of *in situ* conservation areas, offers were made at the Fourth Session of the Commission by the delegations of Indonesia and the Islamic Republic of Iran to assist in the establishment of pilot scale *in situ* conservation areas in their countries, and to act as focal points for the development of regional *in situ* activities; the delegation of Israel drew the attention of the Commission to work underway in its country related to the *in situ* conservation of a range of species, including wild wheat, and offered information about this work.

45. As a direct follow-up to the above offers, FAO has collaborated with the first-mentioned two countries in the development of national-level programmes and activities; in the case of Indonesia such collaboration has included the development of pilot-scale activities in *in situ* and *ex situ* conservation of forest genetic resources supported by FAO's Regular Programme, and in the case of Iran in the elaboration by national authorities, FAO and IBPGR of a portfolio of coordinated priority projects and activities in *in situ* conservation, covering the full range of plant genetic resources. FAO is also in correspondence with relevant institutes in Israel related to *in situ* conservation strategies and methodologies of wild crop relatives.

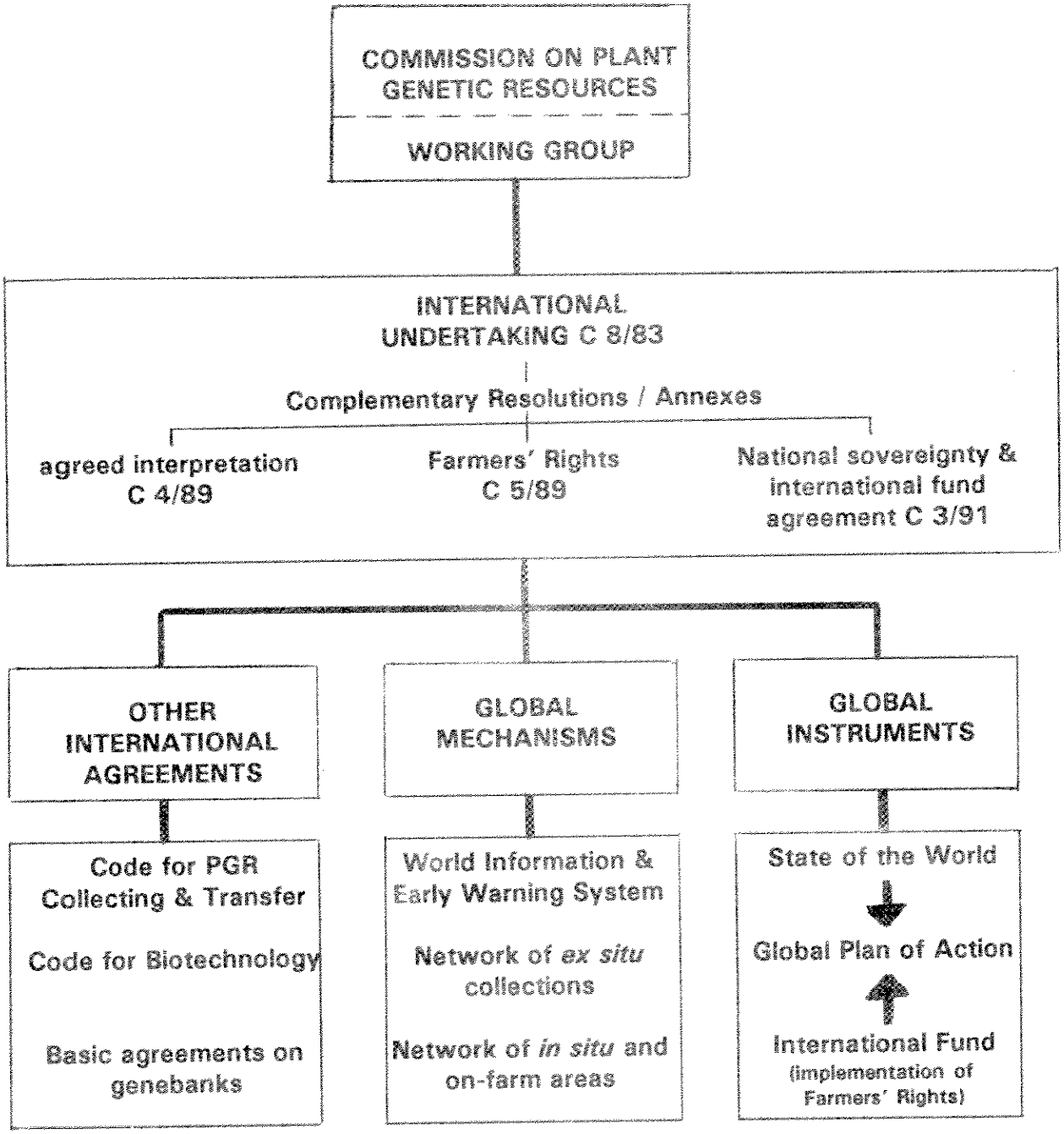
46. In addition to the above, pilot activities in the *in situ* conservation of forest genetic resources and in support of related research have been pursued within the framework of FAO's Regular Programme involving a number of countries, notably Brazil and Peru. A number of FAO coordinated field projects focusing on national or regional levels, contain components of *in situ* conservation and of incorporation of genetic resource concerns in the management of Protected Areas, including a recently initiated sub-regional project for the conservation of biodiversity in East Africa financed by the Global Environment Facility (GEF).

47. At a regional level, activities carried out within the framework of the Latin American Technical Cooperation Network on National Parks, Other Protected Areas and Wildlife have concentrated on exchange of information and know-how, training and well-focused workshops and seminars in the field of Protected Area Management, as well as over-all coordination of activities in accordance with priorities set by network members (national institutions); a recent Network Workshop reviewed the role which Protected Areas could and should play in the conservation of genetic resources, and adjustments needed in management plans of such areas to fulfil this role. Support to regional and sub-regional level activities in the *in situ* conservation of forest genetic resources in the Sahel; and in Europe, are reported in document CPGR/93/6.

48. In response to the recommendation of the Fourth Session of the Commission to make available clear, factual information on *in situ* conservation, a number of documents and information notes have been prepared over the past years, focusing on technical, scientific and policy-making levels, most notably the FAO Forestry Paper "Conservation *in situ* of tropical trees in production forests". This document includes case studies from Brazil, Ghana and India and illustrates the potential for rendering *in situ* conservation compatible with the multipurpose management of the resources for productive purposes, involving local communities living in and around the areas concerned with a view to harmonizing sustainable utilization and conservation in the short as well as in the long term.

49. Vigorous international action, underpinned by strong national commitment supported by trained staff and adequate institutions, must form the building blocks in any lasting and truly global "network", in which *in situ* conservation and sustainable utilization of the resources should be seen as two sides of the same coin. There is an urgent need to greatly expand on-going activities and to develop a coordinated series of comprehensive pilot and operational scale activities in *in situ* conservation, based on national priorities and results of the inventories on the State of the World's Plant Genetic Resources presently underway. The creation of a global *in situ* conservation network built upon national efforts, will require additional resources in support of increased, direct cooperation with a range of countries in all ecological zones and over-all, international coordination of such efforts.

Diagram of the Global System*



* for illustrative purposes only

APPENDIX A

December 1992

MEMBERS OF FAO COMMISSION ON PLANT GENETIC RESOURCES AND/OR COUNTRIES WHICH HAVE ADHERED TO THE INTERNATIONAL UNDERTAKING ON PLANT GENETIC RESOURCES

AFRICA

Benin 1/2
Botswana 1/
Burkina Faso 1/2
Cameroon 1/2
Cape Verde 1/2
Central African Rep. 1/2
Chad 1/2
Congo 1/2
Cote d'Ivoire 2/
Equatorial Guinea 1/2
Ethiopia 1/2
Gabon 2/
Gambia 1/
Ghana 1/2
Guinea 1/2
Guinea-Bissau 1/
Kenya 1/2
Liberia 1/2
Madagascar 1/2
Malawi 2/
Mali 1/2
Mauritania 1/2
Mauritius 1/2
Morocco 1/2
Mozambique 2/
Niger 1/2
Rwanda 1/2
Senegal 1/2
Sierra Leone 1/2
South Africa 2/
Sudan 1/2
Tanzania 1/2
Togo 1/2
Uganda 1/
Zaire 1/
Zambia 1/2
Zimbabwe 1/2

ASIA AND THE SOUTH WEST PACIFIC

Australia 1/2
Bangladesh 1/2
Democrat. People's Rep. of Korea 1/2
Fiji 2/
India 1/2
Indonesia 1/
Japan 1/
Korea, Rep. of 1/2
Malaysia 1/
Myanmar 1/
Nepal 2/
New Zealand 2/
Pakistan 1/
Philippines 1/2
Samoa 1/2
Solomon Islands 2/
Sri Lanka 1/2
Thailand 1/
Tonga 2/
Vanuatu 1/

EUROPE

Austria 1/2
Belgium 1/2
Bulgaria 1/2
Cyprus 1/2
Czechoslovakia 1/2
Denmark 1/2
Finland 1/2
France 1/2
Germany 1/2
Greece 1/2
Hungary 1/2
Iceland 1/2
Ireland 1/2
Israel 1/2
Italy 1/2
Liechtenstein 2/
Netherlands 1/2
Norway 1/2
Poland 1/2
Portugal 1/2
Romania 1/2
Russia 2/
Spain 1/2
Sweden 1/2
Switzerland 1/2
Turkey 1/2
United Kingdom 1/2
Yugoslavia 1/2

LATIN AMERICA AND THE CARIBBEAN

Antigua & Barbuda 2/
Argentina 1/2
Barbados 1/2
Belize 1/2
Bolivia 1/2
Brazil 1/
Chile 1/2
Colombia 1/2
Costa Rica 1/2
Cuba 1/2
Dominica 1/2
Dominican Rep. 1/2
Ecuador 1/2
El Salvador 1/2
Grenada 1/2
Guatemala 1/
Guyana 1/
Haiti 1/2
Honduras 1/2
Jamaica 2/
Mexico 1/2
Nicaragua 1/2
Panama 1/2
Paraguay 2/
Peru 1/2
Saint Christopher and Nevis 1/
Saint Lucia 1/
Saint Vincent and The Grenadines 1/
Suriname 1/
Trinidad & Tobago 1/2
Uruguay 1/
Venezuela 1/

NEAR EAST

Afghanistan 1/
Bahrain 2/
Egypt 1/2
Iran, Islamic Rep. of 1/2
Iraq 1/2
Jordan 1/
Kuwait 2/
Lebanon 1/2
Libya 1/2
Oman 2/
Syria 1/2
Tunisia 1/2
Yemen 1/2

NORTH AMERICA

Canada 1/
United States of America 1/

1 Members of the Commission
2 Countries which have adhered to the International Undertaking

The above totals 132 countries which have become members of the Commission on Plant Genetic Resources (114) or which have adhered to the International Undertaking (107).