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REVISION OF THE INTERNATIONAL UNDERTAKING

ISSUES FOR CONSIDERATION IN STAGE II:
ACCESS TO PLANT GENETIC RESOURCES, AND FARMERS' RIGHTS

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REVISION OF THE INTERNATIONAL UNDERTAKING

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I INTRODUCTION

1. Resolution 7/93, "Revision of the International Undertaking", which was negotiated through the Commission on Plant Genetic Resources, and unanimously adopted by the FAO Conference in November 1993, gives FAO's response to Resolution 3 of the Conference for the Adoption of the Agreed Text of the Convention on Biological Diversity, which had requested that solutions to the issues of access to *ex situ* collections not acquired in accordance with the Convention, and of Farmers' Rights, be sought within the FAO Global System for Plant Genetic Resources. Document CPGR-Ex1/94/3 outlines the mandate given to FAO, provides key information on the evolution and present state of development of the International Undertaking and Global System, and makes proposals for the step-by-step process requested by the FAO Conference. Document CPGR-Ex1/94/4 has been prepared in conformity with Stage I of the proposed process, that is, the integration of the annexes into the main body of the text of the Undertaking, and its harmonization with the Convention on Biological Diversity. The present document provides elements for the consideration, in Stage II, of the remaining issues as identified in Resolution 7/93:

- "access on mutually agreed terms to plant genetic resources, including *ex situ* collections not addressed by the Convention"; and the
- "realization of Farmers' Rights".

The three documents complement one another and should be read together.

2. This document is based on Document CPGR/94/WG9/4, that was considered at the Ninth Session of the Working Group, in May 1994. It takes into consideration the comments of the Working Group and the deliberations of the Second Session of the Intergovernmental Committee on the Convention on Biological Diversity (ICCBD), held in Nairobi, Kenya, between 20 June and 1 July 1994. It is complemented by Document CPGR-Ex1/94/5 Supp., which summarizes some of the results of the analysis undertaken by the Secretariat of the main economic, technical and legal issues relevant to Stage II.¹

3. In order not to prejudge the discussions and negotiations in the Commission, the present document concentrates on surveying progress to date, and on identifying outstanding questions rather than on making specific proposals for solutions to the

¹ During the 9th Session of the Working Group of the Commission, a view was expressed that issues proposed for consideration in Stage II should not be dealt with in isolation from other closely linked questions, particularly institutional questions.

issues under consideration. Section II provides information on articles of the Convention on Biological Diversity of relevance to the issues under discussion. Section III discusses the general issue of conditions of access to Plant Genetic Resources; Section IV, the particular case of access to *ex situ* collections not addressed by the Convention; and Section V, the issue of Farmers' Rights. These issues are then drawn together, and a number of questions that still need answers are highlighted. The Commission may wish to consider these questions, in the light of the information in this, and related documents referred to above.

II. THE CONVENTION ON BIOLOGICAL DIVERSITY IN RELATION TO THE ISSUES

4. The FAO Global System on Plant Genetic Resources was identified in Resolution 3 of the Nairobi Conference for the Adoption of the Agreed Text of the Convention on Biological Diversity as the context in which solutions to the outstanding issues should be sought. The FAO Conference then included these issues in the process of the revision of the International Undertaking in harmony with the Convention. In these negotiations, countries will then need the relevant information on the components of the Global System, as well as on the provisions of the Undertaking and the Convention. This section, which has been included at the request of the 9th Session of the Working Group, provides information on the provisions of the Convention on Biological Diversity regarding the two issues under discussion: access to plant genetic resources for food and agriculture, and Farmers' Rights. Relevant information on the Global System and the International Undertaking on Plant Genetic Resources is provided in paras. 11 to 20 of Document CPGR-Ex1/94/3, and will not be repeated here.

5. The objectives of the Convention on Biological Diversity (as set out in Article 1) are "the conservation of biological diversity, the sustainable utilization of its components, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources by appropriate access to genetic resources, and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to those technologies, and by appropriate funding".

6. Provisions on access are set out in Article 15. The Convention reaffirms "the sovereign rights of States over their natural resources", and states that "the authority to determine access to genetic resources rests with the national governments and is subject to national legislation" (Article 15.1). The Convention elaborates on this provision in three important ways.

- It states that Parties "shall endeavour to create conditions to facilitate access to genetic resources", and "not ... impose restrictions which run counter to the objectives of this Convention" (Article 15.2).
- It strengthens the power of Parties to implement their sovereign rights by requiring that access "shall be subject to [the] prior informed consent" of the country providing the resources "unless otherwise determined by that

party" (Article 15.5), and that "access, where granted, shall be on mutually agreed terms" (Article 15.4).

- It provides for the sharing of benefits derived from genetic resources with the country of origin, or the country providing such resources where they have been acquired in accordance with the Convention (Articles 15.7, 16.3, 19.1 and 19.2).

7. However Article 15, paragraph 3, of the Convention, states that, "For the purpose of this Convention, the genetic resources being provided by a Contracting Party, as referred to in this Article and Articles 16 and 19, are only those that are provided by Contracting Parties that are countries of origin of such resources or by Parties that have acquired the genetic resources in accordance with this Convention". This means that the provisions on sharing the benefits, and for prior informed consent to access, do not apply to *ex situ* collections which are located outside the country of origin, and which were acquired prior to the entry into force of the Convention. This issue was, therefore, one of the two identified as outstanding in Resolution 3 of the Conference for the Adoption of the Agreed Text of the Convention on Biological Diversity.

8. The second issue identified as outstanding in Resolution 3 was "the question of farmers' rights". Article 1 of the Convention specifies that in meeting its objectives by "appropriate access to genetic resources", and "appropriate transfer of relevant technologies", "all rights over those resources and to technologies" should be taken into account (see para. 5 above). However, while the Convention refers to the sovereign rights of states, and to the intellectual property rights of the holders of technology, it does not refer to Farmers' Rights². The concept of Farmers' Rights, as developed in the FAO Global System (see para 40 below), recognizes the role of farmers in conserving, improving, and making available plant genetic resources. It has been agreed that these rights will be implemented, *inter alia*, through an international fund. The concept of Farmers' Rights might therefore be considered as relevant to the Convention's provisions for the sharing of benefits and for funding (Articles 15.7 and 20). These benefits include access to, and transfer of, technology which makes use of the genetic resources provided (Article 16.3); participation in biotechnological research using such genetic resources (Article 19.1); and priority access to the results and benefits arising from such biotechnological research (Article 19.2). These benefits are consistent with those specified in the FAO Resolutions on Farmers' Rights (see section V of this document).

9. The Commission agreed that these issues should be considered as part of the negotiations to revise the International Undertaking on Plant Genetic Resources. This was endorsed by the FAO Conference in Resolution 7/93.

² Article 8 (j) specifies the need to "respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities (...) but does not specifically refer to Farmers' Rights.

III. THE GENERAL ISSUE OF CONDITIONS OF ACCESS TO PLANT GENETIC RESOURCES

10. Both the Convention and the International Undertaking³ provide for access "on mutually agreed terms". Such terms may be developed on a bilateral basis or on a multilateral basis. No operational system however has yet been established, under either the Undertaking or the Convention. The Undertaking, with its annexes, contains the basis for a multilateral level agreement founded on the concept of Farmers' Rights and the proposed international fund. It also mentions "other funding mechanisms".

11. It may be considered that any regime that aims to promote the conservation and sustainable use of plant genetic resources should have two basic components: (i) access should be facilitated; and (ii) the party or parties providing genetic resources should share in the benefits resulting from such material. Solutions may vary, according to the status of the germplasm concerned. The factors involved include whether or not the country of origin can be determined; whether or not similar material occurs *in situ* in other countries; the location of the germplasm (*in situ* or *ex situ*, and for the latter the location of the genebank); and, for germplasm held *ex situ* outside of the country of origin, whether it was collected under bilateral or multilateral auspices.

12. A number of complementary options might be considered. These would include both international framework agreements to facilitate bilateral exchanges (including market-based approaches), as well as multilateral agreements on the availability and conditions of access to germplasm *in situ*, and/or in *ex situ* collections⁴. This might be complemented by mechanisms to compensate countries of origin, thus leading to a comprehensive multilateral agreement on access to plant genetic resources.

13. In operational terms, some of the institutional elements that might be required to regulate access to plant genetic resources for food and agriculture have already been developed, or are being developed, as part of the evolving Global System. In this context, the international agreement on Farmers' Rights, the international network of ex

2 The original Undertaking, adopted in 1983, considered that plant genetic resources (including both new products of biotechnologies as well as farmers' varieties and wild material) (Article 2) should be "available without restriction" for "plant breeding and scientific purposes" (Article 1), and should be made available "free of charge, on the basis of mutual exchange or on mutually agreed terms" (Article 5). In interpreting these terms, Annex 1 of the Undertaking, adopted by the Conference in 1989, as Resolution 4/89, recognized that free access (that is, availability without restriction) does not mean "free of charge", and agreed that a state can impose restrictions on access in order to conform with its national and international obligations. Finally, Annex 3, adopted by the Conference in 1991 as Resolution 3/91, recognized that "nations have sovereign rights over their plant genetic resources", "that breeders' lines and farmers' breeding material should only be available at the discretion of their developers during the period of development", and that the "conditions of access to plant genetic resources need further clarification". During the negotiation of the Undertaking and its annexes, a balance has always been promoted between access to new products of biotechnology (commercial varieties and breeders' lines), on the one hand, and access to farmers' varieties and wild material on the other. By balancing the rights of breeders (formal innovators) and farmers (informal innovators) respectively, the Undertaking, with the agreed interpretations in its annexes, aims to balance the interests of developed and developing countries. By promoting the availability of all classes of genetic resources, the Undertaking thereby promotes the exchange of both basic germplasm and the improved varieties that are the products of research. This is in line with the Convention on Biological Diversity, which also provides for access to technologies and research products in return for access to genetic resources.

4 Particularly *ex situ* collections maintained outside the country of origin of the germplasm. This could encompass, but not necessarily be limited to, those collections not acquired in accordance with the Convention.

situ germplasm collections, the World Information and Early Warning System and the International Code of Conduct for Plant Germplasm Collecting and Transfer may be of special interest. The International Standards for the storage of seeds in genebanks (see para. 24) may also be relevant.

14. The agreement on Farmers' Rights (see Section), when implemented through the agreed international fund, will contribute to the fair and equitable sharing of benefits with those who conserve and make available plant genetic resources. This might promote continued conservation *in situ*, and compensate developing countries for their contributions to the international network of *ex situ* germplasm collections. This mechanism would be especially important in the very common cases in which a direct agreement for the fair and equitable sharing of benefits between the user and the provider of plant genetic resources for food and agriculture cannot be developed or enforced. It should be noted, in this context, that the mechanism by which international funding for the implementation of Farmers' Rights is to be collected and distributed has not yet been agreed. For the purposes of sharing benefits, this mechanism would make it possible to channel funds from users (perhaps on the basis of the national benefits obtained from the use of foreign plant genetic resources for food and agriculture) to the providers of germplasm and countries of origin (perhaps on the basis of the amount and kind of plant genetic resources for food and agriculture they maintain and make available). Funding may also be linked to national commitments, or even to specific programmes and projects for conservation and sustainable use. These two approaches to the use of funds may be seen as complementary: their nature and the relative weight attributed to each may be an important part of the negotiating process for both the revision of the International Undertaking and the development of a Global Plan of Action on Plant Genetic Resources for Food and Agriculture.

15. The international network of *ex situ* germplasm collections, together with the model agreements to place these collections under the auspices of the FAO, provide a good basis for an international agreement on the availability of, and conditions of access to, these kinds of collections. (A review of the state of development of the international network of *ex situ* collections is presented in the Appendix.) This agreement could encompass a solution to the question of access to collections not addressed by the Convention, as discussed in section IV below.

16. The necessary information on which to base agreements could be provided by the World Information and Early Warning System on Plant Genetic Resources. If necessary, it could expand the scope of its coverage and, in particular, complete the recording of information, such as the origin of plant genetic resources for food and agriculture. For existing *ex situ* collections, genebanks could be asked to supply further information on the country of origin of material they hold. For future collections and transfers of genetic material, there are already provisions⁵ in the International Code of Conduct for Plant Germplasm Collecting and Transfer that information be held in the

⁵ Including for the use of material transfer agreements.

World Information System. The World Information System may also play a role as a clearing-house for plant genetic resources-related technologies⁶.

17. Complementary to these multilateral approaches, mechanisms might be developed within the Global System to facilitate bilateral or market-based agreements. For example, the International Code of Conduct for Plant Germplasm Collecting and Transfer⁷, adopted by FAO Conference in November 1993, as Resolution 8/93, provides one approach towards facilitating bilateral agreements.

18. There is a need to analyze the various options and approaches to the issues. In order to do this, there are a number of technical, legal and economic issues to be addressed. Section VI raises a number of such questions, and document CPGR-Ex1/94/5 Supp. provides more technical information resulting from the analysis undertaken by the Secretariat.

IV. ACCESS TO *EX SITU* COLLECTIONS NOT ADDRESSED BY THE CONVENTION

19. By "*Ex situ* collections" is meant collections of germplasm held outside their natural habitats⁸. Most major *ex situ* collections of crop genetic resources are in the form of seeds held in dry, cold storage conditions. *Ex situ* collections can also include field plantings (such as botanical gardens or arboreta), pollen held in cold storage, tissue cultures, or seed, pollen or tissues held under cryogenic storage (-1500 to -1960C).

20. All existing collections which are located outside of the country of origin⁹, and which existed at the time of the entry into force of the Convention on Biological Diversity, in December 1993, are, by definition, collections which were not acquired in accordance

⁶ Resolution 3/91, now the third annex to the Undertaking, recognizes that the availability of plant genetic resources and the information, technologies and funds necessary to conserve and utilize them, are complementary and of equal importance, and foresees donors of technology as well as those of genetic resources and funds as contributors to the Global System. This exchange could be facilitated through a clearing-house function of the World Information System on Plant Genetic Resources, within the Global System (CPGR/93/9).

⁷ The International Code of Conduct for Plant Germplasm Collecting and Transfer provides a framework for bilateral agreements, under conditions to be determined by the countries concerned, including those that may have not yet ratified the Convention, and/or adhered to the Undertaking. The Code is in line with, and fully compatible with, both the Convention and the Undertaking. It provides guidelines for the requesting of permits by collectors, and for their issuance by state authorities. It sets out the minimum responsibilities of collectors, sponsors, curators and users of collected germplasm. It covers both the collecting and the transfer of germplasm. The Code was negotiated as a voluntary agreement, which could be acceptable to every country, in order to fill existing gaps, especially pending the revision of the Undertaking, and the ratification of the Convention. It was agreed that the Code should be adapted to changing needs and circumstances, and updated, amended or modified, when appropriate, through the Commission.

⁸ The Convention defines "*Ex situ conservation*" as "the conservation of components of biological diversity outside their natural habitats" (Article 2).

⁹ "*Country of Origin of genetic resources*" is defined in the Convention on Biological Diversity as the "country which possesses those genetic resources in *in situ* conditions" (Article 2).

with the Convention, and provisions for access to these collections are excluded in the Convention (Article 15.3 of the Convention and paragraph 7 above). These collections are, however, covered by the FAO International Undertaking and Global System.

IV.1 Nature, size and importance of *ex situ* collections

21. Worldwide holdings of crop germplasm in *ex situ* collections (including wild relatives) amount to about 4.4 million accessions, including over two million cereal accessions. The number of *unique* samples is much smaller than this, because many accessions have been duplicated to different locations.

22. Germplasm collections have been established in about 130 countries. Over half (50.4 %) of the accessions are located in developed countries, one third (38 %) in developing countries, and about 11.6 % in the international centres. However, it is estimated that about 35% of the *unique* samples are held in the International Centres of the Consultative Group on International Agricultural Research: these, therefore, probably comprise the world's most significant collections. (See CPGR-Ex1/94/5 Annex for more details). International support has been particularly important in establishing *ex situ* collections.

23. There is no doubt that existing *ex situ* collections are of particular importance, especially in the case of plant genetic resources for food and agriculture. For agricultural crops, *ex situ* collections have been the primary means of conservation, and these have generally been readily accessible to breeders and scientists. In fact, for certain major crops, they may represent, for all practical purposes, nearly all of the world's remaining diversity. Moreover, the actual and potential value of these collections, for the crops concerned, is generally considered to be higher than that of the diversity not yet collected. It was not by chance that this germplasm was selected, given priority and attention, and funds made available for collection and storage, and, in many cases, characterization, documentation and exchange. However, while there is no doubt that *ex situ* collections of plant genetic resources have an economic value, it is difficult to estimate that value, because no effective market for plant genetic resources operates.

24. Internationally agreed standards for the storage of seeds in genebanks (as well as for their exchange and distribution) have been developed by FAO and IPGRI, and endorsed by the FAO Commission on Plant Genetic Resources.¹⁰ Most genebank managers aim to meet them, but it is not known, however, what proportion of accessions are, in fact, maintained to these standards. The lack of resources very often makes it difficult for genebank managers to maintain standards of conservation, regenerate aged seed, and document, characterize and adequately evaluate accessions. Inadequate or non-standard documentation can severely limit the usefulness of genetic resource collections.

¹⁰ Genebank Standards, FAO/IPGRI, 1994.

25. In order to have more accurate estimates of the importance and value of these collections, many technical issues require further investigation. These include the following:

- i. What proportion of the existing diversity of the relevant crops is represented in *ex situ* collections?
- ii. What proportion comprises landraces and farmers' varieties, and what proportion comprises varieties developed through formal plant-breeding?
- iii. What is the actual value (monetary or non-monetary) that can be attached to these *ex situ* collections?
- iv. How many accessions, in the various collections, have been characterized, evaluated and documented? What is the value added by these activities?
- v. How are the collections conserved?
- vi. What proportion of these collections has been exchanged and used?
- vii. What proportion of them has been duplicated and stored in other places?
- viii. For what proportion of them is the country of origin known?
- ix. What has been the socio-economic impact of the use of these collections?

26. Although it is difficult to provide definitive answers to all of these questions, some answers are essential, in order to facilitate the discussions and negotiations by countries in deciding what the conditions of access should be, and in identifying possible mechanisms for the fair and equitable sharing of benefits, and the enforcement of sovereign rights. CPGR-Ex1/94/5 Annex gives the preliminary results of ongoing analyses and studies of the issues, undertaken by the Secretariat, with the technical assistance of IPGRI.

27. There are also a number of non-technical issues to be considered. For example, few of the international collections have a guaranteed funding base. This applies equally to the International Agricultural Research Centres and to national programmes, though of course, developing country programmes face particular funding difficulties. The funding of the International Agricultural Research Centres, for example, is dependent on yearly pledges by donor countries. Other non-technical issues concern to the ownership and legal status of plant genetic resources in *ex situ* collections.

IV.2 Ownership and legal status of *ex situ* collections

28. In the 1980s, the FAO governing bodies discussed the ownership of the material maintained in genebanks. This material was generally the result of international cooperation, often collected in the main areas of diversity of cultivated species, usually located in developing countries, and stored in genebanks, and these were largely located in industrialized countries. Many countries raised questions as to whether this material belonged to the country where it was collected or the country or institution where it was stored, or to humankind.

29. A study prepared by the FAO Legal Office in 1987, at the request of the Commission, showed that, regardless of where the material may have been collected, the ownership of genetic material held in government genebanks, or in those of public institutions, was, in most cases, for practical purposes, considered to be vested in the States in which these genebanks are located. However, for material held in the International Agricultural Research Centres (IARCs) the legal position was unclear¹¹. There were also, of course, *ex situ* collections of plant genetic resources held by private corporations, but little information about these collections was available.

30. The Commission on Plant Genetic Resources found this situation unsatisfactory. It noted that many of the collections had been made on the basis of agreements at the operational level, which provided that the material collected would be freely available, but considered these informal agreements to be insufficient. The Commission therefore called for the implementation of Article 7.1(a) of the International Undertaking in relation to the development of an "international network of base collections in genebanks under the auspices and/or jurisdiction of FAO". Countries and institutions which voluntarily decide to place the collections in their genebanks within this network agree to ensure that the genetic material is safely conserved, and will be made available for plant breeding and research purposes, while respecting the rights of the providers of germplasm. Further information on the network, including the state of progress on its implementation, and ongoing negotiations with the International Agricultural Research Centres, is given in the Appendix, and the progress report on the subject.

IV.3 Issues to be resolved

31. The Convention on Biological Diversity left unresolved the question of the legal status of existing *ex situ* collections located outside the country of origin. In line with the request in Resolution 3 of the Nairobi Final Act, the Commission on Plant Genetic Resources, at its Fifth Session in 1993, considered the implications of the Convention, and took note of the following possible interpretations of this situation:

¹¹ The 1987 study (FAO: CPGR/87/5) showed that the available charters and legal documents of the IARCs of the Consultative Group on International Agricultural Research did not generally contain explicit provisions governing the ownership of plant genetic resources. The lack of legal provisions in the documents under which IARCs have been established generates an element of uncertainty regarding ownership. The IARCs have since developed their policy on these matters, based on the concept that the material is held "in trust" for the international community.

- "(i) that these genetic resources were outside the Convention, and, since most of them were collected on the general understanding that Plant Genetic Resources were the heritage of mankind, these resources should continue to be freely available, with a global compensatory mechanism;
- "(ii) that these genetic resources were outside the Convention, and therefore that the host country could legislate on ownership and conditions of access; and
- "(iii) that, since Parties to the Convention can provide only those genetic resources originating in their own countries, or acquired under the terms of the Convention, that the permission of the country of origin is required for the release of genetic resources from pre-existing collections. It was noted, however, that, in many cases, countries of origin cannot be identified, and that the collections are widely dispersed".

It was agreed that these interpretations needed further discussion. Figure 1 groups *ex situ* collections according to the origin of samples and the location of their storage, showing the complexity of the situation.

32. The Commission on Plant Genetic Resources suggested that there were a number of options, which should not be regarded as mutually exclusive, and which might be explored within the Global System, including:

- "(i) the facilitation of bilateral agreements between countries of origin, when they can be identified, and countries holding *ex situ* collections, for the sharing of the benefits;
- "(ii) the establishment of agreements between FAO and the owners of genebanks, including provisions on access, along the lines of the 'model basic agreements', as agreed at the fourth session of the Commission; and
- "(iii) the facilitation of a comprehensive multilateral agreement concerning access to *ex situ* collections, including mechanisms to compensate countries of origin, possibly in the context of the proposed revision of the Undertaking". It should be noted that where countries of origin cannot be identified, compensation might be provided to developing countries collectively.

33. A solution to the issue of access to *ex situ* collection not acquired in accordance with the Convention might include several components. The options and components discussed in Section III above, in relation to conditions of access in general may also apply here.

34. Most existing germplasm collections have been assembled as part of an international collaborative effort, usually on the understanding that the resources would

continue to be available. The International Network of *ex situ* collections would ensure the continued availability, on terms to be mutually agreed, of all germplasm collections covered by it, regardless of the location of the genebank, or the ownership of the facility itself. This arrangement might, as part of the terms to be agreed by multilateral negotiation, be linked to the compensation of countries who have donated germplasm, using the mechanisms of the international fund for the implementation of Farmers' Rights. The arrangement would probably cover all developing countries, or at least all developing countries party to the Convention, and to the revised Undertaking, or any relevant protocols to the Convention derived from it. In many cases, and especially where unique countries of origin cannot be identified, such a collective mechanism would be the only feasible mechanism to ensure compensation.

35. As discussed in the Appendix, thirty-two countries and the International Agricultural Research Centres have indicated their willingness to make their genebanks part of the International Network. Collectively, these countries and institutions hold almost half (46%) of the world's germplasm accessions.

36. IPGRI has established a register of national and international institutions holding base collections of particular crops. The register includes a total of about 50 institutions in 18 countries which have agreed to conserve specified germplasm and to make it available to the international community. In some cases, the institutions concerned have signed agreements to this effect with IPGRI. Following a request by the Commission, IPGRI agreed that the register should be merged with the International Network, and invited countries and institutions concerned to join it. If this invitation is accepted, the "combined" International Network would then comprise all genebanks which have agreed to conserve material under safe standards, and to make it available for the purpose of breeding and research, it would comprise about 70% of global accessions.

37. Where countries of origin can be identified, a complementary option might be to ensure that a fair and equitable share of the benefits is passed back to the particular country of origin of the material (where necessary, by means of "material transfer agreements")¹². However this approach is more likely to be useful for future collections, including those which are acquired in accordance with the Convention.

V. THE ISSUE OF FARMERS' RIGHTS

V.1 Origin of the Concept of Farmers' Rights

38. The concept of Farmers' Rights resulted from debates in FAO concerning the asymmetric treatment given to donors of germplasm and donors of technology. A commercial variety is usually the product of applying breeders' technologies to farmers' germplasm, and while the former may generate returns through Plant Breeders' Rights,

¹² As provided for in the International Code of Conduct for Plant Germplasm Collecting and Transfer, and as now being developed within the CGIAR system.

or other intellectual property rights legislation, no system of compensation for the providers of germplasm was operational¹³. These debates finally led to the simultaneous and parallel international recognition of Plant Breeders' and Farmers' Rights in 1989. This recognition is included in Resolutions 4/89, 5/89 and 3/91, which were negotiated by the Commission, unanimously approved by more than 160 countries in the FAO Conference, in 1989 and 1991.

39. Resolution 4/89 recognizes "the enormous contribution that farmers of all regions have made to the conservation and development of plant genetic resources, which constitute the basis of plant production throughout the world, and which form the basis for the concept of Farmers' Rights".

40. Resolution 5/89 defines Farmers' Rights as "rights arising from the past, present and future contribution 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 trustees for present and future generations of farmers, for the purpose of ensuring full benefits of farmers and supporting the continuation of their contributions".

V.2 Objectives of Farmers' Rights

41. The concept of Farmers' Rights forms the basis of a formal recognition and reward system, intended to encourage and enhance the continued role of farmers and rural communities in the conservation and use of plant genetic resources. This interpretation aims at reconciling the views of the "technology-rich" and the "gene-rich" countries, in order to ensure the availability of plant genetic resources within an equitable system.

42. Resolution 5/89 endorses the concept of Farmers' Rights, "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". The same Resolution further defines these objectives, as being to:

- "ensure that the need for conservation is globally recognized and that sufficient funds for these purposes will be available;

¹³ The concept of Farmers' Rights is even more important and more urgent following the agreement on TRIPs in the GATT Uruguay Round. The TRIPs agreement will oblige parties to it - that is nearly all countries, developing as well as developed - to protect the rights of commercial breeders and biotechnologists, and their companies, and to ensure that they can claim and receive royalties on new seeds and other related products, through patents, plant breeders' rights, or *sui generis* systems. The view was expressed, during the 9th Session of the Working Group, that national *sui generis* systems for plant variety protection might be developed within an internationally negotiated understanding, or set of principles, which included provisions that would facilitate the realization of Farmers' Rights. The suggestion was also made that such a common understanding should be negotiated by countries within the process of the revision of the International Undertaking, and that UPOV should be associated in this part of the process. (see the "Comments by the Working Group on article 5 as a whole" in CPGR/94-Ex1/3 and CPGR/94-Ex1/3 Supp.)

- "assist farmers and farming communities, in all regions of the world, but especially in the areas of origin/diversity of plant genetic resources, in the protection and conservation of their plant genetic resources, and of the natural biosphere; and
- "allow farmers, their communities, and countries in all regions, to participate fully in the benefits derived, at present and in the future, from the improved use of plant genetic resources, through plant breeding and other scientific methods".

43. It is therefore envisaged that the implementation of Farmers' Rights could:

- ensure that farmers, farming communities and their countries, receive a just share of the benefits derived from plant genetic resources (which they have developed, maintained and made available); and thereby
- provide incentives and means for the conservation and further development of these plant genetic resources by farmers, and through cooperation between farmers, breeders and the national and international research services. Farmers' Rights is not just a question of justice and equity, but also of ensuring that the genetic resources on which we all depend are conserved and continue to be made available.

V.3 Means to implement and monitor Farmers' Rights: the role of an international fund for plant genetic resources

44. Some developing countries are considering the inclusion of a national mechanism for Farmers' Rights as part of the development of national *sui generis* Plant Breeders' Rights legislation, following the TRIPs agreement of the Uruguay Round of multilateral trade negotiations. However, to be fully successful, the implementation of Farmers' Rights needs international action. This is because, in every country, most of the germplasm used in agriculture comes from other countries. According to recent studies, any region of the world is dependent on genetic material which originated in other regions for over 50 % of its basic food production, and, for several regions of the world, such dependency is close to 100%.

45. This is why the Governing Bodies of FAO have agreed that an international fund will be established for Farmers' Rights. Resolution 4/89 considers that "the best way to implement the concept of Farmers' Rights is to ensure the conservation, management and use of plant genetic resources, for the benefit of present and future generations of farmers. This could be achieved through appropriate means, monitored by the Commission on Plant Genetic Resources, including in particular the International Fund for Plant Genetic Resources". In fact Resolution 3/91 endorsed:

- "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"; and
- "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".

46. With respect to the use of the international fund, Resolution 4/89 states that "The International Fund should be used to support plant genetic conservation, management and utilization programmes, particularly within developing countries, and those which are important sources of plant genetic material. Special priority should be placed on intensified educational programmes for biotechnology specialists, and strengthening the capabilities of developing countries in genetic resource conservation and management, as well as the improvement of plant breeding and seed production".

47. The Commission on Plant Genetic Resources agreed, in 1993, that the technical and financial needs to ensure conservation, and to promote the sustainable use of the world's plant genetic resources, should be determined and quantified through a country-driven process, whereby the First Report on the State of the World's Plant Genetic Resources and the Global Plan of Action on Plant Genetic Resources would be developed for the Fourth International Technical Conference on Plant Genetic Resources. It agreed that the Global Plan of Action would identify the activities, project and programmes needed to overcome present constraints, in line with the relevant parts of Agenda 21. A Trust Fund project has been established in FAO - the International Conference and Programme on Plant Genetic Resources - to proceed through a participating process to the production of these two documents, under the guidance of the Commission and its Working Group. A progress report is provided in document CPGR-Ex1/94/6. By financing the Global Plan of Action, through the international fund, and other funding mechanisms, as foreseen in Resolution 3/91, the international community would contribute to the practical realization of Farmers' Rights.

V.4 Other discussions on the concept of Farmers' Rights

48. At UNCED, governments agreed on Agenda 21. In the programme area, "Conservation and sustainable utilization of plant genetic resources for food and sustainable agriculture", (Chapter 14, programme area G), governments called, *inter alia*, for further steps to be taken to realize Farmers' Rights. The Conference secretariat estimated the average total annual cost of implementing the activities of this programme

area at about \$600 million, including about \$300 million from the international community on grant or concessional terms.

49. At a more informal level, the discussions and consensus reached by the participants at the Keystone International Dialogue on Plant Genetic Resources are significant, since the participants, although attending in their personal capacities, reflected all the interests concerned, including Governments, industry, non-governmental and intergovernmental organizations. This meeting was followed by a consultation organized in Stockholm, in January 1992, by the Swedish Agency for Research Cooperation with Developing Countries (SAREC), which involved government experts from Asia, Africa, Europe and the Americas, as well as participants from international bodies. At these meetings the concept of Farmers' Rights and its implementation through an international fund was supported. Estimates of the size of the fund required, ranging from US\$ 300 - 500 million per annum, and some proposals for its governance were made.¹⁴

V.5 Issues to be resolved

50. At its Fifth Session, the Commission "agreed, however, that a number of questions remain open and would need to be addressed. These include:

- "the nature of the funding (voluntary or mandatory);
- "the question of linkage between the financial responsibilities and the benefits derived from the use of plant genetic resources, and

¹⁴ The Second Session of the Keystone International Dialogue, Madras, 1990, agreed to propose that "the best way of recognizing Farmers' Rights would be a mandatory fund", and that "there should be a compulsory funding mechanism". It also stated that for an International Fund for Plant Genetic Resources, a "conservative estimate indicates that at least US\$ 500 million per annum should be available to begin to meet these urgent needs". The Third and Final Session of the International Dialogue, in Oslo in 1991, proposed a "Global Initiative for the Security and Sustainable Use of Plant Genetic Resources", including a fund for plant genetic resources. The financial estimates previously made was reviewed, and it was concluded that "a minimum of \$1.5 billion of additional funds [would] be needed during 1993-2000". The Dialogue report emphasized that the fund "should be established on a sustainable basis", and that "it should not be taken from existing development assistance budgets and not be subject to erratic or unreasonable fluctuations". The international consultation of experts from governments, intergovernmental organizations, non-governmental organizations and private industry was convened by the government of Sweden through SAREC to follow up the Keystone recommendations and make specific proposals for the UNCED process. This consultation reiterated the need for a fund for the conservation and utilization of plant genetic resources, to complement existing activities, and based on an agreed global plan of action. If the fund were established under the Convention on Biological Diversity, it was proposed that for plant genetic resources, as for other components of biodiversity, the fund should be operationally separate, and managed by an international agency with competence in the relevant area. The FAO Commission on Plant Genetic Resources was identified as an appropriate body for decision-making on global policy issues, programmes and priorities with regard to the conservation and utilization of plant genetic resources.

- "the question of who should bear financial responsibilities (countries, users or consumers).

"It also remained to be determined:

- "how the relative needs and entitlements of beneficiaries, especially developing countries, were to be estimated, and
- "how farmers and local communities would benefit from the funding".¹⁵

51. In terms of institutions, it not yet been decided whether the fund for the implementation of Farmers' Rights should be separate, part of a wider mechanism (for example, a window of the funding mechanism of the Convention on Biological Diversity), or a combination of both. Nor have questions relating to its administration and operation, as well as possible types and degrees of decentralization, been addressed. These are important questions, closely linked to, but not necessarily dependent on, whether or not the Revised Undertaking becomes a protocol to the Convention on Biological Diversity. They form an overlapping area between Stages II and III of the negotiating process proposed for the revision of the Undertaking. The Secretariat could prepare, if the Commission so requests, a study of the various matters.

52. These questions should be addressed by the Commission during the negotiating process foreseen in Resolution 7/93. When operative, the concept of Farmers' Rights, together with the international fund to implement it, and the Global Plan of Action on Plant Genetic Resources, will provide mechanisms for compensation, and for the fair and equitable sharing of benefits with countries providing genetic resources for food and agriculture.

VI. AREAS FOR FURTHER DISCUSSION

53. In line with the discussions and recommendations of the Commission, and, as is apparent from the foregoing analysis, the two issues of "conditions of access to germplasm" and the "realization of Farmers' Rights", identified in FAO Resolution 7/93 are not independent. Solutions can probably be developed only by considering the two

¹⁵ In the 9th Session of the Working Group, a view was expressed that any multilateral agreement reached should be binding, and, therefore, that the fund should be mandatory. A view was further expressed that a mandatory fund would help bring stability to the support and financing of national agricultural research programmes. A view was also expressed that a mandatory fund might also help put the International Agricultural Research Centres on a sound basis, while making them accountable to member countries. A suggestion was made that the role of the Centres in the implementation of the revised Undertaking should be discussed, and that a document on the subject should be prepared, with the assistance of IPGRI.

A view was further expressed that access to plant genetic resources and funding mechanisms should be negotiated together.

A view was also expressed that the benefits of the international fund should reach farmers and farmers' communities.

issues together, through the further development of the Global System, and as part of the negotiation of a multilateral agreement on mutually agreed terms. A comprehensive solution would define conditions of access, and provide for sharing benefits fairly and equitably, *inter alia*, through the realization of Farmers' Rights. Such a sharing of benefits would be one of the "mutually agreed terms" for continuing access to plant genetic resources.

54. In addition to issues raised throughout the paper, particularly in para. 50 and 51, there are a number of further inter-related questions that the Commission need to address, in order to define the nature, scope and modalities of the multilateral negotiations that the Conference has called for in Resolution 7/93. Some of them are given below:

i. *Coverage of the agreement*

- What should be the coverage of the agreement?¹⁶
 - Should it cover all or part of the plant genetic resources of countries that decide to enter it?
 - Should it be limited to plant genetic resources for food and agriculture?
 - Should a party be able to decide which specific germplasm (for instance, by genus, species or accession) or which geographical areas in its territory, will be included or excluded in the agreement.

ii. *Ex situ collections*

- In the case of *ex situ* collections¹⁷:

¹⁶ During the 9th Session of the working Group, a view was expressed that the agreement should be limited to plant genetic resources for food and agriculture. It was noted, in this context, that plant genetic resources for food and agriculture formed a specific programme area in Chapter 14, "Sustainable agriculture in rural development", of Agenda 21. A further view was expressed that the agreement might also include medicinal plants. Another view was expressed that medicinal plants might not be covered. It was pointed out that medicinal plants might be treated differently, depending on whether they were wild or cultivated, the latter being agricultural commodities.

¹⁷ During the 9th Session of the Working Group, a view was expressed that a single agreement could cover all existing and future collections, on the basis of what countries had agreed to in Resolution 7/93. A suggestion was also made that a distinction should be made according to the legal status of collections: whether they were under governmental control, privately held, or internationally funded, as well as between those existing before the entry into force of the Convention on Biological Diversity, and material collected after that date, but now available in *ex situ* collections. Another view was expressed that the agreement should be restricted to *ex situ* collections not addressed by the Convention.

A view was expressed that all international genebanks should be placed in the Network under the FAO Global System, and that FAO should increase its capacity to handle situations in which the safety of collections was at risk.

- Can the same agreement cover all collections not addressed by the Convention, whether existing or collected in future?
 - What about those not addressed by the Convention that are collected in future?
 - What role would the international network of *ex situ* collections of the Global System play in such agreement? (See paras 34 and 36, and the Appendix.)
 - With respect to the Standards for Conservation, what should be the role of the International Standards that were agreed by the Convention for the storage of seeds in genebanks (see para. 24).
- iii. *Identification, calculation and allocation of benefits*
- How should the benefits be identified, calculated and allocated?¹⁸
 - What principles should be used to identify the benefits, both financial and non-financial?
 - How should the benefits be calculated? Should they be linked to the amount of material placed in the agreement by a Party?
 - How should the benefits be allocated to those that contribute to generate them?
 - What form or forms should the sharing of benefits take, such as monetary compensation, access to improved germplasm and related technologies, and training?
- iv. *National and international mechanisms*
- Which kind of national and international mechanisms¹⁹ will ensure:

¹⁸ During the 9th Session of the Working Group, a view was expressed that a broad approach should be taken to identifying benefits. A suggestion was made that benefits should include not only monetary or commercial benefits, but also the benefits derived from the sharing of plant genetic resources for food and agriculture among countries. The view was also expressed that the conservation and availability of plant genetic resources were important in ensuring advances in agricultural production, and for food security, and not only for profit.

A view was also expressed that sharing benefits should not to be limited to financial compensation to countries for their contributions of plant genetic resources, but should also cover participation in research, including access to the results, technology, and the sharing of benefits derived from the commercial utilization of these results.

A further view was expressed that there is need for countries to identify and prioritize their own needs, so that the allocation of benefits may address the most important needs that countries themselves identify.

¹⁹ During the 9th Session of the Working Group, a view was expressed that the mechanisms for sharing benefits should include not only provisions for international funding for the conservation and sustainable use of plant genetic resources, but also provisions for access to information, improved germplasm and related technologies.

- the fair and equitable sharing of benefits between donors and users of the material covered by the agreement?
 - sufficient financial, technical or other incentives for the holders of genetic resources to invest in their conservation?
 - sufficient financial, technical or other incentives to encourage countries to include their collections under the agreed arrangements on conditions for access?
 - the satisfaction of food security and other policy objectives?
 - that relevant market forces are brought to bear on these questions?
- What would be the relationship of these possible mechanisms to the International Fund agreed to be established for the implementation of Farmers' Rights?
- v. *Commitment of countries*
- What should be the commitments of countries under the agreement²⁰:
 - with respect to ensuring conservation *ex situ* and *in situ*, and sustainable use, and
 - with respect to access?
- vi. *Regulation, monitoring and tracing of material*
- How can the collection and transfer of material under the agreement be regulated and monitored?²¹
 - How could the provisions of the International Code of Conduct for Plant Germplasm Collecting and Transfer be used?
 - What use can be made of the concept of "material transfer agreement" that is mentioned in this Code?
 - What role should the World Information and Early Warning System play?

A view was expressed that Farmers' Rights had an important role to play, not only at international, but also at national level.

²⁰ During the 9th Session of the Working Group, a view was expressed that national actions might include putting in place incentives for conservation and sustainable use, and national resource accounting systems that take account of the value of genetic diversity, and value lost to genetic erosion.

²¹ During the 9th Session of the Working Group, a view was expressed that, for tracing and monitoring the transfer of material, data management and exchange systems should be the primary tools, and material transfer agreements should be used only when necessary.

A view was also expressed that full advantage should be taken of existing agreements and mechanisms, including the International Code of Conduct for Plant Germplasm Collecting and Transfer, and the WIEWS/PGR.

55. Some of these questions are basically technical in nature, others are more institutional or political. The Secretariat, as mentioned above, has carried out various studies on the more technical questions, the main results of which are presented in Document CPGR-Ex1/94/5 Supp. These studies, however, do not present solutions, but conceptual elements, and data that may assist in the consideration of the outstanding issues²². The Secretariat intends to continue the analysis of technical issues in connection with the process of the Revision of the International Undertaking, under the guidance of the Commission.

²² The results of these studies may also be important in the elaboration of the Global System.

THE STATE OF DEVELOPMENT OF THE INTERNATIONAL NETWORK OF *EX SITU* COLLECTIONS

1. Article 7.1 of the International Undertaking states that international arrangements will be developed and complemented in order that, *inter alia* "(a) there develops an internationally coordinated network of national, regional and international centres, including an international network of base collections in gene banks, under the auspices or jurisdiction of FAO, that have assumed the responsibility to hold, for the benefit of the international community and on the principle of unrestricted exchange, base or active collections of the plant genetic resources of particular plant species". Article 7.2 of the Undertaking further states that "Governments or institutions ... may, furthermore, notify the Director-General of FAO that they wish the base collection or collections for which they are responsible to be recognized as part of the international network of base collections in genebanks, under the auspices or the jurisdiction of FAO. The centre concerned will, whenever requested by FAO, make material in the base collection available to participants in the Undertaking, for purposes of scientific research, plant breeding or genetic resource conservation, free of charge, on the basis of mutual exchange, or on mutually agreed terms".
2. At its Second Session, the Commission considered possible legal arrangements to establish an international network of base collections in genebanks, in line with the International Undertaking on Plant Genetic Resources. Following a 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.
3. At its Fourth Session, the Commission agreed on three model basic agreements which they considered might serve as a starting point for negotiations with governments and international institutions. The main points of these model agreements are that the government or institution places the "designated germplasm" of the collection in the International Network under the auspices or jurisdiction of FAO, and makes the germplasm available without restriction for the purposes of scientific research, plant breeding or conservation. Thirty-two countries have indicated their willingness to make their genebanks part of the International Network²³.
4. FAO, the Consultative Group on International Agricultural Research and the Centres themselves are now actively seeking a solution to the issue of collections held

²³ Argentina, Bangladesh, Chile, Costa Rica, Czech Republic, Denmark, Ethiopia, Finland, France, Germany, Indonesia, India, Italy, Japan, Iraq, Madagascar, Morocco, Netherlands, Norway, Pakistan, Philippines, Russia, Senegal, Spain, Sweden, Switzerland, Syria, Togo, Tunisia, United Kingdom, Uruguay and Yemen.

by the International Agricultural Research Centres. Since 1990, the Centres have jointly stated that they do not regard themselves as owners of the germplasm (which has been collected as a result of international collaboration) but consider that they hold them in trust on behalf of the beneficiaries. The Consultative Group on International Agricultural Research identifies the beneficiaries variously as humanity, developing countries, their farming communities, and research workers.

5. Following an invitation from FAO, by Circular State Letter in 1988, the Centres in 1993 offered to place their base and active collections in the International Network of Germplasm Collections under the auspices of FAO. At its Fifth Session, the Commission welcomed the offer made by the Consultative Group on International Agricultural Research Centres, although clarification of certain specific points was sought concerning "ownership" of the resources held in these collections, and the implication of the concept "trusteeship", as well as the policy role of the Commission. In the collections in the International Agricultural Research Centres, the Commission noted that the Centres had the obligation to conserve the material to the highest technical standards, to duplicate it for safety reasons, to make it available without restrictions, and to not seek any intellectual property right over it. This last obligation would include, if necessary, the use of material transfer agreement to prevent another party subsequently asserting intellectual property rights over it. A comprehensive agreement on the status of genebank collections might also have to include provision for the users of the germplasm held in trust in industrialized countries to contribute to an international funding mechanism to compensate the donors of that germplasm (individually collectively, or both). A progress report on the agreements between FAO and the Centres is also available.