

AGENDA 21, CHAPTER 14

PROMOTING SUSTAINABLE AGRICULTURE
AND RURAL DEVELOPMENT

G. Conservation and sustainable utilization of
plant genetic resources for food and
sustainable agriculture

Basis for action

14.54. Plant genetic resources for agriculture (PGRFA) are an essential resource to meet future needs for food. Threats to the security of these resources are growing, and efforts to conserve, develop and use genetic diversity are underfunded and understaffed. Many existing gene banks provide inadequate security and, in some instances, the loss of plant genetic diversity in gene banks is as great as it is in the field.

14.55. The primary objective is to safeguard the world's genetic resources while preserving them to use sustainably. This includes the development of measures to facilitate the conservation and use of plant genetic resources, networks of in situ conservation areas and use of tools such as ex situ collections and germ plasma banks. Special emphasis could be placed on the building of endogenous capacity for characterization, evaluation and utilization of PGRFA, particularly for the minor crops and other underutilized or non-utilized species of food and agriculture, including tree species for agro-forestry. Subsequent action could be aimed at consolidation and efficient management of networks of in situ conservation areas and use of tools such as ex situ collections and germ plasma banks.

14.56. Major gaps and weaknesses exist in the capacity of existing national and international mechanisms to assess, study, monitor and use plant genetic resources to increase food production. Existing institutional capacity, structures and programmes are generally inadequate and largely underfunded. There is genetic erosion of invaluable crop species. Existing diversity in crop species is not used to the extent possible for increased food production in a sustainable way. 4/

Objectives

14.57. The objectives of this programme area are:

(a) To complete the first regeneration and safe duplication of existing ex situ collections on a world-wide basis as soon as possible;

(b) To collect and study plants useful for increasing food production through joint activities, including training, within the framework of networks of collaborating institutions;

(c) Not later than the year 2000, to adopt policies

and strengthen or establish programmes for in situ on-farm and ex situ conservation and sustainable use of plant genetic resources for food and agriculture, integrated into strategies and programmes for sustainable agriculture;

(d) To take appropriate measures for the fair and equitable sharing of benefits and results of research and development in plant breeding between the sources and users of plant genetic resources.

Activities

(a) Management-related activities

14.58. Governments at the appropriate level, with the support of the relevant international and regional organizations, should:

(a) Develop and strengthen institutional capacity, structures and programmes for conservation and use of PGRFA;

(b) Strengthen and establish research in the public domain on PGRFA evaluation and utilization, with the objectives of sustainable agriculture and rural development in view;

(c) Develop multiplication/propagation, exchange and dissemination facilities for PGRFAs (seeds and planting materials), particularly in developing countries and monitor, control and evaluate plant introductions;

(d) Prepare plans or programmes of priority action on conservation and sustainable use of PGRFA, based, as appropriate, on country studies on PGRFA;

(e) Promote crop diversification in agricultural systems where appropriate, including new plants with potential value as food crops;

(f) Promote utilization as well as research on poorly known, but potentially useful, plants and crops, where appropriate;

(g) Strengthen national capabilities for utilization of PGRFA, plant breeding and seed production capabilities, both by specialized institutions and farming communities.

(b) Data and information

14.59. Governments at the appropriate level, with the support of the relevant international and regional organizations, should:

(a) Develop strategies for networks of in situ conservation areas and use of tools such as on-farm ex situ collections, germplasm banks and related technologies;

(b) Establish ex situ base collection networks;

(c) Review periodically and report on the situation on PGRFA, using existing systems and procedures;

(d) Characterize and evaluate PGRFA material collected, disseminate information to facilitate the use of PGRFA collections and assess genetic variation in collections.

(c) International and regional cooperation and coordination

14.60. The appropriate United Nations agencies and regional organizations should:

(a) Strengthen the Global System on the Conservation and Sustainable Use of PGRFA by, inter alia, accelerating the development of the Global Information and Early Warning System to facilitate the exchange of information; developing ways to promote the transfer of environmentally sound technologies, in particular to developing countries; and taking further steps to realize farmers' rights;

(b) Develop subregional, regional and global networks of PGRFA in situ in protected areas;

(c) Prepare periodic state of the world reports on PGRFA;

(d) Prepare a rolling global cooperative plan of action on PGRFA;

(e) Promote, for 1994, the Fourth International Technical Conference on the Conservation and Sustainable Use of PGRFA, which is to adopt the first state of the world report and the first global plan of action on the conservation and sustainable use of PGRFA;

(f) Adjust the Global System for the Conservation and Sustainable Use of PGRFA in line with the outcome of the negotiations of a convention on biological diversity.

Means of implementation

(a) Financing and cost evaluation

14.61. The Conference secretariat has estimated the average total annual cost (1993-2000) of implementing the activities of this programme to be about \$600 million, including about \$300 million from the international community on grant or concessional terms. These are indicative and order of magnitude estimates only and have not been reviewed by Governments. Actual costs and financial terms, including any that are non-concessional, will depend upon, inter alia, the specific strategies and programmes Governments decide upon for implementation.

(b) Scientific and technological means

14.62. Governments, at the appropriate level, with the support of the relevant international and regional organizations, should:

(a) Develop basic science research in such areas as plant taxonomy and phytogeography, utilizing recent developments, such as computer sciences, molecular genetics and in vitro cryopreservation;

(b) Develop major collaborative projects between research programmes in developed and developing countries, particularly for the enhancement of poorly known or neglected crops;

(c) Promote cost-effective technologies for keeping duplicate sets of ex situ collections (which can also be used by local communities);

(d) Develop further conservation sciences in relation to in situ conservation and technical means to link it with ex situ conservation efforts.

(c) Human resource development

14.63. Governments at the appropriate level and with the support of the relevant international and regional organizations should:

(a) Promote training programmes at both undergraduate and post-graduate levels in conservation sciences for running PGRFA facilities and for the design and implementation of national programmes in PGRFA;

(b) Raise the awareness of agricultural extension services in order to link PGRFA activities with user communities;

(c) Develop training materials to promote conservation and utilization of PGRFA at the local level.

(d) Capacity-building

14.64. Governments at the appropriate level, with the support of the relevant international and regional organizations, should establish national policies to provide legal status for and strengthen legal aspects of PGRFA, including long-term financial commitments for germplasm collections and implementation of activities in PGRFA.