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**COMMISSION ON GENETIC RESOURCES
FOR FOOD AND AGRICULTURE**

**WORKING GROUP ON PLANT GENETIC RESOURCES FOR FOOD
AND AGRICULTURE**

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**MATTERS OF RELEVANCE ARISING FROM THE FIFTH
CONFERENCE OF THE PARTIES TO THE CONVENTION ON
BIOLOGICAL DIVERSITY (CBD)**

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MATTERS OF RELEVANCE ARISING FROM THE FIFTH CONFERENCE OF THE PARTIES TO THE CONVENTION ON BIOLOGICAL DIVERSITY

1. INTRODUCTION

1. The FAO Conference, at its Twenty-eighth Session in November 1995, stressed the importance of an integrated approach and full cooperation with the Conference of the Parties to the Convention on Biological Diversity (CBD) and considered that the Commission on Genetic Resources for Food and Agriculture, with its broadened mandate covering all components of biodiversity of relevance to food and agriculture, would provide for effective cooperation with the Conference of the Parties. To this end, the Commission regularly informs the Conference of the Parties of its progress in relevant areas and in particular has provided inputs to the development of the Convention's work programmes related to biological diversity for food and agriculture. To facilitate this task, a Memorandum of Cooperation between FAO and the CBD Secretariat was signed in September 1997, and FAO supports the CBD Secretariat through the secondment of a programme officer for agricultural biodiversity and the development of a joint programme of work.

2. The Conference of the Parties to the Convention on Biological Diversity has recognised the "specific nature of agricultural biodiversity and its distinctive features and problems requiring distinctive solutions",¹ and the leading role of FAO in agricultural biodiversity. The Conference of the Parties has consistently given its support to the work of the Commission, notably the development of the *Global Plan of Action for the Conservation and Sustainable Utilization of the Plant Genetic Resources for Food and Agriculture* and the revision of the International Undertaking on Plant Genetic Resources for Food and Agriculture.

3. At its Fifth meeting in Nairobi in May 2000, the Conference of the Parties: made a number of references to FAO, the Commission and its Global System for Plant Genetic Resources for Food and Agriculture.² In particular:

- (i) it recognized the role and mandate of the CGRFA in the CBD programme of work on agricultural biodiversity and invited FAO to support the development and implementation of such programme;
- (ii) it invited FAO and the Commission to inform Conference of the Parties of its initiatives in the area of Genetic Use Restriction Technologies (GURTs);
- (iii) it noted the role of the *Global Plan of Action*, and the Global System for Plant Genetic Resources for Food and Agriculture and the International Undertaking, in deciding the future establishment of a Global Strategy for Plant Conservation;
- (iv) it recognized the potential contribution of the revised International Undertaking to the implementation of the Convention, particularly its programme of work on agricultural biodiversity, urged prompt finalization of the negotiations, and affirmed its willingness that the Undertaking become a legally binding instrument with strong links to both FAO and the CBD.³

4. This document provides information on the above matters, and other issues of relevance to the work of this Working Group discussed at that meeting.

¹ UNEP/CBD/COP/5/23, Decision II/15.

² UNEP/CBD/COP/5/23, Decision V/5 on agricultural biodiversity, also reproduced in the Annex to this document.

³ UNEP/CBD/COP/5/23, Decision V/5 and V/23.

2. MATTERS OF DIRECT RELEVANCE TO THE WORKING GROUP ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

The CBD programme of work on agricultural biodiversity

5. In its Decision V/5, the Conference of the Parties adopted a programme of work on agricultural biodiversity.⁴ The programme of work contributes to the implementation of CBD Decision III/11, adopted by the Conference of the Parties in 1996. It was developed by FAO in collaboration with the CBD Secretariat, at the invitation of the Conference of the Parties,⁵ based on the main findings of an assessment of ongoing activities and existing instruments.
6. The programme of work on agricultural biodiversity comprises four programme elements:
 - (i) Assessments (1);
 - (ii) Adaptive management (2);
 - (iii) Capacity building (3); and
 - (iv) Mainstreaming (4).
7. Besides plant and animal genetic resources, the programme of work addresses components of agricultural biodiversity that provides services such as nutrient cycling, pest and disease regulation, pollination, and wider ecological services; abiotic factors which have a determining effect on these aspects of agricultural biodiversity; and socio-economic and cultural dimensions, such as traditional and local knowledge, and other.
8. The Conference of the Parties has invited FAO to support the development and implementation of this programme of work, which was developed bearing in mind the need to build upon existing agreed international plans of action, programmes and strategies. In particular, with regard to plant genetic resources for food and agriculture, the *Global Plan of Action* is mentioned. Specific activities carried out by FAO and the Commission in the framework of the *Global Plan of Action* for its implementation and monitoring, and other related activities should therefore be considered in this context. In particular,
 - (i) the report on the State of the world's plant genetic resources for food and agriculture is acknowledged as contributing to a comprehensive analysis of status and trends of the world's agricultural biodiversity. A proposal for its updating is discussed in document CGRFA/WG-PGR-1/01/4.
 - (ii) In addition, the establishment of a comprehensive monitoring system for the implementation of the *Global Plan of Action* as proposed in document CGRFA/WG-PGR-1/01/3, the World Information and Early Warning System on plant genetic resources for food and agriculture (WIEWS), and associated indicators of genetic diversity and genetic erosion, discussed in document CGRFA-WG-PGR-1/01/6 could significantly contribute to the broader assessment of agricultural biodiversity under Programme element 1 (Activity 1.1), to the assessments of the knowledge, innovations and practices of farmers and indigenous and local communities (Activity 1.3) to the interactions between agricultural practices and the conservation and sustainable use of biodiversity (Activity 1.4); and to the development of methods and techniques for assessing and monitoring the status and trends of agricultural biodiversity (Activity 1.5); as well as to associated mainstreaming activities under Programme element 4.
 - (iii) The implementation of specific priority activity areas of the *Global Plan of Action* and its monitoring might provide relevant case studies for Programme element 2 (adaptive management) and contribute directly to Programme element 3 (capacity-building). Particularly relevant are priority activity areas 2: "Supporting on-farm management and

⁴ See annex to this document.

⁵ UNEP/CBD/COP/5/23, Decision III/11.

improvement of plant genetic resources for food and agriculture”; 10: “Increasing genetic enhancement and base-broadening efforts”; 11: “Promoting sustainable agriculture through diversification of crop production and broader diversity in crops”; 12: “Promoting development and commercialization of under-utilized crops and species:” and 13: “Supporting seed production and distribution”. Document CGRFA/WG-PGR-1/01/2 provides a progress report on the implementation of the *Plan*.

9. The Commission recommended that FAO’s monitoring and reporting activities in the area of agricultural biodiversity be consistent with and complementary to those for reporting to the Convention and, in particular, that it would be desirable if the reports on the implementation of the Global Plan of Action could also contribute to, and be consistent with, the assessments on agricultural biodiversity to be reported by FAO to the CBD Conference of the Parties.⁶ This question is considered further in document CGRFA/WG-PGR-1/01/3.

10. Finally, FAO, the Commission, and the network of national focal points for the implementation of the *Global Plan of Action* assist in conveying agricultural biodiversity considerations into agricultural sector plans and programmes, consistently with Programme element 4 (mainstreaming).

Genetic Use Restriction Technologies

11. As requested by the Conference of the Parties at its fourth meeting, the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) considered an assessment of genetic use restriction technologies (GURTs) in 1999, to which FAO contributed, and prepared a draft decision which was adopted by the Conference of the Parties, at its fifth meeting.

12. In Decision V/5, the Conference of the Parties “being cognizant of the work being undertaken and the expertise available in different forums, in particular, the Food and Agriculture Organization of the United Nations and its Commission on Genetic Resources for Food and Agriculture, invites the Food and Agriculture Organization of the United Nations, in close collaboration with the United Nations Educational, Scientific and Cultural Organization, the United Nations Environment Programme and other member organizations of the Ecosystem Conservation Group, and other competent organizations and research bodies, to further study the potential implications of genetic use restriction technologies for the conservation and sustainable use of agricultural biological diversity and the range of agricultural production systems in different countries, and identify relevant policy questions and socio-economic issues that may need to be addressed”. It also “invites the Food and Agriculture Organization of the United Nations and its Commission on Genetic Resources for Food and Agriculture and other competent organizations to inform the Conference of the Parties at its sixth meeting of their initiatives in this area.”⁷ Document CGRFA-WG-PGR-1/01/7 “Potential Impacts of Genetic Use Restriction Technologies (GURTs) on agricultural biodiversity and agricultural Production Systems” responds to this request.

The Global Strategy for Plant Conservation

13. At its Fifth meeting, the Conference of the Parties decided also to consider the establishment of a Global Strategy for Plant Conservation, at its following meeting.⁸ In doing so, it recognized the important role of initiatives such as the *Global Plan of Action*, and noted the efforts to revise the International Undertaking. It requested the Executive Secretary of the CBD to liaise with relevant organizations, including FAO, in order to gather information regarding plant

⁶ CGRFA-7/97REP, para 15; CGRFA-8/99/REP para 18.

⁷ UNEP/CBD/COP/5/23 - Decision V/5.

⁸ UNEP/CBD/COP/5/23 - Decision V/5.

conservation, and other related initiatives. Priority activity areas of the *Plan* that may be of particular relevance for the development of this Global Strategy include priority activity area 1: “Inventorying and monitoring plant genetic resources for food and agriculture”; 2: “Supporting on-farm management and improvement of plant genetic resources for food and agriculture”, 4: “*In situ* conservation of wild relatives of crops and wild plants for food and agriculture”, as well as those on *ex situ* conservation (priority activity areas 5 to 9). In addition, the report on the State of the world’s plant genetic resources provides significant information on *in situ* and *ex situ* conservation of plant genetic resources for food and agriculture, including the role of botanic gardens, and of national, regional and international programmes.

14. A discussion document on the Global Strategy is being prepared by the CBD Secretariat and will be made available to the next regular session of the Commission.

The International Undertaking

15. The revision of the International Undertaking, in order to bring it in harmony with the CBD, was initiated in response to Resolution 3 of the Nairobi Final Act, by which the agreed text of the CBD was adopted. The revision of the International Undertaking has been supported by Conference of the Parties in Decisions II/15, III/11, IV/6, V/5 and V/26.

16. In Decision V/26, the Conference of the Parties, considering the report of the Chairman of the Commission on Genetic Resources for Food and Agriculture of the Food and Agriculture Organization of the United Nations, noted that the revised International Undertaking “is envisaged to play a crucial role in the implementation of the Convention on Biological Diversity” and stressed the importance of finalizing the work of the Commission as soon as possible. The importance of the International Undertaking is also noted in Decision V/5 on agricultural biodiversity. The Conference of the Parties affirmed its willingness to consider a decision by FAO that the International Undertaking becomes a legally binding instrument with strong links to both FAO and the CBD. It called upon Parties to co-ordinate their positions in both forums; and stressed the importance that, in developing national legislation on access to plant genetic resources for food and agriculture, Parties take into account and allow for the development of a multilateral system to facilitate access and benefit-sharing in the context of the International Undertaking.

3. OTHER ISSUES ARISING FROM THE FIFTH CONFERENCE OF THE PARTIES

The Ecosystem approach

17. In implementing the programme of work on agricultural biodiversity (Decision V/5), as well as a number of other decisions, the Conference of the Parties highlights the application of the ecosystem approach, a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. Through Decision V/6, the Conference of the Parties adopted the following five points as operational guidance for application of the ecosystem approach:

- (i) Focus on the functional relationships and processes within ecosystems;
- (ii) Enhance benefit-sharing;
- (iii) Use adaptive management practices;
- (iv) Carry out management actions at the scale appropriate for the issue being addressed, with decentralization to lowest level, as appropriate; and
- (v) Ensure intersectoral cooperation.

18. The ecosystem approach may also prove to be a useful concept to the Commission and its Working Group in its further work on plant genetic resources for food and agriculture, including

the preparation of the second report on the state of the world's plant genetic resources, in particular:

- (i) evolutionary aspects, in relation to dynamic *in situ* conservation;
- (ii) ecological interactions between plant genetic resources for food and agriculture and other dimensions of agricultural biodiversity, in particular, crop associated biodiversity (pests, diseases, natural enemies, pollinators), including the need for holistic approaches to the conservation and sustainable use of these various aspects on biological diversity; and
- (iii) the ecosystem services provided by plant genetic resources for food and agriculture, including mitigation of and adaptation to climate changes; watershed protection; support of crop associated biodiversity, as well as the provision of food, feed and fibre.

Other decisions of the Conference of the Parties with potential relevance

19. FAO was also invited to contribute to the work of the CBD in several other areas, including: marine and coastal biodiversity (Decision V/3); forest biodiversity (Decision V/4); pollinators (Decision V/5.II); taxonomy (Decision V/9); invasive alien species (especially with the Secretariat of the International Plant Protection Convention; Decision V/8); Global Taxonomy Initiative (Decision V/9); and incentive measures (Decision V/15).

20. Other decisions contain a number of general requests to international organizations; these include: implementation of the programmes of work on Article 8(j) and related provisions (Decision V/16); the biodiversity of inland waters (Decision V/2) and the biodiversity of dry and sub-humid lands (Decision V/23); provision of case studies and lesson learnt on the ecosystem approach (Decision V/6) and sustainable use (Decision V/23); and, work on indicators (Decision V/7). Several of these decisions may also have relevance to the work of this Working Group.

ANNEX

Decision V/5. Agricultural biological diversity: review of phase I of the programme of work and adoption of a multi-year work programmeThe Conference of the Parties

I. PROGRAMME OF WORK

1. Welcomes the assessment of ongoing activities and instruments (UNEP/CBD/SBSTTA/5/INF/10) and its main findings as presented in the note by the Executive Secretary on agricultural biological diversity: review of phase I of the programme of work and adoption of a multi-year programme of work (UNEP/CBD/COP/5/11);
2. Takes note of the decision on agriculture adopted by the Commission on Sustainable Development at its eighth session, held in New York from 24 April to 5 May 2000;
3. Endorses the programme of work on agricultural biological diversity contained in the annex to the present decision, contributing to the implementation of decision III/11;
4. Urges Parties, Governments, international and regional organizations, civil-society organizations and other relevant bodies to promote and, as appropriate, carry out the programme of work and to promote regional and thematic cooperation within this framework;
5. Recognizes the contribution of farmers, indigenous and local communities to the conservation and sustainable use of agricultural biodiversity and the importance of agricultural biodiversity to their livelihoods, emphasizes the importance of their participation in the implementation of the programme of work, and recognizes the need for incentives, in accordance with Article 11 of the Convention on Biological Diversity and consistent with its Article 22, and support for capacity-building and information exchange to benefit farmers, indigenous and local communities;
6. Recalling decision III/11, requests the Executive Secretary to invite the Food and Agriculture Organization of the United Nations to support the development and implementation of the programme of work, and also to expand cooperation by inviting other relevant organizations (such as the United Nations Development Programme, the United Nations Environment Programme, the World Bank, regional development banks, the centres of the Consultative Group on International Agricultural Research and other international agricultural research centres, and IUCN-The World Conservation Union), in supporting the implementation of the programme of work, and to avoid duplication of activities;
7. Requests the Executive Secretary to undertake the necessary steps for the full implementation of the programme of work;
8. Requests the Executive Secretary to prepare a progress report and proposals for the further implementation of this programme of work for consideration by the Subsidiary Body on Scientific, Technical and Technological Advice prior to the sixth meeting of the Conference of the Parties on the basis of which the Conference of the Parties may provide further guidance, for example, in the form of:
 - (a) A timetable for implementation of activities, including milestones;
 - (b) A schedule for reporting on further progress;
 - (c) Resource requirements; and
 - (d) Responsibilities of partners and collaborators;
9. Invites Parties, in accordance with Article 20 of the Convention, and bilateral and international funding agencies to provide support for the implementation of the activities of the programme of work on

agricultural biological diversity, in particular, for capacity-building and case-studies in developing countries and countries with economies in transition;

10. Invites Parties, Governments and relevant organizations to support actions to raise public awareness in support of sustainable farming and food production systems that maintain agricultural biodiversity;

11. Recognizes the potential contribution that the revised International Undertaking on Plant Genetic Resources, in harmony with the Convention, would have to assist in the implementation of this programme of work;

12. While noting the report of the Chairman of the Commission on Genetic Resources for Food and Agriculture of the Food and Agriculture Organization of the United Nations (UNEP/CBD/COP/5/INF/12), urges the Commission to finalize its work as soon as possible. The International Undertaking is envisaged to play a crucial role in the implementation of the Convention on Biological Diversity. The Conference of the Parties affirms its willingness to consider a decision by the Conference of the Food and Agriculture Organization of the United Nations that the International Undertaking become a legally binding instrument with strong links to both the Food and Agriculture Organization of the United Nations and the Convention on Biological Diversity, and calls upon Parties to coordinate their positions in both forums;

13. Welcomes the adoption of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, and urges Parties and Governments to ratify this Convention;

14. Encourages Parties and Governments to support the application of the Executive Secretary of the Convention on Biological Diversity for observer status in the Committee on Agriculture of the World Trade Organization, in line with paragraph 9 of decision IV/6 of the Conference of Parties;

II. INTERNATIONAL INITIATIVE FOR THE CONSERVATION AND SUSTAINABLE USE OF POLLINATORS

Considering decision III/11, in which the Conference of the Parties established the programme of work on agricultural biodiversity, and called for priority attention to components of biological diversity responsible for the maintenance of ecosystem services important for the sustainability of agriculture, including pollinators,

Considering the recommendations of the Sao Paulo Declaration on Pollinators, based on the results of the Workshop on the Conservation and Sustainable Use of Pollinators in Agriculture, with an Emphasis on Bees, held in Sao Paulo, Brazil, from 7 to 9 October 1998, presented by the Brazilian Government at the fifth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice,

Considering the urgent need to address the issue of worldwide decline of pollinator diversity, and considering recommendation V/9 of the Subsidiary Body on Scientific, Technical and Technological Advice,

15. Decides to establish an International Initiative for the Conservation and Sustainable Use of Pollinators as a cross-cutting initiative within the programme of work on agricultural biodiversity to promote coordinated action worldwide to:

- (a) Monitor pollinator decline, its causes and its impact on pollination services;
- (b) Address the lack of taxonomic information on pollinators;
- (c) Assess the economic value of pollination and the economic impact of the decline of pollination services;
- (d) Promote the conservation and the restoration and sustainable use of pollinator diversity in agriculture and related ecosystems;

16. Requests the Executive Secretary to invite the Food and Agriculture Organization of the United Nations to facilitate and coordinate the Initiative in close cooperation with other relevant organizations and to consider establishing a coordination mechanism, with geographical balance and with leading relevant organizations, to prepare a proposal for a plan of action taking into account the

recommendations in the Sao Paulo Declaration on Pollinators, as well as on contributions submitted by countries and relevant organizations, for submission to and review by the Subsidiary Body on Scientific, Technical and Technological Advice and consideration by the Conference of the Parties at its sixth meeting;

17. Invites leading relevant organizations, such as IUCN-The World Conservation Union, the International Bee Research Association and the International Commission for Plant-Bee Relationships, the International Centre of Insect Physiology and Ecology, the international agriculture research centres of the Consultative Group on International Agricultural Research and other relevant regional and international bodies, to collaborate in supporting actions in Parties and countries subject to pollinator decline;

18. Requests the Executive Secretary, the Subsidiary Body on Scientific, Technical and Technological Advice and the financial mechanism to support the development and implementation of the Initiative and invites Parties and Governments to collaborate and compile case-studies and implement pilot projects, making use of the clearing-house mechanism, and to report to the Conference of the Parties at its sixth meeting.

III. GENETIC USE RESTRICTION TECHNOLOGIES

19. Decides to continue the work on genetic use restriction technologies under the umbrella of, and integrated into, each of the four elements of the programme of work on agricultural biological diversity and invites the Subsidiary Body on Scientific, Technical and Technological Advice to report to the Conference of the Parties at its sixth meeting;

20. Desiring to make the most efficient use of resources by avoiding duplication of effort and being cognizant of the work being undertaken and the expertise available in different forums, in particular, the Food and Agriculture Organization of the United Nations and its Commission on Genetic Resources for Food and Agriculture, invites the Food and Agriculture Organization of the United Nations, in close collaboration with the United Nations Educational, Scientific and Cultural Organization, the United Nations Environment Programme and other member organizations of the Ecosystem Conservation Group, and other competent organizations and research bodies, to further study the potential implications of genetic use restriction technologies for the conservation and sustainable use of agricultural biological diversity and the range of agricultural production systems in different countries, and identify relevant policy questions and socio-economic issues that may need to be addressed;

21. Invites the Food and Agriculture Organization of the United Nations and its Commission on Genetic Resources for Food and Agriculture and other competent organizations to inform the Conference of the Parties at its sixth meeting of their initiatives in this area;

22. Recognizing the need to better understand the intellectual-property-rights implications of genetic use restriction technologies, invites relevant organizations to study the impact of technologies on the protection of intellectual property in the agriculture sector, and its appropriateness for the agricultural sector, and to make assessments of the technologies concerned available through the clearing-house mechanism;

23. Recommends that, in the current absence of reliable data on genetic use restriction technologies, without which there is an inadequate basis on which to assess their potential risks, and in accordance with the precautionary approach, products incorporating such technologies should not be approved by Parties for field testing until appropriate scientific data can justify such testing, and for commercial use until appropriate, authorized and strictly controlled scientific assessments with regard to, inter alia, their ecological and socio-economic impacts and any adverse effects for biological diversity, food security and human health have been carried out in a transparent manner and the conditions for their safe and beneficial use validated. In order to enhance the capacity of all countries to address these issues, Parties should widely disseminate information on scientific assessments, including through the clearing-house mechanism, and share their expertise in this regard.

24. Encourages Parties and Governments to consider how to address generic concerns regarding such technologies as genetic use restriction technologies under international and national approaches to the safe and sustainable use of germplasm;

25. Reaffirming the need of Parties and Governments for additional information, and recalling Article 8(g) of the Convention on Biological Diversity, which calls on Parties and Governments to

establish or maintain procedures for regulating, managing or controlling risks associated with the use and release of living modified organisms resulting from biotechnology, invites Parties to carry out and disseminate the results through the clearing-house mechanism and submit scientific assessments on, inter alia, ecological, social and economic effects of genetic use restriction technologies taking into account such information, as available, as:

- (a) The molecular biology information available;
- (b) The genetic constructs and inducers used;
- (c) Effects at the molecular level, such as site-specific effects, gene-silencing, epigenesis and recombination;
- (d) Potential positive applications of the variety-specific genetic use restriction technologies on limiting gene flow, and possible negative impacts of genetic use restriction technologies on small populations of threatened wild relatives;

and to make these assessments available through, inter alia, the clearing-house mechanism;

26. Further encourages Parties and Governments to identify ways and means to address the potential impacts of genetic use restriction technologies on the in situ and ex situ conservation and sustainable use, including food security, of agricultural biological diversity;

27. Urges Parties and Governments to assess whether there is a need to develop, and how to ensure the application of, effective regulations at national level which take into account, inter alia, the specific nature of variety-specific and trait-specific genetic use restriction technologies, in order to ensure the safety of human health, the environment, food security and the conservation and sustainable use of biological diversity and to make this information available through, inter alia, the clearing-house mechanism;

28. Requests the Executive Secretary to prepare a report, to be considered by the Subsidiary Body on Scientific, Technical and Technological Advice at a future meeting prior to the sixth meeting of the Conference of the Parties, on the status of development of genetic use restriction technologies and of relevant initiatives at international, regional and national levels on the basis of information provided by organizations, Parties and Governments;

29. Recognizing the importance of indigenous and local communities in the conservation and sustainable use of plant genetic resources according to Article 8(j) of the Convention, and taking into account the revision of the International Undertaking on Plant Genetic Resources for Food and Agriculture, requests the Executive Secretary to discuss with those organizations with relevant expertise and representatives of indigenous and local communities on the potential impacts of the application of genetic use restriction technologies on those communities and on Farmers' Rights in keeping with the revision of the aforementioned International Undertaking to keep, use, exchange and sell seed or propagating material and to prepare a report to be considered by the Conference of the Parties.

Annex

PROGRAMME OF WORK ON AGRICULTURAL BIODIVERSITY

A. *Overall objectives, approach and guiding principles*

1. The overall aim of the programme of work is to promote the objectives of the Convention in the area of agricultural biodiversity, in line with relevant decisions of the Conference of Parties, notably decisions II/15, III/11 and IV/6. This programme of work will also contribute to the implementation of chapter 14 of Agenda 21 (Sustainable agriculture and rural development). The scope of agricultural biodiversity is described in the appendix hereto.

2. More specifically, the objectives, as spelt out in paragraph 1 of decision III/11 of the Conference of the Parties to the Convention on Biological Diversity, are:

- (a) To promote the positive effects and mitigate the negative impacts of agricultural systems and practices on biological diversity in agro-ecosystems and their interface with other ecosystems;

(b) To promote the conservation and sustainable use of genetic resources of actual and potential value for food and agriculture;

(c) To promote the fair and equitable sharing of benefits arising out of the use of genetic resources.

3. The proposed elements of the programme of work have been developed bearing in mind the need:

(a) To support the development of national strategies, programmes and action plans concerning agricultural biodiversity, in line with decision III/11 of the Conference of the Parties to the Convention on Biological Diversity, and to promote their integration in sectoral and cross-sectoral plans, programmes and policies;

(b) To build upon existing international plans of action, programmes and strategies that have been agreed by countries, in particular, the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture, the Global Strategy for the Management of Farm Animal Genetic Resources, and the International Plant Protection Convention (IPPC);

(c) To ensure harmony with the other relevant programmes of work under the Convention on Biological Diversity, including those relating to forest biological diversity, inland water biological diversity, marine and coastal biological diversity, and dry and sub-humid lands, as well as with cross-cutting issues such as access and benefit-sharing, sustainable use, indicators, alien species, the Global Taxonomy Initiative, and issues related to Article 8(j);

(d) To promote synergy and coordination, and to avoid duplication, between relevant programmes of various international organizations and between programmes at the national and regional levels established under the auspices of international organizations, while respecting the mandates and existing programmes of work of each organization and the intergovernmental authority of the respective governing bodies, commissions and other forums.

4. In implementing the programme of work, the ecosystem approach adopted under the Convention on Biological Diversity will be applied. The application of this approach implies, *inter alia*, intersectoral cooperation, decentralization of management to the lowest level appropriate, equitable distribution of benefits, and the use of adaptive management policies that can deal with uncertainties and are modified in the light of experience and changing conditions. The implementation process will also build upon the knowledge, innovations and practices of local communities and thus complement Article 8(j) of the Convention. A multi-disciplinary approach that takes into account scientific, social and economic issues is required.

5. The proposed programme of work has been developed in the light of the basis for action annexed to decision III/11. Its implementation, particularly the implementation of programme element 1, will shed further light on the status and trends of agricultural biodiversity.

B. Proposed elements of a programme of work

6. Based on the above, the following elements for a programme of work agreed by the Conference of the Parties. It is important to note that the four programme elements are intended to be mutually reinforcing: outputs of certain elements would feed into others. Accordingly, the ordering of the elements does not imply sequential implementation. However prioritization of activities within each programme element will be necessary as set out in the sections on ways and means and timing of expected outputs. Within the framework of this programme of work, targeted cooperative initiatives may be launched.

Programme element 1. Assessments

Operational objective

To provide a comprehensive analysis of status and trends of the world's agricultural biodiversity and of their underlying causes (including a focus on the goods and services agricultural biodiversity provides), as well of local knowledge of its management.

Rationale

Processes for country-driven assessments are in place, or under development, for the crop and farm-animal genetic resources components. The assessments draw upon, and contribute to, comprehensive data and information systems. There is also much information about resources that provide the basis for agriculture (soil, water), and about land cover and use, climatic and agro-ecological zones. However, further assessments may be needed, for example, for microbial genetic resources, for the ecosystem services provided by agricultural biodiversity such as nutrient cycling, pest and disease regulation and pollination, and for social and economic aspects related to agricultural biodiversity. Assessments may also be needed for the interactions between agricultural practices, sustainable agriculture and the conservation and sustainable use of the components of biodiversity referred to in Annex I to the Convention. Understanding of the underlying causes of the loss of agricultural biodiversity is limited, as is understanding of the consequences of such loss for the functioning of agricultural ecosystems. Moreover, the assessments of the various components are conducted separately; there is no integrated assessment of agricultural biodiversity as a whole. There is also lack of widely accepted indicators of agricultural biodiversity. The further development and application of such indicators, as well as assessment methodologies, are necessary to allow an analysis of the status and trends of agricultural biodiversity and its various components and to facilitate the identification of biodiversity-friendly agricultural practices (see programme element 2).

Activities

1.1. Support the ongoing or planned assessments of different components of agricultural biodiversity, for example, the reports on the state of the world's plant genetic resources for food and agriculture,¹ and the state of the world's animal genetic resources for food and agriculture, as well as other relevant reports and assessments by FAO and other organizations, elaborated in a country-driven manner through consultative processes.

1.2. Promote and develop specific assessments of additional components of agricultural biodiversity that provide ecological services, drawing upon the outputs of programme element 2. This might include targeted assessments on priority areas (for example, loss of pollinators, pest management and nutrient cycling).

1.3. Carry out an assessment of the knowledge, innovations and practices of farmers and indigenous and local communities in sustaining agricultural biodiversity and agro-ecosystem services for and in support of food production and food security.

1.4. Promote and develop assessments of the interactions between agricultural practices and the conservation and sustainable use of the components of biodiversity referred to in Annex I to the Convention.

1.5. Develop methods and techniques for assessing and monitoring the status and trends of agricultural biodiversity and other components of biodiversity in agricultural ecosystems, including:

(a) Criteria and guidelines for developing indicators to facilitate monitoring and assessment of the status and trends of biodiversity in different production systems and environments, and the impacts of various practices, building wherever possible on existing work, in accordance with decision V/7, on the development of indicators on biological diversity, in accordance to the particular characteristics and needs of Parties;

(b) An agreed terminology and classification for agro-ecosystems and production systems to facilitate the comparison and synthesis of various assessments and monitoring of different components of biodiversity in agricultural ecosystems, at all levels and scales, between countries, and regional and international partner organizations;²

¹ It should be noted that the FAO Commission on Genetic Resources for Food and Agriculture has decided that the second report on the state of the world's plant genetic resources will be prepared only once the negotiations for the revision of the International Undertaking have been completed.

² This would draw upon, and not seek to replace, existing classification systems for ecosystems and farming systems (e.g. eco-region, agro-ecological zones, landscapes, land evaluation systems, production systems/environments, farming systems and farm typologies, etc.), taking into account physical resources (air, climate,

(c) Data and information exchange on agricultural biodiversity (including available information on ex situ collections) in particular through the clearing-house mechanism under the Convention on Biological Diversity, building on existing networks, databases, and information systems;

(d) Methodology for analysis of the trends of agricultural biodiversity and its underlying causes, including socio-economic causes.

Ways and means

Exchange and use of experiences, information and findings from the assessments shall be facilitated by Parties, Governments and networks with consultation between countries and institutions, including use of existing networks.

Country-driven assessments of genetic resources of importance for food and agriculture (activity 1.1) shall be implemented, including through programmes of FAO and in close collaboration with other organizations, such as CGIAR. Resources may need to be identified to support additional assessments (activity 1.2), which would draw upon elements of existing programmes of international organizations, and the outputs of programme element 2.

This programme element, particularly activity 1.5, will be supported through catalytic activities, building upon and bringing together existing programmes, in order assist Parties to develop agricultural biodiversity indicators, agreed terminology, etc., through, inter alia, technical workshops, meetings and consultations, e-mail conferences, preparation of discussion papers, and travel. Funding of these catalytic activities would be through the Secretariat, with in-kind contributions from participating organizations.

Timing of expected outputs

A key set of standard questions and a menu of potential indicators of agricultural biodiversity that may be used by Parties at their national level, and agreed terminology of production environments by 2002.

Reports on the state of the world's genetic resources, as programmed, leading progressively towards a comprehensive assessment and understanding of agricultural biodiversity, with a focus on the goods and services it provides, by 2010.

Programme element 2. Adaptive management

Operational objective

To identify management practices, technologies and policies that promote the positive and mitigate the negative impacts of agriculture on biodiversity, and enhance productivity and the capacity to sustain livelihoods, by expanding knowledge, understanding and awareness of the multiple goods and services provided by the different levels and functions of agricultural biodiversity.

Rationale

There are large and fairly well-defined research agendas for genetic resources for food and agriculture. These include the development of complementary conservation and use strategies, and a focus on developing the conservation and use of under-utilized species. There are also an increasing number of case-studies on, for example, farm and in situ conservation of genetic resources, and community integrated pest management. However, far more understanding is needed of the multiple goods and services provided by the different levels and functions of agricultural biodiversity. Much more research is needed, for example, to examine the relationship between diversity, resilience and production in agro-ecosystems.

A blend of traditional and newer practices and technologies is used in agriculture, which utilize, or impact on, agricultural biodiversity in different ways, with particular consequences for biological diversity and for the sustainability and productivity of agricultural systems. A better understanding and application of these complex interactions could help to optimize the management of agricultural biodiversity in production systems.

Such work is essential in order to meet the objectives of decision III/11 of the Conference of the Parties to promote the positive and mitigate the negative impacts of agriculture on biological diversity, and enhance productivity and capacity to sustain livelihoods.

Activities

2.1. Carry out a series of case-studies, in a range of environments and production systems, and in each region:

- (a) To identify key goods and services provided by agricultural biodiversity, needs for the conservation and sustainable use of components of this biological diversity in agricultural ecosystems, and threats to such diversity;
- (b) To identify best management practices; and
- (c) To monitor and assess the actual and potential impacts of existing and new agricultural technologies.

This activity would address the multiple goods and services provided by the different levels and functions of agricultural biodiversity and the interaction between its various components, as set out in the appendix hereto with a focus on certain specific and cross-cutting issues, such as:

- (a) The role and potential of wild, under-utilized and neglected species, varieties and breeds, and products;
- (b) The role of genetic diversity in providing resilience, reducing vulnerability, and enhancing adaptability of production systems to changing environments and needs;
- (c) The synergies and interactions between different components of agricultural biodiversity;
- (d) The role of pollinators, with particular reference to their economic benefits, and the effects of introduced species on indigenous pollinators and other aspects of biological diversity;
- (e) The role of soil and other below-ground biodiversity in supporting agricultural production systems, especially in nutrient cycling;
- (f) Pest and disease control mechanisms, including the role of natural enemies and other organisms at field and landscape levels, host plant resistance, and implications for agro-ecosystem management;
- (g) The wider ecosystem services provided by agricultural biodiversity;
- (h) The role of different temporal and spatial patterns in mosaics of land use, including complexes of different habitats;
- (i) Possibilities of integrated landscape management as a means for the conservation and sustainable use of biodiversity.

2.2. Identify and promote the dissemination of information on cost-effective practices and technologies, and related policy and incentive measures that enhance the positive and mitigate the negative impacts of agriculture on biological diversity, productivity and capacity to sustain livelihoods, through:

- (a) Comprehensive analyses in selected production systems of the costs and benefits of alternative management practices as identified from activity 2.1, and the valuation of the goods and services provided by agricultural biodiversity;
- (b) Comprehensive analyses of the impacts of agricultural production, including their intensification and extensification, on the environment and identification of ways to mitigate negative and promote positive impacts;
- (c) Identification, at international and national levels, in close collaboration with relevant international organizations, of appropriate marketing and trade policies, legal and economic measures which may support beneficial practices:
 - (i) Promotion of neglected and under-utilized species, varieties and breeds;
 - (ii) Promotion of local and indigenous knowledge;

- (iii) Measures to add value to products of production systems that sustain biodiversity, and to diversify market opportunities;
- (iv) Access and benefit-sharing measures and intellectual property issues;
- (v) Economically and socially sound measures that act as incentives, in accordance with Article 11 and consistent with Article 22; and
- (vi) Training and capacity-building in support of the above.

2.3. Promote methods of sustainable agriculture that employ management practices, technologies and policies that promote the positive and mitigate the negative impacts of agriculture on biodiversity, with particular focus on the needs of farmers and indigenous and local communities.

Ways and means

Case-studies will be carried out and provided by national institutions, civil-society organizations, and research institutes, with support from international organizations for catalysing preparation of studies, mobilizing funds, disseminating results, and facilitating feedback and lessons learned to case-study providers and policy makers. Inputs would be sought from all relevant stakeholders. Resources may need to be identified to promote such studies, to analyse the results and to provide necessary capacity-building and human-resource development, especially at the inter-community or district level. Where a need is identified, for example, through lessons learned from earlier case-studies, the Subsidiary Body on Technical, Technological Advice or the Conference of the Parties will be consulted to consider the promotion of regional or global programmes of case-studies, or focused research activities.

Timing of expected outputs

Thirty selected case-studies published, analysed and disseminated by 2005. The case-studies should be representative of regional issues and prioritize best practices and lessons learned that can be broadly applied.

Programme element 3. Capacity-building

Operational objective

To strengthen the capacities of farmers, indigenous and local communities, and their organizations and other stakeholders, to manage sustainably agricultural biodiversity so as to increase their benefits, and to promote awareness and responsible action.

Rationale

The management of agricultural biodiversity involves many stakeholders and often implies transfers of costs and benefits between stakeholder groups. It is therefore essential that mechanisms be developed not only to consult stakeholder groups, but also to facilitate their genuine participation in decision-making and in the sharing of benefits.

The sustainable management of agricultural biodiversity by farmers and their communities, in particular, is a prerequisite to achieving sustainable increases in food and livelihood security and to protecting natural resources. Decision III/11, paragraph 17 (c), of the Conference of the Parties encourages Parties to promote the “mobilization of farming communities, including indigenous and local communities for the development, maintenance and use of their knowledge and practices in the conservation and sustainable use of biological diversity in the agricultural sector”. By paragraph 15 of the same decision, countries are encouraged “to set up and maintain local-level forums for farmers, researchers, extension workers and other stakeholders to evolve genuine partnerships”. There is a largely unrealized potential to improve the management of various aspects of agricultural biodiversity at the level of the agro-ecosystem, through, for example, participatory breeding and selection strategies. Farmer groups, and other producer organizations, can be instrumental in furthering the interests of farmers in optimizing sustainable, diversified, production systems and consequently in promoting responsible actions concerning the conservation and sustainable use of agricultural biodiversity. Consumer organizations are also increasingly influential in this regard.

Activities

3.1. Promote enhanced capabilities to manage agricultural biodiversity by promoting partnerships among researchers, extension workers and farmers in research and development programmes for biological diversity conservation and sustainable use of biological diversity in agriculture. To achieve this, countries should be encouraged to set up and maintain, inter alia, local-level forums for farmers, including indigenous farmers using traditional knowledge, researchers, extension workers and other stakeholders to evolve genuine partnerships, including training and education programmes.

3.2. Enhance the capacity of indigenous and local communities for the development of strategies and methodologies for in situ conservation, sustainable use and management of agricultural biological diversity, building on indigenous knowledge systems.

3.3. Provide opportunities for farmers and local communities, and other stakeholder groups, to participate in the development and implementation of national strategies, plans and programmes for agricultural biodiversity, through decentralized policies and plans, and local government structures.

3.4. Identify and promote possible improvements in the policy environment, including benefit-sharing arrangements and incentive measures, to support local-level management of agricultural biodiversity.

3.5. Promote awareness about the value of agricultural biodiversity and the multiple goods and services provided by its different levels and functions, for sustainable productivity amongst producer organizations, agricultural cooperatives and enterprises, and consumers, with a view to promoting responsible practices.

3.6. Promote networks of farmers and farmers' organizations at regional level for exchange of information and experiences.

Ways and means

This programme element is to be implemented primarily through initiatives within countries, including through extension services, local government, educational and civil-society organizations, including farmer/producer and consumer organizations and mechanisms emphasizing farmer-farmer exchange. This programme element would engage the widest possible range of civil-society organizations, including those not normally linked to biodiversity initiatives.

Funding is likely to be on a project or programme basis. Catalytic support may need to be provided through national, regional and global programmes, organizations, facilities and funding mechanisms, in particular to support capacity-building, exchange and feedback of policy and market information, and of lessons learned from this and programme element 2, between local organizations and policy makers, nationally, regionally and globally.

Timing of expected outputs

Progressive establishment of local-level forums and regional networks, with a coverage target of at least 1,000 communities by 2010.

Examples at country level of operational mechanisms for participation by a wide range of stakeholder groups including civil-society organizations, by 2002.

Involvement of farmers and local communities in the majority of national programmes by 2010.

Programme element 4. Mainstreaming

Operational objective

To support the development of national plans or strategies for the conservation and sustainable use of agricultural biodiversity and to promote their mainstreaming and integration in sectoral and cross-sectoral plans and programmes.

Rationale

Many countries are now developing biodiversity strategies and action plans in the context of the Convention on Biological Diversity, and many also have a number of other policies, strategies and plans

related to agriculture, the environment and national development.³ Moreover, countries have agreed on global action plans for major components of biological diversity, such as plant genetic resources for food and agriculture, and, in Agenda 21 and the World Food Summit Plan of Action, on plans for sustainable development and food security in general.

In most countries, activities related to agricultural biodiversity are undertaken primarily by ministries responsible for agriculture. There is clearly a need to mainstream the action plans for components of agricultural biodiversity in sectoral development plans concerned with food, agriculture, forestry and fisheries, and to promote synergy and avoid duplication between the plans for the various components. Together with other thematic programmes of work, this could contribute to the integration of biodiversity considerations in national plans.

Development and implementation of action plans requires reliable and accessible information, but many countries do not have well developed information, communication or early-warning systems or the capacity to respond to identified threats.

Activities

4.1. Support the institutional framework and policy and planning mechanisms for the mainstreaming of agricultural biodiversity in agricultural strategies and action plans, and its integration into wider strategies and plans for biological diversity, through:

(a) Support for relevant institutions in the conduct of assessments on the status and trends of agricultural biodiversity within the context of ongoing biodiversity and sectoral assessments;

(b) Development of policy and planning guidelines, and training materials, and support for capacity-building initiatives at policy, technical and local levels in agricultural and environmental forums for the development, implementation, monitoring and evaluation of policies, programmes and actions for the conservation and sustainable use of agricultural biodiversity; and

(c) Improved consultation, coordination, and information-sharing within countries among respective focal points and lead institutions, relevant technical committees and coordinating bodies, to promote synergy in the implementation of agreed plans of action and between ongoing assessments and intergovernmental processes.

4.2. Support the development or adaptation of relevant systems of information, early warning and communication to enable effective assessment of the state of agricultural biodiversity and threats to it, in support of national strategies and action plans, and of appropriate response mechanisms.

4.3. Promote public awareness of the goods and services provided by agricultural biological diversity, and the value and importance of such diversity for agriculture and for society in general.

4.4. Promote ongoing and planned activities for the conservation, on farm, *in situ*, and *ex situ*, in particular, in the countries of origin, of the variability of genetic resources for food and agriculture, including their wild relatives.

Ways and means

Activities would be implemented primarily at national level through enhanced communication, coordination mechanisms and planning processes that involve all stakeholder groups, facilitated by international organizations, and by funding mechanisms.

This programme element should draw upon the experience of ongoing programmes (such as UNEP's support to national biodiversity strategies and action plans) and a critical analysis of existing practice.

National, regional and international projects and programmes that address policy and institutional development within specific sectors should make provision, as appropriate, for integration across sectors. Similarly, the development of guidelines should be carried out within the context of the objectives of this programme element.

Resources may need to be identified to further develop or adapt early-warning systems, including the capacity to identify thresholds and action needed, and for pilot examples of effective and sustainable response mechanisms to address threats at local, national and supranational levels.

³ These include agricultural sector plans, national environment action plans, national sustainable development strategies, national forestry action plans, World Bank plans for structural adjustment, etc

Timing of expected outputs

Progressively increased capacity at national level for information management, assessment and communication. Over 100 countries to participate in various assessments under activities 1.1 and 1.2 by 2005.

Coordination between sectoral assessments and plans of action at national level in the majority of countries by 2005.

Range of guidelines published at the international level (on topics to be determined according to needs at national and regional levels).

Appendix

THE SCOPE OF AGRICULTURAL BIODIVERSITY

1. Agricultural biodiversity is a broad term that includes all components of biological diversity of relevance to food and agriculture, and all components of biological diversity that constitute the agro-ecosystem: the variety and variability of animals, plants and micro-organisms, at the genetic, species and ecosystem levels, which are necessary to sustain key functions of the agro-ecosystem, its structure and processes, in accordance with annex I of decision III/11 of the Conference of the Parties to the Convention on Biological Diversity.

2. The Conference of Parties has recognized “the special nature of agricultural biodiversity, its distinctive features, and problems needing distinctive solutions”.⁴ The distinctive features include the following:

(a) Agricultural biodiversity is essential to satisfy basic human needs for food and livelihood security;

(b) Agricultural biodiversity is managed by farmers; many components of agricultural biodiversity depend on this human influence; indigenous knowledge and culture are integral parts of the management of agricultural biodiversity;

(c) There is a great interdependence between countries for the genetic resources for food and agriculture;

(d) For crops and domestic animals, diversity within species is at least as important as diversity between species and has been greatly expanded through agriculture;

(e) Because of the degree of human management of agricultural biodiversity, its conservation in production systems is inherently linked to sustainable use;

(f) Nonetheless, much biological diversity is now conserved ex situ in gene banks or breeders’ materials;

(g) The interaction between the environment, genetic resources and management practices that occurs in situ within agro-ecosystems often contributes to maintaining a dynamic portfolio of agricultural biodiversity.

3. The following dimensions of agricultural biodiversity can be identified:

(a) Genetic resources for food and agriculture, including:

- (i) Plant genetic resources, including pasture and rangeland species, genetic resources of trees that are an integral part of farming systems;
- (ii) Animal genetic resources, including fishery genetic resources, in cases where fish production is part of the farming system, and insect genetic resources;
- (iii) Microbial and fungal genetic resources.

These constitute the main units of production in agriculture, including cultivated species, domesticated species and managed wild plants and animals, as well as wild relatives of cultivated and domesticated species;

(b) Components of agricultural biodiversity that provide ecological services. These include a diverse range of organisms in agricultural production systems that contribute, at various scales to, inter alia:

- (i) Nutrient cycling, decomposition of organic matter and maintenance of soil fertility;
- (ii) Pest and disease regulation;

⁴ See decision II/15 of the Conference of the Parties to the Convention on Biological Diversity.

- (iii) Pollination;
 - (iv) Maintenance and enhancement of local wildlife and habitats in their landscape,
 - (v) Maintenance of the hydrological cycle;
 - (vi) Erosion control;
 - (vii) Climate regulation and carbon sequestration;
- (c) Abiotic factors, which have a determining effect on these aspects of agricultural biodiversity;
- (d) Socio-economic and cultural dimensions since agricultural biodiversity is largely shaped by human activities and management practices. These include:
 - (i) Traditional and local knowledge of agricultural biodiversity, cultural factors and participatory processes;
 - (ii) Tourism associated with agricultural landscapes;
 - (iii) Other socio-economic factors.