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Towards the Third Report on the State of the World's Plant Genetic Resources for Food and Agriculture

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Plant genetic resources for food and agriculture (PGRFA) form the biological basis of world food security and directly or indirectly support the livelihoods of every person on Earth. Ever since hunter-gatherers realized some 12,000 years ago that they could save and plant seeds from season to season, the sum of the world's plant genetic resources for food and agriculture has been expanding. Over the millennia, farmers learned to save seeds from the crops they deemed easiest to process or store, those most likely to survive growing seasons or even those that simply tasted the best. More than 7,000 species of plants have been cultivated for food and agricultural purposes. Many remain important to the food security of local communities. However, it is estimated that only 30 crops now provide 95 percent of human food-energy needs and just five of them – rice, wheat, maize, millet and sorghum – provide about 60 percent. Given the significance of this relatively small group of crop species to global food security, it is of pivotal importance to conserve the diversity within them – which is often immense. The number of distinct varieties of the rice species *Oryza sativa* is estimated to be more than 100 000. Farm communities in the Andes cultivate more than 175 locally named potato varieties. It is this within-species diversity that allows crops to be cultivated in a range of different regions, in different climates and in different types of soil.

The State of the World's Plant Genetic Resources for Food and Agriculture

The State of the World's Plant Genetic Resources for Food and Agriculture[1] (First Report), presented in 1996 by FAO to the Fourth International Technical Conference on Plant Genetic Resources (ITC), was the first comprehensive worldwide assessment of the state of conservation and use of PGRFA. Prepared from 158 country reports and with the input of numerous scientists and other specialists, the report identified gaps and constraints in national and international efforts to safeguard PGRFA and to use them to ensure food security and sustainability of agriculture. The Fourth International Technical Conference on Plant Genetic Resources welcomed the First Report and adopted, in response to its findings, a "Leipzig Declaration" and the rolling Global Plan of Action for the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture, a policy framework that, together with the periodic assessment of the state of the world's plant genetic resources, forms part of the a global information system and is recognized as "supporting component" of the International Treaty on Plant Genetic Resources for Food and Agriculture (Treaty).

12 years later, a new assessment, *The Second Report on the State of the World's Plant Genetic Resources for Food and Agriculture*, was prepared (Second Report). It was presented to the Commission on Genetic Resources for Food and Agriculture (Commission) and its Intergovernmental Technical Working Group on Plant Genetic Resources for Food and Agriculture (Working Group), for their review, and published in all UN official languages in 2010/2011.[2] While focusing on changes and developments that occurred since 1996 and resulting gaps and needs, the Second Report provides an updated assessment of the status and trends of PGRFA. The Commission endorsed the report as "the authoritative assessment of this sector".

Global Plan of Action

Both reports generated global policy responses. In response to the findings of the First Report, the

1 ftp://ftp.fao.org/docrep/fao/meeting/015/w7324e.pdf.

2 http://www.fao.org/docrep/013/i1500e/i1500e00.htm.

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Commission negotiated the rolling *Global Plan of Action on the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture* (GPA), which was adopted by 150 countries at the ITC in 1996. In response to the Second Report the Commission revised the GPA. In November 2011, the FAO Council, on behalf of the FAO Conference, adopted the *Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture* (Second GPA), a revised GPA with updated priorities for the conservation and sustainable use of PGRFA.[3]

The Second GPA is a framework, guide and catalyst for action at national, regional and international levels to create an efficient system for the conservation and sustainable use of PGRFA, including seed systems. It provides a comprehensive and flexible tool for countries to adopt policies and programmes for the conservation and sustainable management of PGRFA, and calls for strengthening capacities and linkages among all stakeholders through a combination of appropriate policies, use of scientific information, farmers' knowledge and joint action. Updating the rolling Global Plan of Action also strengthens the implementation of the Treaty to which the GPA contributes as a supporting component.[4]

Monitoring the implementation of the Second GPA

Following the adoption of the Second GPA,[5] a new framework for monitoring the implementation of the 18 priority activities of the Second GPA through a country-led participatory process has been set up. The monitoring framework is based on a Reporting Format,[6] a questionnaire which serves to collect the information needed to elaborate 63 indicators and 3 Higher-order Composite Indices, as adopted by the Commission.[7,8]

With the aim to facilitate periodic reporting by countries on their efforts to implement the Second GPA, FAO launched in 2015 the Reporting System for the Second GPA, a web based system accessible through the World Information and Early Warning System on PGRFA (WIEW)[9] by officially nominated National Focal Points (NFPs)[10] and stakeholders.

In addition to responding to the Reporting Format which is based on the 63 agreed indicators, NFPs also provide an expert judgement on the level of achievement for each of the indicators. The NFP expert judgements are used to elaborate Higher-order Composite Indices (HCIs) for each of the three PGRFA targets adopted by the Commission:

Target 1 – PGRFA Conservation

By 2020, an increasing proportion of the genetic diversity of cultivated plants and their wild relatives, as well as of wild food plant species is maintained in situ, on farm and ex situ in a complementary manner;

Target 2 – PGRFA Sustainable Use

By 2020, there has been an increased use of plant genetic resources for food and agriculture to improve sustainable crop production intensification and livelihoods while reducing genetic vulnerability of crops and cropping systems; and

Target 3 – PGRFA Institutional and Human Capacities

By 2020, many more people are aware of the values of plant genetic resources for food and agriculture and institutional and human capacities are strengthened to conserve and use them sustainably while minimizing genetic erosion and safeguarding their genetic diversity.

Data reported by NFPs and international organizations are used to produce an assessment of the implementation of the Second GPA.

A first assessment of the implementation of the Second GPA, still based on a limited number of country reports, was presented recently on the occasion of the Eighth Session of the Working Group.[11] The Working Group took note of the results of the assessment and recognized the potential of the monitoring framework and the Higher-order Composite Indices for providing

3 CL 143/REP, paragraph 43.
4 International Treaty on PGRFA, Article 14.
5 http://www.fao.org/docrep/015/i2624e/i2624e00.pdf.
6 CGRFA-15/15/Inf.9
7 CGRFA-14/13/Report, Appendix C.
8 Background Study Paper No. 67. Higher-Order Composite Indices for Plant Genetic Resources for Food and Agriculture Targets.
9 http://www.fao.org/wiews/en/.
10 http://www.fao.org/agriculture/crops/thematic-sitemap/theme/seeds-pgr/gpa/national-focal-points/en/.
11 CGRFA/WG-PGR-8/16/Inf.1 Assessment of the implementation of the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture 2012–2014

a synthetic view of the global status of the conservation and use of PGRFA. The Working Group also expressed concern about the high number of accessions due for regeneration but without the necessary budget coverage and recommended that the Commission continue monitoring the issue closely. With the monitoring framework the Commission will be in a position to review the global status of PGRFA on a regular basis and to target action and new initiatives on actual gaps and needs. It is, of course, essential that countries and other stakeholders report regularly and take action, as appropriate, in response to Commission instruments and recommendations.

Preparation of the Third Report

In 2011, the Commission agreed, through its Multi-Year Programme of Work, that a Third Report on the State of the World's PGRFA (Third Report) be prepared and that the monitoring of the implementation of the Second GPA be fully integrated with the preparatory process for the Third Report.

The proposed timeline for the preparation of the Third Report, as reviewed and revised by the Working Group, at its last session, is as follows:

The deadline for countries to comply with the first round of reporting, covering activities undertaken to implement the Second GPA between January 2012 and June 2014, will be extended until the end of 2017. Through the on-line WIEWS Reporting System for the Second GPA, countries that have not yet done so will be able to complete the Reporting Format and provide NFP ratings on the level of achievement of the Second GPA indicators.

Guidelines for the preparation of country reports contributing to the Third Report will be made available in all UN languages by FAO, following their review by the Working Group in 2018 and their final endorsement by the Commission in 2019.

The second round of reporting, covering activities undertaken between July 2014 and December 2019, is scheduled for 2020. During this year countries will also be asked to produce a synthetic Country Report on the State of PGRFA following the guidelines endorsed by the Commission.

A draft Third Report will be presented to the Eleventh Session of the Working Group in 2022 and will be presented for endorsement by the Commission to its Nineteenth Regular Session (2023).

The Third Report will follow the structure of the Second GPA and will thus be quite different from previous reports.

The introductory chapter will provide the context for the Third Report. It will present a critical review of relevant developments of global, regional, and national importance that impact on the management of PGRFA. This chapter will also discuss emerging challenges and opportunities including science and technology improvements, intellectual property rights regimes, public-private partnerships, the roles of civil society that may have evolved since the Second Report will be treated. The introduction will also include a summary of the most relevant policies and a section on genetic erosion and vulnerability of PGRFA.

The second chapter will focus on *in situ*, on-farm and *ex situ* conservation and explore how and to what extent the different forms of conservation may better complement and support each other. The status of crop wild relatives, wild food plants and landraces will be analysed based on an overview of the current level of conservation, use and erosion with an emphasis on the gaps and needs going forward.

The third chapter of the Third Report will cover sustainable use of PGRFA and will document the potential of PGRFA as actually harnessed and made available to farmers. Country-level information on plant breeding capacity, formal and informal seed systems and the status of crop diversification and neglected and underutilized species will give an important picture of recent achievements in the use and deployment of PGRFA and of the level of PGRFA vulnerability.

The fourth and last chapter of the Third Report will address institutional and human capacities for PGRFA conservation and sustainable use. The chapter will focus on the roles of national policies, legislation, economics, infrastructure, education, etc. for the management of PGRFA.

Towards Monitoring the Implementation of SDG Target 2.5

The new framework for monitoring the implementation of Second GPA will allow FAO to assist countries in monitoring activities contributing to the implementation

of Sustainable Development Goal (SDG) target 2.5.[12] As a custodian of the related indicator, FAO will be responsible for collecting and analysing data, contributing to annual SDG progress reports and for establishing partnerships with other international agencies and relevant stakeholders that support country implementation of the SDGs.

12 **Goal 2.** End hunger, achieve food security and improved nutrition and promote sustainable agriculture; **Target 2.5:** By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.