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COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Item 3 of the Provisional Agenda

INTERGOVERNMENTAL TECHNICAL WORKING GROUP ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Seventh Session

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FAO ACTIVITIES IN SUPPORT OF THE IMPLEMENTATION OF THE SECOND GLOBAL PLAN OF ACTION FOR PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

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I. INTRODUCTION

1. At its Fourteenth Regular Session, the Commission on Genetic Resources for Food and Agriculture (the Commission) welcomed the progress made in implementing the *Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture* (Second GPA). It requested FAO to continue supporting countries in strengthening their capacities for the implementation of the Second GPA, in close collaboration with the International Treaty and other partners.[1]

2. The Commission also encouraged follow-up activities relating to the conservation and use of plant genetic resources for food and agriculture (PGRFA), including *In Situ* Conservation and Management; *Ex Situ* Conservation; Sustainable Use and Building Sustainable Institutional and Human Capacities.

3. This document provides information on follow-up action taken by FAO in response to the Commission's requests. It provides a summary of the work initiated or completed since the last session of the Commission and requests guidance on further work in these areas, in particular in support of the implementation of the Second GPA.

II. POLICY AND TECHNICAL ASSISTANCE

4. As reflected by FAO's Reviewed Strategic Framework, especially the Second Strategic Objective (Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner) the pivotal role of PGRFA for the achievement of food and nutritional security is well acknowledged. The recent publication of *The Second Report on the State of the World's Plant Genetic Resources for Food and Agriculture* and the subsequent adoption of the Second GPA have been critical levers in highlighting the critical importance of PGRFA to the enhancement of agricultural productivity and environmental protection especially against the backdrop of the effects of climate change, the degradation and depletion of natural resources and varied demographic and socioeconomic drivers of food and nutrition insecurity. This reinvigorated attention to PGRFA presents the Commission with unique opportunities and challenges to follow through with its mandate and commitment and build upon successes and hence empower member countries at the national, regional and international levels to harness the potential of PGRFA through effective conservation and sustainable use.

5. During the reporting period, FAO continued to assist countries in the implementation of the Second GPA through policy and technical interventions delivered through the organization's five Strategic Objectives. FAO's activities strengthen institutional and human capacities and foster enabling environments.

6. The strengthening of partnerships and linkages is a critical delivery mechanism for FAO's work and in this regard. Work in countries is facilitated by collaboration with various partners, including the Convention on Biological Diversity (CBD), International Agricultural Research Centres of the Consultative Group on International Agricultural Research (CGIAR) and regional intergovernmental organizations, e.g. the African Union, ECOWAS, SADC and CEMAC Economic Cooperation Organization (ECO), Sistema de Integración Centro America (SICA). Through these partnerships, activities relevant to the implementation of the Second GPA are implemented with greater levels of efficiency. For instance, FAO develops with the Africa Union, under the auspices of the Africa Seed and Biotechnology Programme (ASBP), a strategic framework for the strengthening of the African seed sector. ASBP has 6 major components reflecting the entire PGRFA management continuum of conservation through crop improvement to seed delivery and, in addition, addresses disaster preparedness. FAO collaborates with sub-regional bodies in the development and

[1] CGRFA-14/13/Report, paragraph 95.

harmonization of policies, laws and strategies that govern the seed sector and other aspects of the conservation and use of PGRFA, including cross-border transfers. More details on these activities are presented below (see sections III to VI).

III. *IN SITU* CONSERVATION AND ON-FARM MANAGEMENT

7. The Commission, at its Fourteenth Regular Session, emphasized the importance of *in situ* conservation and on-farm management of PGRFA and requested FAO to prepare a concept note detailing the governance, structure, functions and financial implications of the establishment of either a global network for *in situ* conservation and on-farm management, or two networks separately addressing these areas, for consideration by its Intergovernmental Technical Working Group on Plant Genetic Resources for Food and Agriculture (Working Group) and the Commission at their next regular sessions.[2] The Commission stressed that the concept note should also consider means of improving and strengthening national and regional networks and means of avoiding the duplication of efforts.

8. Between November 2013 and March 2014, FAO organized a series of expert, stakeholder and member country consultations to consider options for global networking on *in situ* conservation and on-farm management of PGRFA. Subsequently document, *Concept Note on Global Networking of In Situ Conservation and On-Farm Management of Plant Genetic Resources for Food and Agriculture*, was developed which is before the Working Group.[3]

9. The Commission also stressed the importance of establishing genetic reserves for *in situ* conservation of priority crop wild relatives (CWR), which in some circumstances could also include traditional cultivars, and requested FAO to consider providing technical support. It also reminded donors of the extra-budgetary resources that would be necessary for the establishments of such genetic reserves.

10. FAO, in collaboration with international and local partners, supports several field activities relating to *in situ* conservation and on-farm management of PGRFA. FAO supports regional activities including of the Southern Africa Development Community (SADC) in this regard. Two new projects for mainstreaming agro-biodiversity conservation and use have been recently endorsed by GEF and are about to start implementation under the coordination of FAO in Bolivia and Ecuador.[4]

11. As part of the efforts to call attention to the importance of broadening crop diversity on farm, FAO joined Bioversity International and several other international, regional and national stakeholders in the organization of the 3rd International Conference on Neglected and Underutilized Species (NUS): For a Food-Secure Africa, which was held in September 2013 in Accra, Ghana. FAO led a side event on *Promoting and expanding the use of underutilized fruit and vegetable diversity*, which aimed at engendering strategic partnerships to develop collaborative activities on this theme. As a follow up, the publication, *Indigenous Fruits and Vegetable of Tropical Africa: a guide to the sustainable production of selected underutilized crops*, which details the state of knowledge in this area, will be launched at the International Horticultural Congress in August 2014.

12. Funds are currently being sought to finalize and validate two relevant toolkits: *Tools and methods to assess and protect landraces on-farm* and *Tools and methods to assess and protect crops and their wild relatives in situ and on-farm*.

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[2] CGRFA-14/13/Report, paragraph 96.

[3] CGRFA/WG-PGR-7/14/Inf.3.

[4] GCP/BOL/046/GFF *Conservation and sustainable use of agro-biodiversity to improve human nutrition in five macro eco-regions* and GCP/ECU/086/GFF *Mainstreaming the use and conservation of agrobiodiversity in public policy through integrated strategies and in situ implementation in four Andean Highlands provinces*.

IV. *EX SITU* CONSERVATION

13. The Commission, at its Fourteenth Regular Session, endorsed the *Genebank Standards for Plant Genetic Resources for Food and Agriculture* (Genebank Standards) and requested FAO to publish and disseminate the standards widely, raise awareness of their importance and assist countries in developing capacities for their application.[5]

14. The Genebank Standards have been published and are available for download from FAO's website[6]. The Genebank Standards were officially launched by FAO on the last day of the Commission meeting[7] and a series of interviews were broadcast. The Genebank Standards shall be further disseminated, especially in developing countries with limited internet connectivity, by providing electronic versions on portable storage devices.

15. FAO participates in and supports reviews of genebanks, carried out under the auspices of the CGIAR Research Program for Managing and Sustaining Crop Collections in partnership with the Global Crop Diversity Trust. FAO continues to receive requests for support in the collection and conservation of PGRFA and to contribute to field activities in countries that enhance capacities of genebanks. For instance, FAO assisted in the upgrade of the infrastructure of the SADC Plant Genetic Resources Centre, Lusaka, Zambia which, *inter alia*, provides a safety backup for the *ex situ* collections of its member countries. In collaboration with the Secretariat of the International Treaty on PGRFA, FAO disseminates tools for eco-geographic analysis to detect gaps in *ex situ* collections and develop plans for targeted germplasm collecting[8].

V. SUSTAINABLE USE

16. The Commission, at its last session, requested FAO to continue collaborating with partners in capacity development in the areas of plant breeding and seed systems and called upon donors to provide extra-budgetary resources for these areas of work. The Commission stressed the importance of implementing these efforts in synergy with the Programme of Work on Sustainable Use of the International Treaty.[9]

Strengthening of Seed Systems

17. The Commission, at its last Session, requested the Working Group to review the *Draft Guide for National Seed Policy Formulation* for consideration by the Commission at its Fifteenth Regular Session. The *Draft Guide for National Seed Policy Formulation* is contained in document, CGRFA/WG-PGR-7/14/Inf.2.

18. FAO, at the request of countries, continued to provide technical and policy assistance to strengthen seed sector development and partnerships at the national and regional levels. Seed sector development and/or strengthening activities have been implemented in Africa, Asia and Latin America and the Caribbean through a combination of Technical Cooperation Projects and Trust Fund projects. The projects involved the preparation and/or review of seed policies and laws, strengthening institutions and the establishment of local seed enterprises.

19. An increasingly critically important component of FAO's seed sector work is the strengthening of local seed systems. This is being achieved by providing support to create the enabling environment for the establishment of seed enterprises and to promote their efficient management at the

[5] CGRFA-14/13/Report, paragraph 103.

[6] http://www.fao.org/agriculture/crops/thematic-sitemap/theme/seeds-pgr/gbs/en/

[7] http://www.fao.org/news/story/en/item/174838/icode/

[8] http://www.planttreaty.org/content/tools-capfitogen

[9] CGRFA-14/13/Report, paragraph 98.

local community level. In this regard, FAO joined key experts across a range of institutions in a technical consultation on seed and fertilizer policy, held in December 2013 in Addis Ababa, Ethiopia, to develop politically feasible seed and fertilizer policy regimes which would feed into the Africa Union 2014 Year of Agriculture. An Expert Consultation on Seed System Security was also organized in Addis Ababa in December 2013, the proceedings of which are being prepared for publication.

20. Furthermore, FAO led the preparation of a position paper and contributed to the work-stream on Agricultural Inputs (seed, fertilizer and livestock feed) during the 10th Meeting of the Comprehensive Africa Agriculture Development Programme (CAADP) Partnership Platform - "All Africa Conference on Agriculture and Rural Development", March 19-22, 2014, Durban, South Africa. The outputs of this work-stream along with those of the other eight work-streams formed the synthesis paper for the Africa Union Joint Conference of Ministers of Agriculture, Rural Development, Fisheries & Aquaculture held in Addis Ababa, Ethiopia from April 28 to May 2, 2014.

21. In order to ensure that emergency seed relief interventions form part of the overall seed sector development in the long term, FAO is supporting the use of better seed system assessment methodologies in member countries affected by disasters. In this context, FAO implements an ECHO funded project with a component aimed at strengthening the capacity of humanitarian professionals, to conduct accurate seed security assessments with reliable outputs in emergency and rehabilitation situations in eight countries in the Sahel and Horn of Africa.

22. Partnerships are being strengthened with relevant organizations including the International Seed Federation (ISF), International Seed Testing Association (ISTA), OECD Seed Schemes, and the Union for the Protection of New Plant Varieties (UPOV) for assisting countries in the development of the regulatory framework and capacities to support the emergence of viable seed industries and the strengthened capacities for the delivery of quality seeds and planting materials to smallholder farmers especially.

Strengthening Plant Breeding

23. As part of FAO's collaboration with the Secretariat of the International Treaty in implementing its Programme of Work on Sustainable Use of PGRFA, under the auspices of the Global Partnership Initiative for Plant Breeding Capacity Building (GIPB), a series of expert consultations have been held over the reporting period in order to develop a roadmap for promoting a public-private partnership (PPP) for pre-breeding. Subject to the availability of the necessary extra-budgetary funds, GIPB will convene a broader stakeholder consultation to advise on ways to mainstream best practices that facilitate PPP in broadening the genetic base of plant breeding parental lines through pre-breeding.

24. In response to requests by Members, FAO has implemented several field activities funded through both regular programme and trust fund resources to strengthen capacities for plant breeding. Through a regional TCP, the crop improvement programmes of six countries of the SADC region – Botswana, Lesotho, Malawi, Mozambique, Tanzania and Zambia – have been strengthened through human capacity development and the upgrade of infrastructure. Also, the enhanced collaboration between the germplasm curators and plant breeders in these countries, through training in pre-breeding and co-participation in the respective country's PGRFA committees, is leading to improved use of germplasm accessions in plant breeding. Regional stakeholder meetings and national stakeholder workshops for all participating countries were held. Additional funds are critically needed to fund joint activities as means to nurturing the partnerships fostered. Likewise, additional funds will be required to support increased use of crop germplasm in countries in the RNE region that, through the development of National PGRFA Strategies, are fostering closer collaboration between genebank curators, plant breeders and the seed sector.

25. Under the auspices of FAO's Strategic Objective 3, *Reduction of Rural Poverty*, a Pilot Regional Initiative leveraging the cassava value chain as entry point to poverty alleviation in Northern

Ghana was implemented. Studies were conducted to ascertain the extent of the access of farmers to high quality planting materials of the most suitable varieties of cassava and identify the constraints to the cultivation of the right varieties. It is expected that the lessons learned will be fed into the scaled up project and into other interventions in the pipeline such as the project, *Improving the livelihoods of small producers engaged in the roots and tubers value chains in selected African ACP countries through the promotion of linkages to domestic and regional markets*, which is being evaluated by the European Commission for funding in Malawi, Cameroon, Uganda, Rwanda and Ivory Coast.

26. Earlier studies conducted by the GIPB in almost 100 countries indicated that the critical lack of sufficient capacity in the form of skilled personnel, functional infrastructure, operational support, and modern technology greatly constrains the effectiveness and productivity of many plant breeding programs in FAO member countries. The consequence is the paucity of suitable crop varieties to underpin food and nutritional security and climate change adaptation. In response, GIPB developed an analytical and planning tool (Plant Breeding Capacity Analysis) which is a simple and customisable tool to assess an organization's plant breeding capacity and functionality. It can be used by managers and funding agencies to support the design, implementation and management of results-oriented breeding programs and improve the probability of successful outcomes from local, national and international investments. The web-based platform, jointly developed by FAO, USDA and Cornell University under the auspices of the GIPB will be rolled out shortly on the partnership's website which is currently being revamped to meet FAO's corporate standards.

27. An important mechanism for the provision of technical support in crop improvement is through the Joint Programme of FAO and the International Atomic Energy Agency (AGE Division), Vienna, Austria. This Division is currently implementing crop improvement related Technical Cooperation Projects (TCP) in 91 countries through 72 national, regional and interregional projects. Additionally, researchers from a total of 36 countries are collaborating on five crop improvement-themed Coordinated Research Projects (CRPs). Also, the Joint Division, with own laboratories in Seibersdorf, Austria, provides individual and group training courses and technical analytical services, especially the irradiation of seeds and other propagules for the induction of mutations. It also conducts adaptive research in order to enhance the efficiencies for the induction of mutation events, the identification of putative mutants and their use in plant breeding.

28. FAO used the opportunities of international forums and scientific symposia to engage with partners in calling attention to the imperative of improved conservation and increased use of PGRFA as means to enhancing the adaptability of cropping systems to climate change and to safeguarding food and nutritional security. These events included the hosting of side events at the 5th Session of the Governing Body of the International Treaty and participation in: the International Symposium on Genetics and Breeding of Durum Wheat held in May 2013 in Rome, Italy; the Eucarpia Plant Genetic Resources Conference: Pre-breeding – fishing in the gene pool held in June 2013 in Alnarp, Sweden; and the International Plant Breeding Congress, held in November 2013 in Antalya-Turkey. A similar opportunity was FAO's participation in the Meeting of the Independent Science Council of the CGIAR, in March 2014 in Washington DC, USA.

29. The Bill and Melinda Gates Foundation and the United Nations Foundation, through the project , *Securing the Biological Basis of Agriculture and Promoting New and Fuller Use of Crop Genetic Resources*, coordinated by the Global Crop Diversity Trust, provided funding to GIPB from 2007 through 2012. With this funding, the GIPB – conceived as a multi-stakeholder platform to aid countries in the implementation of Article 6 of the International Treaty, was successful in developing and disseminating advocacy and policy materials, conducted an exhaustive survey of plant breeding capacity and served as an information and reference portal for the plant breeding global community of practice. Pre-breeding training courses were implemented and an e-learning course was developed to further enlarge the scope of access to the training materials. Envisaging a long-term engagement, the need for which was indicated by the pervasive weak capacity deduced from several studies, a business plan was developed. However, the partnership has not been successful with attracting additional funds to implement the activities identified in the business plan which are aimed at addressing the

weaknesses identified in the countries. Consequently, FAO has through its core budget been maintaining the barest skeletal web presence for GIPB, a clearly unsustainable situation.

VI. BUILDING SUSTAINABLE INSTITUTIONS AND HUMAN CAPACITIES

National Strategy for PGRFA

30. The Commission, at its last session, expressed its appreciation for FAO's assistance to countries in developing national plant genetic resources strategies, best practices and tools for the implementation of the Second GPA and requested FAO to prepare draft guidelines for national plant genetic resources strategies for review by the Working Group and the Commission at their next sessions.[10] Towards this end, a series of expert and stakeholder consultations were held between November 2013 and March 2014. The *Draft Guidelines for Developing a National Strategy for Plant Genetic Resources for Food and Agriculture: Translating the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture into National Action,* developed on the basis of these consultations, are contained in the document, CGRFA/WG-PGR-7/14/Inf.1.

31. Increasingly, regions develop strategies for the conservation and sustainable use of PGRFA. Examples include the *Strategic action plan to strengthen conservation and use of Mesoamerican plant genetic resources in adapting agriculture to climate change (SAPM) 2014-2024* and the *Plant Genetic Resources for Food and Agriculture Policy Guidelines* of the Southern African Development Community (SADC). Currently, FAO is working with six SADC countries (Botswana, Lesotho, Malawi, Mozambique, Tanzania and Zambia) and four more countries (Egypt, Lebanon, Jordan and Iran) on the development of National PGRFA Strategies. FAO also supports the development of a PGRFA strategy in Rwanda. It is expected that the endorsement of the *Draft Guidelines for Developing a National Strategy for Plant Genetic Resources for Food and Agriculture: Translating the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture into National Action* by the Commission will catalyze similar actions in an increasing number of countries.

National Information Sharing Mechanism

32. The Commission, at its last session, commended the progress made in establishing and enhancing the National Information Sharing Mechanisms (NISMs) and invited its Members to establish or continue updating NISMs and to explore other electronic means of data collection and dissemination in line with the indicators adopted for monitoring the Second GPA. It called for extra-budgetary resources for monitoring the Second GPA in a maximum number of countries and reiterated the need to continue to strengthen collaboration with the International Treaty to ensure that NISMs provide cost-effective support for building the Global Information System.[11]

33. Information on the upgraded computer application, including its new and improved functionalities is provided in the document, *Monitoring the implementation of the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture* (CGRFA/WG-PGR-7/14/3). NISMs will continue to play an essential role for gathering and exchanging of PGRFA information. They will be instrumental for the monitoring and implementation of the Second GPA and the preparation of periodic global assessments of the state of the world's PGRFA.

[10] CGRFA-14/13/Report, paragraph 99.

[11] CGRFA-14/13/Report, paragraph, 100.

VII. GUIDANCE SOUGHT

34. The Working Group may wish to:

IN SITU CONSERVATION AND ON-FARM MANAGEMENT OF PGRFA

- Review the concept note, *Options for the global networking of in situ conservation and on-farm management of plant genetic resources for food and agriculture*, with a view to recommend specific options for endorsement by the Commission;

EX SITU CONSERVATION

- Recommend that the Commission request FAO to strengthen its technical assistance aiming to support countries in the implementation of the Genebank Standards;
- Recommend that the Commission request FAO to propose a mechanism that will allow the Commission and its Working Group to monitor the status of implementation of the Genebank Standards;

SUSTAINABLE USE

Strengthening of Seed Systems

- Review the *Draft Guide for National Seed Policy Formulation* and recommend that the Commission endorse the Guide, as revised by the Working Group;
- Recommend that the Commission reaffirm the importance of further work in the areas of crop improvement, urge FAO to continue to work in collaboration with partners, in particular in support of the implementation of the Second Global Plan of Action and Article 6 of the International Treaty;
- Recommend that the Commission call for extra-budgetary resources to maximize country participation in plant breeding capacity building activities as means to ensure the continued availability of improved crop varieties;
- Recommend that the Commission request FAO continue to strengthen national seed systems to increase the availability of high quality seeds and planting materials of crop varieties most suited to agroecologies and farming systems to enable especially smallholder farmers to increase agricultural productivity;
- Recommend that the Commission reaffirm the need for further collaboration in plant breeding capacity and seed systems development.

Strengthening of Plant Breeding

- Recommend that the Commission reaffirm the importance of the provision of continued technical support to countries in the areas of crop improvement, including pre-breeding;
- Recommend that the Commission calls for extra-budgetary funds to support the GIPB to implement activities identified in the business plan;
- Recommend that the Commission calls for the continued support to the Joint Programme of FAO and the IAEA.

BUILDING SUSTAINABLE INSTITUTIONS AND HUMAN CAPACITIES

National Strategy for PGRFA

- Review and revise, as necessary, the *Draft Guidelines for Developing a National Strategy for Plant Genetic Resources for Food and Agriculture: Translating the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture into National Action*, developed on the basis of these consultations, and recommend that the Commission endorse them;
- Recommend that the Commission calls for extra-budgetary funds to support countries in the implementation of the Second GPA, including through the development of national strategies for the conservation and sustainable use of PGRFA.