

April 1996

	منظمة الأغذية والزراعة للأمم المتحدة	联合国 粮食及 农业组织	Food and Agriculture Organization of the United Nations	Organisation des Nations Unies pour l'alimentation et l'agriculture	Organización de las Naciones Unidas para la Agricultura y la Alimentación
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**COMMISSION ON GENETIC RESOURCES FOR FOOD AND
AGRICULTURE**

Second Extraordinary Session¹

Rome, 22-27 April 1996

**DRAFT GLOBAL PLAN OF ACTION FOR THE CONSERVATION
AND SUSTAINABLE UTILISATION OF PLANT GENETIC RESOURCES
FOR FOOD AND AGRICULTURE**

REV. 1 - PART 1

PARA 13-23 and 44-59

¹ By Resolution 3/95 of the Twenty-Eighth Session of the FAO Conference, the Commission on Plant Genetic Resources became the Commission on Genetic Resources for Food and Agriculture. The First Extraordinary Session was held under the Commission's previous name.

INTRODUCTION

13. Plant genetic resources for food and agriculture [including forestry] provide the biological basis for world food security, and support the livelihoods of every person on earth. These resources serve as the plant breeder's most important raw material and the farmer's most essential input. They are therefore immensely valuable [for sustainable agricultural and forestry production]. Properly managed, these resources need never be depleted, for there is no inherent incompatibility between conservation and utilisation. The conservation, sustainable utilisation, and fair and equitable sharing of benefits from their use is both an international concern and imperative. These, moreover, are basic aims of the Convention on Biological Diversity. In reaffirming the sovereign rights of states over their biological resources, we highlight the fact that formulating an agreed Global Plan of Action addressing plant genetic resources for food and agriculture is an appropriate manifestation of the international community's concern and responsibility in this area. The Global Plan of Action is part of the FAO Global System for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture, and an important element for the Commission in fulfilling its mandate, though requiring also other important elements to complete it.

13i. [In 1983, the FAO Conference established the intergovernmental Commission on Plant Genetic Resources, and adopted a non-binding International Undertaking on Plant Genetic Resources, which, at the time of the adoption of this Plan, is being revised by the Commission in harmony with the Convention on Biological Diversity. The Commission and the Undertaking are the main institutional components of the Global System for the Conservation and Utilization of Plant Genetic Resources for Food and Agriculture. The Global System also includes other international agreements, technical mechanisms and global instruments at different stages of development.

13ⁱⁱ. The Commission requested the development of a rolling Global Plan of Action on Plant Genetic Resources for Food and Agriculture, with programmes and activities aimed at filling in gaps, overcoming constraints and facing emergency situations identified in the Report on the State of the World's Plant Genetic Resources. The periodically updated Plan will permit the Commission to recommend priorities and to promote the rationalization and coordination of efforts.]

14. The Global Plan of Action will cover the subset of plant genetic resources pertaining specifically to food and agriculture [excluding] [including] [agro-][forestry] [and forestry for food production]. The Conference of Parties to the Convention on Biological Diversity at its Second Session in 1995 declared its support for the development of a Plan "for Food and Agriculture" through the preparatory process of the Fourth International Technical Conference on Plant Genetic Resources.

15. In its Sixth Session, the Commission agreed "that the contribution of plant genetic resources for food and agriculture to world food security should be emphasized, in the context of sustainable agriculture, and that the special nature and needs of agriculture should be stressed. [Future refinements or elaborations of the Plan could include other subsets of plant genetic resources for food and agriculture.]

15ⁱ. A global plan of action will make significant and increasingly important contributions to the efforts to promote world food security.

15ⁱⁱ. In the next thirty years, the global population will, according to estimates by the United Nations, increase to 8.5 thousand million people. The number of chronically undernourished will rise

from 800 million to well over 1 thousand million, many of them women and children. Income growth will increase the demand for food still further. Urbanization will cause the character of diets to shift to higher quality food, including livestock products, that will lead to big increases in the demand for the production of feed, largely cereals. The number of people living in urban areas will increase from one to four thousand million.

15ⁱⁱⁱ. In the last forty years, the doubling of cereal output was based on expansion of the area under agriculture, intensity of land use, mainly through expanded irrigation, and yield increases from new varieties developed by plant breeding, based on plant genetic resources.

15^{iv}. By the year 2025, world food production has to more than double. This must occur on a stable or shrinking land base and with a limited potential for increased irrigated agriculture. The doubling of world food supply to the year 2025 will be produced on the same land-base as today. The doubling of world food production must come primarily from increased productivity, through yield increases from new high-yielding varieties, developed by plant breeding.

15^v. Furthermore, to increase food security for the many rural poor on marginal lands in low potential areas, efforts to improve neglected crops and local landraces through breeding will be of crucial importance. A new partnership between farmers and professional plant breeders will be needed, to produce varieties specifically adapted to these areas. Farmers in all areas can benefit from access to varieties incorporating a wide range of genetic resources.

15^{vi}. The role of conservation and the sustainable use of plant genetic resources in the efforts to promote world food security in the coming decades will be large and increasing. This Global Plan of Action is a major vehicle for ensuring that governments, farmers, breeders, public research institutions, the private sector, non-governmental organizations and the international scientific community, will fulfill this role, nationally as well as through regional and international cooperative action.

15^{vii}. [Increasing productivity and intensity of land-use are creating stress on the natural resource base of agriculture, and are causing environmental degradation.]

15^{viii}. [Land degradation through erosion, salinization, waterlogging and desertification is widespread. Presently it amounts to over 2 million hectares, 1.5 million of which are in the developing countries. A widespread consequence of agricultural intensification is loss of soil productivity. Misuse of herbicides and pesticides is causing water pollution, degradation of the marine environment and risks for human health. Over-use of fertilizers in some areas causes eutrofication of lakes, rivers and the marine environment, as well as high concentrations of nitrates in groundwater and drinking water. In other areas, under-use of fertilizers, both organic and inorganic, exacerbates degradation of soils, diminishes soil fertility, and the natural resource base.]

15^{ix}. [The massive increase in food production has to be achieved while maintaining and, indeed, improving the natural resource base, through environmentally sound and sustainable agricultural production system. Achieving these increases will require new technologies from scientific research, as well as policies promoting productivity, environmental sustainability and equity.]

15^x. The new varieties should incorporate resistance to pests and diseases and be adapted to specific environments and agro-ecosystems. They must contribute not only to increased productivity, but also to sustainable natural resource management, environmental protection and the diversification of agriculture.

15^{xi}. The development of such new varieties poses new and formidable challenges to plant breeding. There is an increasing need to safeguard the availability of a rich and varied global base of plant genetic resources for all. The new challenges can only be met if the world's plant genetic resources are conserved and used sustainably.]

15^{xii}. [Policies for sustainable agriculture will have to promote and guide the conservation and sustainable use of plant genetic resources, which must form an integral and ever more important part of such policies.]

THE RATIONALE FOR A GLOBAL PLAN OF ACTION SPECIFICALLY FOR FOOD AND AGRICULTURE

16. A discrete Global Plan of Action for Plant Genetic Resources for Food and Agriculture is warranted because of their great importance to world food security and, within the wider context of biological diversity, because of several features of this particular form of biodiversity.

(a) Many plant genetic resources for food and agriculture are the result of human intervention: that is, they have been consciously selected and improved by farmers [including those in][and][local and indigenous communities], since the origins of agriculture. In more recent times, plant breeders have built on this rich [diversity] heritage with striking effect. Sustainable management of these resources requires particular strategies sensitive to their unique nature. Unlike most natural biodiversity, these resources require continuous active human management.

(b) *In situ* diversity of many plant genetic resources for food and agriculture, especially of food crops, is often concentrated in particular parts of the world distinct from areas rich in other forms of biodiversity. These so-called "centres of diversity" are, nevertheless, still largely located in developing countries.

(c) Because of the diffusion of agriculture and the association of major crops with human migrations, many crop genes, genotypes, and populations have spread all over the planet since ancient times. They have continued to be developed and improved without interruption ever since by farmers both inside and far away from the historic centres of original domestication. Moreover, plant genetic resources for food and agriculture have been systematically collected and exchanged for some 500 years. Millions of accessions are now stored in hundreds of genebanks around the world for both conservation and utilisation purposes.

(d) The interdependence of countries is particularly high with respect to crop genetic resources. The food and agricultural production systems of all countries are heavily - even predominantly - dependent on genetic resources of plants domesticated elsewhere and subsequently developed in other countries and regions over hundreds or thousands of years. Consequently, [assignment of ownership and] the ways and means of "sharing the benefits" of these genetic resources for food and agriculture are fundamentally different from the approaches that might be appropriate for recently discovered "wild" or medicinal plants.

(e) Plant genetic resources are under-conserved and under-utilized. [The root of this paradox lies in the international "public good" nature of most conservation activities, and many utilisation activities. Such activities include most efforts associated with the

assembling and management of collections as well as many endeavours associated with development and use. While these activities are essential for the public good, they are generally not profitable for individual agents to pursue. [The Global Plan of Action must have as its fundamental objective the strengthening of national systems for the conservation and utilization of PGRFA, the enhancement of institutional capacity of those aspects which today are non-existent, as the basis of the Global System.] Therefore, mechanisms need to be put in place to ensure that such activities are undertaken.

(f) Activities related to *in situ* conservation, to *ex situ* conservation, and to utilisation of plant genetic resources are, to a large extent, carried out in parallel without adequate linkages and coordination. A Global Plan of Action should aim at improving this situation.

(g) Despite the existence of a variety of sources of financing for the conservation and sustainable use of plant genetic resources, there are still gaps, overlaps, inefficiencies and unnecessary redundancies in the activities financed. In addition, national programmes are at very different stages of development, in their coverage of conservation and use of plant genetic resources. An agreed Global Plan of Action could help to focus resources on the priorities which have been identified at various levels, and increase the overall effectiveness of global efforts.

AIMS AND STRATEGIES OF THE GLOBAL PLAN OF ACTION

[17. At its Sixth Session, in 1995, the Commission agreed on a general outline and approach to both the Report on the State of the World's Plant Genetic Resources and the Global Plan of Action. The Commission stressed that the Global Plan of Action must be action-oriented. Since it would provide a strategy to guide international cooperation on plant genetic resources for food and agriculture in the coming years, it should be based on clear, but succinctly stated, aims and principles, and include, *inter alia*, a strategy, information on each proposed priority activity, and cost estimates. It agreed that the aims would refer to, and draw upon, as appropriate, the Convention on Biological Diversity and the International Undertaking.]

[18. The main aims of the Global Plan of Action are fourfold:

- to ensure the conservation of plant genetic resources for food and agriculture (PGRFA) as a basis for food security;
- to promote better utilisation of PGRFA, in order to foster development and to reduce hunger and poverty particularly in developing countries;
- to promote, within and with countries and with farmers and communities, the fair and equitable sharing of the benefits arising from the use of plant genetic resources for food and agriculture or from the use of the knowledge, practices, or innovations associated with such resources;
- [to assist countries and institutions for conserving and using PGRFA to identify priorities for action.]]

[19. The conservation, sustainable utilisation, and sharing of benefits of plant genetic resources for food and agriculture are an integral part of the aims of the Convention on Biological Diversity. Indeed, the Global Plan of Action is designed to further the aims and facilitate the implementation of the Convention in the field of food and agriculture and to make the Global System more operational.]

[17, 18 and 19 ALT At its Sixth Session, in 1995, the Commission agreed on a general outline and approach to both the Report on the State of the World's Plant Genetic Resources and the Global Plan of Action. The Commission stressed the main aims of the Global Plan of Action should be to help all interested parties, working together, to conserve (*in situ* and *ex situ*), to characterize, evaluate, document, sustainably utilize and as necessary, to collect plant genetic resources for agriculture. Specifically, it should aim to contribute to the implementation for the International Undertaking on Plant Genetic Resources currently under revision, in harmony with other relevant international agreements, notably the Convention on Biodiversity, as part of the FAO Global System for the Conservation and Utilization of Plant Genetic Resources, and in particular to:

- ensure the conservation of plant genetic resources for food and agriculture as a basis for food security;
- promote sustainable utilization of Plant Genetic Resources for Food and Agriculture, in order to foster development and to reduce hunger and poverty, particularly in developing countries;
- promote a fair and equitable sharing of the benefits arising from the use of plant genetic resources for food and agriculture.]

20. The Global Plan of Action is based on the assumption that countries are fundamentally interdependent with respect to plant genetic resources for food and agriculture and that substantial international cooperation would be necessary to meet the aims of the Plan effectively and efficiently. In this context, the Global Plan of Action was developed within a broad strategic framework comprised of six basic and inter-related aspects:

- (a) A large and important amount of PGRFA, vital to world food security, is stored *ex situ*. These collections need to be developed effectively in coming years. Securing the safety of the genetic material already collected and providing for its regeneration and safety duplication is a key strategic element of the Global Plan of Action. Many collections, however, are stored under inadequate conditions, and as many as one million accessions may be in need of regeneration.
- (b) Linking conservation with utilisation and identifying and overcoming obstacles to the greater use of conserved plant genetic resources are necessary if maximum benefits are to be attained from conservation efforts.
- (c) Enhancing capacity at all levels is a key strategy used in the individual activities in the Global Plan. The Plan seeks to promote the pragmatic and efficient use and development of institutions, programmes, human resources, cooperation, and financial mechanisms.
- (d) Strengthen the selection effects of public and private breeders, which are essential to the continue improvement of PGRFA.
- (e) *In situ* conservation and development of PGRFA occurs in two contexts: on-farm and in nature. Farmers and their communities play a crucial role. It is important to attain a better [understanding of the] effectiveness of on-farm management of PGRFA. Improving the effectiveness of farmer/community level conservation, management, development and use of PGRFA is essential to facilitate the sharing of benefits arising from the utilization of these resources. Enhancing the capacity of farmers and their communities [including through linkages to extension, private sector and farmer

cooperatives] would help promote food security, particularly among the many rural people who live in areas of low agricultural potential. Wild relatives of crop plants also require better protection through improved land-use practices. Enhancing their capacity, including through linkages to extension, the private sector and farmer cooperatives, would help promote food security, particularly among the many rural people who live in areas of low agricultural potential.

- (f) Conservation and utilisation strategies at the community, national, regional and international levels are most effective when they are complementary, and as appropriate, integrated with each other during planning and implementation in order to achieve maximum effect. Conservation and use of PGRFA requires a mix of inter-related approaches, including *in situ* and *ex situ* efforts.

STRUCTURE AND ORGANIZATION OF THE GLOBAL PLAN OF ACTION

21. The Global Plan of Action has [20] priority activity areas. For pragmatic and presentational purposes, these are organized into [four][six] main groups. The first group deals with *In Situ* Conservation and Development; the second with *Ex Situ* Conservation; the third with Utilisation of Plant Genetic Resources; and the fourth with Institutions and Capacity Building[; the fifth with fair and equitable sharing of benefits; and the sixth with costing and financing of the Global Plan of Action.] As the Global Plan of Action is a set of integrated and intertwining activities, the placement of the activities into [four][six] groups is intended simply to help order the presentation and guide the reader to areas of particular interest. Many activities will relate and be relevant to more than one group.

22. For each priority activity there is a basic set of headings or sections to aid in the presentation of the proposed priority activity. In some cases, recommendations found under one heading might as appropriately have been placed under another. While no strict section definitions are considered necessary, a few explanatory remarks might be useful:

- (a) The Assessment section provides a summary of the rationale for the priority activity. It draws upon the findings of the preparatory process, and especially the Report on the State of the World's Plant Genetic Resources.
- (b) The Long-term Objectives and Intermediate Objectives sections specify the ultimate and intervening objectives respectively to be accomplished by the priority activity. The explicit articulation of goals can aid the international community in judging the extent of implementation of the activity over time.
- (c) The Policy / Strategy section proposes national and international policies and strategic approaches to implement the objectives of the priority activity. In some cases there are recommendations for new international policies; in other cases there are proposals for changes in approach, priorities, and visions.
- (d) The Capacity section indicates what human and institutional capabilities should be developed or provided.
- (e) The Research and Technology section [, including technology development and transfer,] identifies areas of scientific, methodological, or technological research or action [required][relevant] for the implementation of the priority activity.

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- (f) The Coordination and Administration section addresses how these issues might be approached as the priority activity is planned and implemented.
 - (g) The Section entitled This Activity is Closely Linked With lists other activities in the Global Plan of Action that are strongly associated with this one. The Global Plan of Action was designed as an integrated plan. Its successful implementation will depend on the complementarity of the activities. The success of any individual priority activity may therefore depend on implementation of another priority activity. For example, the "Securing of Existing *Ex Situ* Collections" (Activity 5) is highly dependent on actions arising from "Creating Comprehensive Information Systems for Plant Genetic Resources" (Activity 17). Because of this interdependence, not all actions needed to secure existing *ex situ* collections can be listed under the priority activity of that name. Where interdependencies are particularly crucial, they are listed in this section.
 - (h) Identification of cost estimates.¹

23. On occasion, institutions or constituencies are specifically identified in the body of an Activity. This is not meant to imply their exclusion in other Activities. Such references are used to highlight a role which is particularly critical, or one which may otherwise be overlooked, or both.

¹ As shown on page ...

Priority Activities

***In Situ* Conservation and Development**

- (1) Surveying and Inventorying Plant Genetic Resources for Food and Agriculture
- (2) Supporting On-Farm Management and Improvement of Plant Genetic Resources
- (3) Assisting Farmers In Disaster Situations to Restore Agricultural Systems
- (4) Promoting *In Situ* Conservation of Crop Wild Relatives and Wild Plants for Food and Agriculture

(1) Surveying and Inventorying Plant Genetic Resources for Food and Agriculture

44. **Assessment:** Rational conservation (both *in-situ* and *ex-situ*) ideally begins with the surveying and inventorying of existing resources. In order to elaborate policies and strategies for the conservation and utilisation of plant genetic resources for food and agriculture, national programmes need to know what resources exist in their countries. Countries that have ratified the Convention on Biological Diversity have acknowledged certain needs and responsibilities concerning this subject. Country Reports indicate that little systematic work has been done in this regard for many crops and their wild relatives.

45. **Long-term Objectives:** To identify, locate, inventory, and as feasible assess any threats to those species, ecotypes, cultivars and populations of plants relevant to food and agriculture, especially those that are of anticipated use.

46. To facilitate the development of complementary conservation strategies (e.g., weighing the need and importance of collecting for *ex situ* conservation and/or continued conservation *in situ*) and national policies related to the conservation and sustainable use of plant genetic resources for food and agriculture.

47. **Intermediate Objectives:** To develop useful methodologies for surveying and inventorying plant genetic resources for food and agriculture.

48. **Policy/Strategy:** The surveying and inventorying of plant genetic resources should be considered as a step in the process of conservation and of reducing the rate of loss of biodiversity. Without the capacity to conserve and/or use, however, such work may have marginal utility. Thus, surveying and inventorying should ideally be linked to specific objectives and a plan, such as one for *in situ* conservation, or collecting, *ex situ* conservation, and use.

49. Local and indigenous knowledge should be recognized as important components of surveying and inventorying activities and should be properly considered in all such efforts.

50. **Capacity:** Countries should [receive financial and technical support][provide and may need support][receive financial and technical support] to survey and inventory [and sustain *in situ*] plant genetic resources for food and agriculture.

51. Countries should provide and may need assistance in having appropriate access to existing and planned Geographic Information System facilities and information.

52. Training and capacity-building should be undertaken in areas such as taxonomy, population biology, ethnobotany, and eco-regional and agro-ecological surveying.

53. **Research/Technology:** [Adequate financial] support should be given to developing better methodologies for the surveying and assessment of intra- and infra-specific diversity in agro-ecological systems.

54. Existing information sources should be used in research to determine to what extent wild relatives of domesticated species are already in protected areas.

55. **Coordination/Administration:** Most coordination must take place within country. Regional and global level coordination is needed to provide linkages with existing *ex situ* and *in situ* conservation efforts.

56. Strong linkages need to be established with national, regional and crop networks and with the users of plant genetic resources (breeders and farmers) in order to inform, direct and prioritize the entire conservation process. Countries should collaborate in serving and inventory activities in order to build in-country capacity.

57. Coordination between relevant international organizations, *inter alia*, FAO, UNEP, UNESCO, IUCN and international agricultural research centres, should be further strengthened.

58. **This Activity Is Closely Linked With:**

Promoting *In Situ* Conservation of Crop Wild Relatives and Wild Plants for Food and Agriculture

Supporting On-farm Management and Improvement of Plant Genetic Resources

Supporting Planned and Targeted Collecting of Plant Genetic Resources for Food and Agriculture


Securing Existing *Ex Situ* Collections

Developing Monitoring and Early Warning Systems for Loss of Plant Genetic Resources

(2) **Supporting On-farm Management and Improvement of Plant Genetic Resources**

59. **Assessment:** Modern plant breeding has been remarkably successful in helping raise yields, and to improve resistance to pest and diseases and quality of food products, especially in favorable environments. [The choices made by many farmers to grow new cultivars often result in significant on-farm genetic erosion.] Still, the overwhelming majority of the world's farmers, as a matter of choice or necessity, engage in de-facto conservation and development of plant genetic resources as they select and save seed for the next planting season. These farmers typically practice low-input farming. Such farmers often lack access to new and diverse genetic materials which could be integrated into existing crops to improve production. Historically, farmer access to a broad range of germplasm in developed countries has contributed to yield increases and greater crop adaptability through farmer selection. It has also led in many cases to the rise of local seed enterprises.

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

Second Extraordinary Session¹

Rome, 22-27 April 1996

**DRAFT GLOBAL PLAN OF ACTION FOR THE CONSERVATION
AND SUSTAINABLE UTILISATION OF PLANT GENETIC RESOURCES
FOR FOOD AND AGRICULTURE**

REV. 1 - PART 2

LEIPZIG DECLARATION

**CONSOLIDATED TEXT, WITH REVISIONS INTRODUCED
IN THE EVENING SESSION, 24 APRIL 1996, OR
SUBSEQUENTLY PROVIDED IN WRITING**

¹ By Resolution 3/95 of the Twenty-Eighth Session of the FAO Conference, the Commission on Plant Genetic Resources became the Commission on Genetic Resources for Food and Agriculture. The First Extraordinary Session was held under the Commission's previous name.



Consolidated text, with revisions introduced in the evening session, 24 April 1996, or subsequently provided in writing.

**LEIPZIG DECLARATION
ON CONSERVATION AND SUSTAINABLE UTILISATION
OF PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE**

[A [CALL FOR][COMMITMENT FOR] THE CONSERVATION AND SUSTAINABLE UTILISATION OF PLANT GENETIC RESOURCES FOR WORLD FOOD SECURITY]

[A CALL FOR GLOBAL EFFORT ON CONSERVATION AND SUSTAINABLE UTILIZATION OF PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE]

1. In recognition of the vital importance of Plant Genetic Resources for Food and Agriculture [including forests][excluding forests] to [food security for] present and future generations, the representatives of ___ States and ___ Organisations have gathered together in Leipzig, at the invitation of the Food and Agriculture Organization of the United Nations. We have done so to assert and renew our commitment to the conservation and sustainable utilisation of these resources and to the fair and equitable sharing of the benefits [arising out of] [their use][the use of these resources, and out of associated knowledge, innovations and practices][for their conservation and utilization]. [We are convinced that these efforts are an essential contribution to the implementation of the Convention on Biological Diversity and Agenda 21.]

[2. While acknowledging and reaffirming states' sovereign rights over their biological resources, we also confirm our common and individual responsibilities in respect of this heritage.]

[2 bis. To satisfy the needs of growing populations for food, the efficiency and volume of production has to be increased. The challenge for the world is to ensure food security, which can only be achieved in a sustainable manner by conserving and enhancing the natural resource base, including the plant genetic resources of the planet. In this connection, there is also a great need in many countries, developing as well as developed ones, to diversify agricultural production.]

3. Plant genetic resources are an essential foundation for world food security and sustainable [agricultural]development. These resources are the basis of natural and directed evolution in the plant species most critical to the survival and well-being of

human beings. All countries require plant genetic resources if they are to increase food supplies [and agricultural production] sustainably and meet the related challenges of changes in the environment, including climate change. We are also conscious of the intrinsic value of this biological diversity and of its ecological, social, economic, scientific, educational, cultural, and aesthetic importance.

4. [Plant genetic resources for food and agriculture are the product of years [and centuries] of natural evolution, [and] creative human [selection][improvement] by farmers, [and][including] scientific plant breeding]. We acknowledge the roles played by generations of farmers, [including men and women farmers][particularly the importance of women], farming communities and [indigenous][local] [populations][people], as well as breeders and scientists, in conserving and improving plant genetic resources. Through their efforts, much has been accomplished in past decades to collect, conserve, improve and sustainably use plant genetic resources for food and agriculture.

5. We are aware, however, of the serious threats to the security of plant genetic resources and acknowledge that efforts to conserve, develop, and sustainably use genetic diversity [are inadequate][could be improved]. [Diversity is being lost in the fields [and forests][and other ecosystems] of virtually all countries, and in genebanks[, and sometimes in plant breeding]. Though the number of genebanks has increased rapidly in recent decades, many cannot meet minimum international standards. An alarmingly high number of stored accessions is in need of regeneration, indicating that much of the material collected and conserved in the past is now endangered]. [Attention was also drawn to the loss of germplasm.]

6. Major gaps and weaknesses exist in national and international capacity to assess, study[, conserve], monitor and sustainably use plant genetic resources to increase world food security and contribute to sustainable development. Existing institutional capacity, structures and programmes [are inadequate][, notably in developing countries] [should be reviewed to better serve these objectives. It is necessary to strengthen this institutional capacity]. The crucial linkage between conservation and utilisation could be improved[, particularly in many developing countries]. The result is that existing diversity in crop species is not used to the extent possible for increased food production or for improving the sustainability of production systems. [We recognize that it is necessary to strengthen national capabilities, particularly in developing countries, to tackle the problems of conservation and utilization of plant genetic resources for food and agriculture.]

7. We recognize the interdependence of countries and peoples regarding plant genetic resources for food and agriculture. Access to and the sharing of both genetic resources and technologies are essential for meeting world food security and needs of the growing world population and must be facilitated. [Access to and transfer of technology shall be provided to developing countries under fair and most favourable terms, including on concessional and preferential terms where mutually agreed, subject to patents and other intellectual property rights.] [We affirm the need to promote international and regional cooperation among States, intergovernmental organisations, non-governmental organisations, and the private sector].

8. In particular, we acknowledge the pressing need to [secure][sustain] existing *ex situ* collections and *in situ* sites of plant genetic resources. It is important that this

diversity be made more useful and valuable to breeders and farmers by providing better and more accessible documentation. We recognize the need for substantial and long term support and incentives for national and international plant breeding programmes , including initiatives to adapt and enhance genetic materials for further development by plant breeders. We call for a new and more productive partnership between scientists and farmers to build upon the ongoing efforts of farmers to manage and improve their plant genetic resources, especially in marginal areas.

9. Our primary objective must be to [safeguard][enhance food security through safeguarding] the world's plant genetic resources and [to use][using] them sustainably. This will require integrated approaches combining the best of traditional knowledge and modern technologies. [We believe that means are needed to increase the benefits derived from this diversity and the sharing of those benefits and that such mechanisms would be in the interest of both equity and conservation.][We believe that the benefits derived from the use of diverse plant genetic materials need to be clearly acknowledged and identified, and that effective mechanisms for sharing such benefits are in the interest of conservation, sustainable use and equity.]

[10. [We vow to honour this commitment by taking the necessary steps to implement the Global Plan of Action.][We underscore our commitment to the goals of this Global Plan of Action.] We acknowledge that [the mobilization of the necessary financial resources for these activities is of utmost importance] [particular efforts will be required to mobilise financial resources for the priority activities].] [It is essential to mobilize new and additional financial resources for the activities of the Plan.]

[11. The Global Plan of Action provides a coherent framework for activities in the field of *in situ* and *ex situ* conservation, in the sustainable utilization of plant genetic resources, as well as in institution- and capacity-building. It will contribute to greater coherence and create synergies among on-going activities, as well as a more efficient use of available funds. We are convinced of the utmost importance of long-term national commitments to integrated national plans and programmes, and for indispensable national and regional cooperation. The International Undertaking on Plant Genetic Resources for Food and Agriculture, currently under revision, is a key element of the FAO Global System. It will provide the policy framework for the implementation of the Global Plan of Action. It will also include a multilateral framework on access and the fair and equitable sharing of benefits. The revision of the International Undertaking should be concluded as soon as possible.]

[11. ALT In particular, we acknowledge the pressing need to secure existing *ex situ* and *in situ* collections of plant genetic resources for food and agriculture. It is important that this diversity be better utilized and available to breeders, farmers, indigenous and local communities. We recognize the need for substantial and long-term support and incentives for plant-breeding programmes, including incentives to adapt and enhance the available genetic materials, and preferential access for developing countries to appropriate technology, so as to ensure the future development of plant breeding under conditions of equality for all countries.]

[12. [We commit ourselves, therefore, to this Declaration and to [this Global Plan of Action][the development of the Global System] for the Conservation and Sustainable

Utilisation of Plant Genetic Resources for Food and Agriculture.] We invite all people [as well as the international community to join us in our common cause][to join us in our common cause of enhancing global food security and the conservation and sustainable use of plant genetic resources for food and agriculture].]

[12. ALT 1 We gather together in Leipzig in a spirit of hope, and firm determination, aware of the difficulties ahead, but confident that progress can, must and will be achieved. Our pledge to common action is a key element of our commitment to promoting world food security and part of our fundamental responsibilities to the people of this world.[We expect the progress we will make here will enhance the outcome of the World Food Summit.]]

[12. ALT 2 We have gathered in Leipzig in a spirit of unity, and firm determination, aware of our responsibilities and the difficulties ahead, but confident that progress can, should and will be achieved. We stress the need for integrating Plant Genetic Resources for Food and Agriculture in agricultural policy as a cornerstone for food security, and for drawing the attention of the coming World Food Summit in November 1996 to the Global Plan of Action. We invite all parties concerned to join us in our common cause.]

[12. ALT 3 We gather together in Leipzig in a spirit of hope, commitment and action, aware of the difficulties ahead, but confident that progress can, must and will be achieved. We therefore commit ourselves to this Plan of Action in accordance with the Convention on Biological Diversity, Agenda 21, the Declaration of Rio, and in the context of the Global System for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture. We invite all people, as well as the international community, to join us in our common cause.]

Adopted this ____ day of ____, 1996.

April 1996



منظمة الأغذية
والزراعة
للأمم المتحدة

联合国
粮食及
农业组织

Food
and
Agriculture
Organization
of
the
United
Nations

Organisation
des
Nations
Unies
pour
l'alimentation
et
l'agriculture

Organización
de las
Naciones
Unidas
para la
Agricultura
y la
Alimentación

COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Second Extraordinary Session¹

Rome, 22-27 April 1996

DRAFT GLOBAL PLAN OF ACTION FOR THE CONSERVATION AND SUSTAINABLE UTILIZATION OF PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

REV.1 - PART 3

PARAS 60 - 77
revised para 59

¹ By Resolution 3/95 of the Twenty-Eighth Session of the FAO Conference, the Commission on Plant Genetic Resources became the Commission on Genetic Resources for Food and Agriculture. The First Extraordinary Session was held under the Commission's previous name.

(2) Supporting On-farm Management and Improvement of Plant Genetic Resources

PARAGRAPH 59 WAS TRANSLATED ALREADY. HOWEVER FURTHER REVISIONS HAVE BEEN MADE. NEW VERSION PARA 59 IS AS FOLLOWS:

59. **Assessment:** Modern plant breeding has been remarkably successful in helping raise yields, and to improve resistance to pests and diseases and quality of food products, especially in favorable environments. Farmers choose to grow new cultivars for many reasons [including market conditions.] Unfortunately, these choices often result in significant on-farm genetic erosion. Still, the overwhelming majority of the world's farmers, as a matter of choice or necessity, engage in de-facto conservation and development of plant genetic resources as they select and save seed for the next planting season. These farmers typically practice low-input farming. Such farmers often lack access to new and diverse genetic materials which could be integrated into existing crops to improve production. Historically, farmer access to a broad range of germplasm in developed countries has contributed to yield increases and greater crop adaptability through farmer selection. It has also led in many cases to the rise of local seed enterprises.

REVISIONS FROM PARA. 60:

60. Without appropriate and creative approaches, prospects of markedly increasing the productivity of low-potential and low-input farms through genetic improvements also would appear limited. Yet, increased productivity is important for food security and to reduce pressure on fragile environments. Neither the private sector nor public agricultural research institutions presently have the capacity of serving this large, economically disadvantaged population completely.

61. Initiatives focusing on participatory, on-farm management and improvement of plant genetic resources may offer the potential to reach large numbers of farmers and promote further agricultural development. It would, of necessity depend on farmers themselves and their decisions and build upon and make use of their on-going efforts to improve their crops through mass selection and other breeding efforts. And it would necessarily recognize the central role that rural women play in agricultural production in most developing countries. Efforts to provide farmers greater access to appropriate genetic resources and training could assist farmers in improving various characteristics of their planting materials (such as disease or pest resistance), and in increasing food production. A number of governments, research institutes, and NGOs are now engaged in projects researching and promoting on-farm management and improvement of plant genetic resources. Significant technical and methodological questions remain. The capacity of these projects is limited, however, and the numbers of farmers they are reaching is relatively small. Thus, it would appear the potential of on-farm improvement [has yet to be] realised.

62. **Long-term Objectives:** To better understanding and improved effectiveness of existing on-farm conservation, management, improvement, and use of plant genetic resources for food and agriculture. To achieve a better balance between *ex situ* and *in situ* conservation. To encourage concrete recognition of [the concept of] farmers' rights at the international, regional, and national levels. To promote the equitable sharing of benefits from plant genetic resources as called for in the Convention on Biological Diversity. To foster the future emergence of public or private seed companies and cooperative enterprises as an outgrowth of successful on-farm selection and breeding. To encourage traditional seed exchange and supply systems.

PARA 63 AND 64 REQUIRE FURTHER DISCUSSION - ORIGINAL TEXT FOLLOWS:

63. **Intermediate Objectives:** To establish or strengthen programmes and networks for on-farm management of landraces, wild relatives of food crops, harvested food plants, rangeland and forest genetic resources. To extend the role of certain genebanks to include support for and provision of

materials to on-farm improvement programmes . To build on-farm and garden programmes based on local systems of knowledge, institutions, and management, ensuring local participation in planning, management and evaluation. To gain greater knowledge about the dynamics, methodologies, effects, and potential of on-farm conservation and plant improvement. To focus greater public and scientific attention on the diverse roles that women play in production and resource management in rural households.

64. **Policy/Strategy:** On-farm activities are a means to improve existing practices in selected communities. They are complementary to and not a substitute for more formal varietal development and seed supply systems. Institutional flexibility will be needed in working with farming communities. No single plan or recipe is possible or advisable.

REVISION FROM PARA 65 AS FOLLOWS:

65. Governments should consider how production, economic incentive, and other policies, as well as agricultural extension and research services might facilitate and encourage on-farm management and improvement of plant genetic resources.

66. Where appropriate, national research systems should consider strengthening local level capacity to participate in all stages of breeding, including on-farm selection and adaptation.

67. Governments, donor agencies, international agricultural research centres, NGOs, and others should incorporate gender and socio-cultural factors into the design and implementation of agricultural research and plant genetic resources activities.

68. **Capacity:** [Adequate] support should be given to community-based institutions and user groups engaged in providing practical assistance to on-farm conservation and improvement work.

69. Considering the needs of and numbers of the farmers served, genebanks and national/international institutes, should identify appropriate farmers varieties for multiplication and/or develop new breeding populations incorporating specific characteristics into locally adapted materials for on-farm improvement activities. [Step-by-step incorporation and improvement should be encouraged rather than the hasty replacement of existing on-farm diversity. As a general practice, quantities of seed and planting materials distributed should encourage research and experimentation by farmers, and not be so large as to displace normal seed supply sources or on-farm seed management.]

70. Interdisciplinary training programmes should be developed for extension workers, NGOs and others in facilitating and catalyzing on-farm activities, including selection and breeding techniques appropriate to supplement and improve those already used by farmers.

71. The focus of training programmes should be to help farmers better incorporate new knowledge and technologies and indeed become better technicians, and researchers become better enablers and supporters of farmers. Training should be aimed at four different groups: scientists, technical support staff, extension agents (including NGOs), and farmers. Support for advanced degree work should include relevant work in the biological and social sciences. Training of extension agents should aim to increase their skills in crop identification, selection and breeding, and seed maintenance in order to provide the important bridge between national agricultural research staff and farmers.

72. Training of (and by) farmers should emphasize enhancing the identification of plant traits, selection/breeding, utilisation and maintenance of local crops. It is important to develop farmers' skills in selection of plants in the vegetative state and not only after harvest.

73. Training programmes should be designed in close collaboration with NARCS and farmers and their organisations and be based on particular needs as they see them. Such programmes should not

neglect the central role that women play in both influencing and directing the evolution of crops. Programmes should consider the different uses of biological resources by women and men, including women's concern for the multiple uses and processing requirements of crops.

PARA 74 REQUIRES FURTHER DISCUSSION- ORIGINAL TEXT FOLLOWS:

74. **Research/Technology:** Three basic types of rigorous, multi-disciplinary scientific research are needed:

- (a) ethnobotanical and socio-economic research to understand and analyse farmer knowledge, selection/breeding, utilisation, and management of plant genetic resources;
- (b) population and conservation biology to understand the structure and dynamics of genetic diversity in local landraces (including population differentiation, gene flow, degree of inbreeding, and selective pressures); and
- (c) crop improvement research, including research in mass selection and simple breeding as a means of increasing crop yields and reliability without significant losses of local biodiversity.


REVISIONS FROM PARA 75 FOLLOW:

75. Scientific research should, when possible, be coupled with on-farm activities in order that the context and purpose of the work are fully appreciated. Research should assist in the monitoring, evaluation, and improvement of on-farm efforts. Research should be undertaken in a participatory and collaborative manner to foster interaction and cooperation between rural people and the staff of national institutions. Other institutions must be involved appropriately whenever necessary.

76. Methods should be developed and assistance provided for recording and linking *in situ* farm and garden management and conservation of plant genetic resources with national and regional genebanks and research institutes.

77. **Coordination/Administration:** National and international coordination efforts in this area should allow for and encourage local, community-level initiatives in proposing programmes. Small, grass-roots projects should receive priority in funding and support services. Priority should be placed on farmers with a technical project promoting the maintenance of pre-existing diversity and to collaboration between communities and research institutions. Subject to satisfactory progress, programmes should be sufficiently long (10 years or more) to achieve results.

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

Second Extraordinary Session¹

Rome, 22-27 April 1996

**DRAFT GLOBAL PLAN OF ACTION FOR THE CONSERVATION AND
SUSTAINABLE UTILIZATION OF PLANT GENETIC RESOURCES FOR
FOOD AND AGRICULTURE**

REV.1 - PART 4

PARAS 78 - 100

¹ By Resolution 3/95 of the Twenty-Eighth Session of the FAO Conference, the Commission on Plant Genetic Resources became the Commission on Genetic Resources for Food and Agriculture. The First Extraordinary Session was held under the Commission's previous name.

REVISIONS TO PARAGRAPHS 78 TO 100.

Generally throughout the whole text in Spanish: seleccion de masa to “**seleccion masal**” and in French text obtentions to “**entrees**”.

78. Efforts should be coordinated closely with NARCs, international agricultural research centres, including IPGRI and with NGOs and farmers organisations. Collaborative programmes with other agencies, including UNDP, UNEP, IFAD, and the World Bank, should be undertaken, as feasible.

79. **This Activity is Closely Linked With:**

- Constructing Comprehensive Information Systems for Plant Genetic Resources
- Supporting Planned and Targeted Collecting of Plant Genetic Resources for Food and Agriculture
- Developing New Markets for "Diversity-Rich" Products
- Expanding Evaluation and Increasing the Number of Core Collections to Facilitate Use
- Increasing Genetic Enhancement and Base-Broadening Efforts
- Promoting Higher Levels of Diversity in Crops to Reduce Genetic Vulnerability
- Promoting Under-utilised Crops and Species
- Promoting Seed Production and Distribution

(3) Assisting Farmers In Disaster Situations to Restore Agricultural Systems

P80, French version: replace “culturales” with “cultivees” beginning line 4.

80. **Assessment:** In the modern world and especially in developing countries, people are threatened with and vulnerable to natural disasters, civil strife and war. Such calamities pose huge challenges to the resilience of agricultural systems. Often, adapted crop varieties are lost and cannot be recuperated locally. Food aid, combined with the importation of often poorly adapted seed varieties, can lower yields and keep them low for years. While addressing the immediate crisis, such practices can exacerbate hunger conditions, undermine food security and increase costs of donor assistance well into the future. Indigenous landraces lost during calamities can frequently be found in *ex situ* collections outside the effected country. Properly multiplied, such stocks can be returned to reconstitute locally adapted planting material, an essential component of sustainable agricultural systems. Partnerships are important in such efforts and can include government and non-governmental organisations.

81. **Long-Term Objectives:** To support farmers' and rural peoples' livelihoods and sustainable agriculture options through the rehabilitation of agricultural systems based on locally adapted plant genetic resources, including the restoration of pre-existing germplasm in cases of disaster-induced loss of plant genetic resources.

82. **Intermediate Objectives:** To establish capacity to deliver seed of adapted local varieties as needed to help re-establish indigenous agricultural systems in areas affected by natural disasters, war, and civil strife.

83. To establish institutional responsibilities and mechanisms for the identification, acquisition, multiplication, and re-introduction of appropriate genetic materials.

84. **Policy/Strategy:** Governments with the co-operation of relevant farmers' organisations and communities and UN bodies and regional, intergovernmental and non-governmental organisations and taking into consideration farmers' organisations and their communities should establish

necessary policies at all levels which will allow unhindered implementation of seed security activities in response to calamities.

85. To minimize genetic loss, governments should consider duplication of plant genetic resources outside of the country, such as in genebanks of neighboring countries, and/or regional or international genebanks and crop genebank networks.

86. **Capacity:** FAO should establish agreements with appropriate agencies, especially national and international agricultural research institutions, for rapid acquisition and multiplication, restoration and provision of materials to countries in need. Such institutes should endeavour to ensure that their capacity is sufficient for the task. Cooperation with non-governmental and voluntary organisations can be an important component of efforts to distribute suitably adapted germplasm into regions that are recovering from disasters.

87. Adequate information systems must be established to identify and track appropriate germplasm for reintroduction.

88. [Governments should establish a multi-lateral trust fund to ensure that adequate funds are available to set in motion the multiplication of seed and to initiate other related activities in response to emergencies.] [and should consider approaching other existing international emergency funds to determine if they could effectively cover action related to the restoration of PGR after disaster situations]

89. Governments should strengthen farmers' abilities to cope with disasters by supporting the re-emergence of local seed supply networks.

90. **Research/Technology:** Previous experience should be reviewed and options developed to enhance preparedness for rescue of *ex situ* collections and emergency seed collecting in the context of calamities, including war, civil strife, industrial accidents, and natural disasters. Previous experiences should be reviewed and options developed to enhance preparedness for rescue of *ex situ* collections in emergencies.

PARA 91 REQUIRES FURTHER DISCUSSION - ORIGINAL TEXT FOLLOWS:

91. **Coordination/Administration:** This programme should be coordinated administratively by FAO in close collaboration with WFP, UNHCR, UNDRO, IPGRI, national and the international agricultural research centres, regional plant genetic resources networks, governments of the countries affected, donor countries and NGOs.

REVISIONS FROM PARA 92 FOLLOW:

92. Public awareness efforts are needed to sensitize the donor community and NGOs to the importance of adapted plant genetic resources in relief and rehabilitation efforts and to inform them of this programme. Such efforts should also increase awareness of the need for safety duplication of materials in other countries.

93. **This Activity Is Closely Linked With:**

- Securing Existing *Ex-Situ* Collections
- Constructing Comprehensive Information Systems for Plant Genetic Resources
- Promoting Public Awareness of the Value of Plant Genetic Resources Conservation and Use
- Developing Monitoring and Early Warning Systems for Loss of Plant Genetic Resources
- Supporting On-Farm Management and Improvement of Plant Genetic Resources

**(4) Promoting *In Situ* Conservation of Wild Crop Relatives and Wild Plants
for Food Production**

94. **Assessment:** Natural ecosystems hold important plant genetic resources for food and agriculture, including endemic and threatened wild crop relatives and wild plants for food production. Many are not managed sustainably. This genetic diversity, because of interactions which generate new biodiversity, is potentially an economically important component of natural ecosystems and cannot be maintained *ex situ*. Unique and particularly diverse populations of these genetic resources must be protected *in situ* when they are under threat. Most of the world's 8500 national parks and other protected areas, however, were established with little specific concern for the conservation of wild crop relatives and wild plants for food production. Management plans for protected and other areas are not usually broad enough to conserve genetic diversity for these species to complement other conservation approaches.

95. Many protected areas are under threat of degradation and destruction. Moreover, they cannot now provide comprehensive geographical and biological coverage of the diversity of many species. It is thus necessary to complement the conservation in protected areas with measures aimed at conserving genetic diversity which lies outside such areas. *In situ* conservation implies comprehensive planning in which protection, production and genetic conservation aspects are considered and made complementary.

96. **Long-term Objectives:** To promote conservation of genetic resources of wild crop relatives and wild plants for food production in protected areas and on other lands not explicitly listed as protected areas.

97. **Intermediate Objectives:** To initiate planning and management practices which take into account wild crop relatives and wild plants for food production. To clearly identify which wild crop relatives and wild plants for food production need to be protected *in situ*. To gain knowledge of the uses, in particular by women, of wild plants for food production as sources of income and food.

98. To create a better understanding of the contributions of plant genetic resources to local economies, food security, and environmental health. To improve management and planning and promote complementarity between conservation and sustainable use in parks and protected areas by *inter alia* broadening the participation of local communities in these processes.

99. To establish better communication and coordination between various institutes and organisations engaged in *in situ* conservation and land use management, nationally and regionally, to conserve genetic diversity for these species to complement other conservation approaches.

100. **Policy/Strategy:** Governments, subject to national legislation, with the cooperation of the relevant UN bodies and regional, intergovernmental and non-governmental organisations and taking into account the views of farmers and communities living near protected areas should:

- (a) include among the purposes and priorities of national parks and protected areas, the conservation of plant genetic resources for food and agriculture, including appropriate forage species, wild relatives of crop plants and species gathered wild for food;
- (b) consider integrating conservation and management of plant genetic resources for food and agriculture in national land use plans;

- (c) support for the establishment of national and local objectives for protected area management through broad based participation, involving in particular, where they are present, groups most dependent on wild plants for food production.
- (d) support the creation of advisory panels at the appropriate levels, where appropriate, that involve farmers, indigenous people, plant genetic resources scientists, local government officials, and community leaders, to guide management of protected areas, according to national rules and regulations;
- (e) [recognize the ancestral domain of [tribal and] indigenous people and their rights to PGRFA in protected areas, and] recognize that women are a valuable source of information on the feasibility of *in situ* conservation and management practices;
- (f) support indigenous and local communities efforts to manage wild crop relatives and wild plants for food production in protected areas, or where existing aboriginal or treaty rights are recognised;
- (g) review existing environmental impact statement requirements to ensure an assessment of the likely effect of the proposed activity on local biodiversity for food and agriculture, particularly on wild crop relatives;
- (h) integrate genetic conservation objectives in the sustainable management of wild crop relatives and wild plants for food production in protected areas and other managed resource areas.

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**DRAFT GLOBAL PLAN OF ACTION FOR THE CONSERVATION AND
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REV.1 - PART 5

PARAS 64, 100g, 100 bis and 102-110

¹ By Resolution 3/95 of the Twenty-Eighth Session of the FAO Conference, the Commission on Plant Genetic Resources became the Commission on Genetic Resources for Food and Agriculture. The First Extraordinary Session was held under the Commission's previous name.

Paragraph 64 was revised as follows:

64. **Policy/Strategy:** On-farm activities are a means to improve existing practices in selected communities. They are complementary to and not a substitute for more formal varietal development and seed supply systems. Institutional flexibility will be needed in working with farming communities. [No single plan or recipe is possible or advisable.] [Institutional mechanisms will be developed keeping in view the concepts of sovereignty, national policy and state of beliefs and legal system.]

Paragraph 100 (g) was revised by changing the word. In bold, as follows:

(g) review existing environmental impact statement requirement to **incorporate** an assessment of the likely effect of the proposed activity on local biodiversity for food and agriculture, particularly on wild crop relatives;

The following text was inserted

100 bis. Governments with the cooperation of the relevant UN bodies and regional, inter-governmental and non-governmental organizations and the farming, indigenous and local communities living in non-protected areas, should seek, where possible and appropriate, to:

- (a) establish conservation of wild crop-relatives and wild plants for food production as an integral component of land-use planning;
- (b) encourage local communities to conserve and manage wild crop relatives and wild plants for food production, and provide for their participation in decisions relating to such local conservation and management.

102. **Capacity:** Governments should, whenever possible, and as appropriate:

- (a) develop a prioritized plan, particularly for those ecosystems in which high levels of diversity related to plant genetic resources for food and agriculture are found, and conduct national reviews to identify those management practices needed to protect the desired level of genetic diversity for wild crop-relatives and wild plants for food production;
- (b) assist local communities in their efforts to identify, catalogue and manage wild crop relatives and wildfoods;
- (c) catalogue the holdings, the distribution and diversity of wild crop-relatives and wild plant sfor food production, integrate and link information from *in situ* conservation programmes with that of *ex situ* programmes, and encourage private and non-governmental organizations to do likewise.

103. **Coordination/Administration:** Governments should, as appropriate:

- (a) Link protected area planning and management with institutions responsible for the conservation and sustainable use of wild relatives of crop plants and wild plants for food production, such as centres for crop genetic resources, national crop genetic resources coordinators, and botanical gardens.

- (b) designate focal points, as appropriate, to catalyze coordination of *in situ* protection programmes and liaise with other countries in the region;
- (c) establish mechanisms for periodically reviewing and modifying conservation plans.

104. **This Activity Is Closely Linked With:**

Surveying and Inventorying Plant Genetic Resources for Food and Agriculture;
Building Strong National Programmes ;
Constructing Comprehensive Information Systems for Plant Genetic Resources;
Supporting On-farm Management and Improvement of Plant Genetic Resources;
Promoting under-utilized crops and species;
Supporting planned and targeted collections of plant genetic resources for food and agriculture;
Promoting public awareness of the value of plant genetic resources conservation and use.

Priority Activities

Ex Situ Conservation

- (5) Sustaining *Ex Situ* Collections
- (6) Regenerating Threatened *Ex Situ* Accessions
- (7) Supporting Planned and Targeted Collecting of Plant Genetic Resources for Food and Agriculture
- (8) Expanding *Ex Situ* Conservation through Botanical Gardens and Use of New Technologies
(*It was decided to consider the title of this activity area when dealing with the substantive section.*)

(5) Sustaining Existing *Ex Situ* Collections

105. **Assessment:** The number of genebanks in the world and the size of *ex situ* collections grew tremendously during the 1970 and 1980s in response to increasing awareness of threats to plant genetic resources. While most countries still lack long-term storage facilities, storage space is thought to be available today in many individual genebanks and globally, and could be expanded through elimination of unnecessary duplication in the collections.

106. Globally, governments and donor agencies have made insufficient provisions for on-going maintenance costs of conservation infrastructure. The result has been a steady deterioration of many facilities and their ability to perform even basic conservation functions. The severity of the threat to *ex situ* collections can be seen in the high percentage of accessions presently in need of regeneration and in reports by many countries of significant technical and administrative problems in genebanks. In addition, many genebanks house far more species than national breeding programmes are developing. [While plant genetic resources may be valued for many different purposes, *ex situ* conservation costs - especially for non-unique, non-indigenous materials - may seem excessive and unwarranted if no programmes, such as research and breeding programmes, are using them and options exist for less costly conservation].

107. With a more rational system based on better planning and more coordination and cooperation, costs could be reduced and conservation work placed on a scientifically sound and financially sustainable foundation. This would lay the groundwork for expanded utilisation of plant genetic resources, in the context of more effective conservation. To realise such a system, conservation options must be made available, particularly to the many countries presently lacking sufficient capacity to ensure the on-going *ex situ* conservation of plant genetic resources at the international standards.

108. **Long-term Objectives:** To give high priority to safeguarding as much existing unique and valuable diversity as possible in *ex situ* collections of plant genetic resources for food and agriculture. [To develop and strengthen cooperation among national programmes and international institutions to sustain *ex situ* collections.] [To minimize genetic shifts during rejuvenation. To ensure the observance of the sovereign rights of the countries of origin.]

109. **Intermediate Objectives:** To develop and strengthen national, regional and international networks, including the existing FAO *Ex Situ* Network within the FAO Global System and in accordance with policies and strategies set out by the Commission on Genetic Resources for Food and Agriculture. To assemble therein sufficient capacity to provide options to countries for the voluntary storage - preferably within each region - of appropriate genetic materials and their duplicates. To provide for the transfer and on-going conservation of this material under applicable international legal agreements[, which ensure the sovereign rights of the countries of origin,] and with appropriate technical and financial support.

110. To reduce unnecessary and unplanned redundancy in current programmes, and promote access to and exchange of plant genetic resources in line with applicable international agreements, including the Convention on Biological Diversity. To provide for the planned duplication and safe storage of materials not currently duplicated.