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# COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

## Item 4 of the Provisional Agenda

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

#### Seventh Session

Rome, 9 – 11 July 2014

### PREPARATION OF *THE THIRD REPORT ON THE STATE OF THE WORLD'S PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE*

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## I. INTRODUCTION

1. The Commission, at its last Session, endorsed the proposed timeline for the preparation of *The Third Report on the State of the World's Plant Genetic Resources for Food and Agriculture* (Third Report) and requested FAO to provide a detailed outline of the Third Report, including suggested chapters and thematic areas, as well as a revised estimated budget indicating Regular Programme contributions, for consideration by the Working Group and the Commission, at their next sessions. The Commission stressed that the monitoring of the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture (Second GPA) and the preparation of the Third Report should be fully integrated. It invited FAO to engage with relevant international organizations to ensure their participation in the preparation of the Third Report from an early stage and invited donors to provide the necessary extra-budgetary resources to facilitate the preparatory process.<sup>1</sup>

2. This document provides some background information with regard to the preparation of previous reports, briefly recapitulates the process and timeline for the preparation of the Third Report, including the synchronization of this process with the monitoring of the Second GPA, and presents a detailed outline for the Third Report, including suggested chapters and thematic areas, as well as an estimated budget integrating the monitoring of the implementation of the Second GPA and the preparation of the Third Report.

## II. BACKGROUND

3. FAO launched the first report on *The State of the World's Plant Genetic Resources for Food and Agriculture* (First Report) in 1996 during the Fourth International Technical Conference on Plant Genetic Resources. The full version of the report was published in 1998. *The Second Report on the State of the World's Plant Genetic Resources for Food and Agriculture* (Second Report) was presented to the Commission in 2009 and published by FAO in 2010. The Second Report updates the First Report with the best data and information available and particularly focuses on changes and developments that have occurred since 1996. It gives an assessment of the status and trends of plant genetic resources for food and agriculture (PGRFA) and identifies the most significant gaps and needs.

4. Both reports generated global policy responses. In response to the findings of the First Report, the Commission negotiated and 150 countries attending the Fourth International Technical Conference on Plant Genetic Resources in 1996 adopted the rolling Global Plan of Action on the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture (GPA). In response to the Second Report, the Commission revised the GPA and 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).<sup>2</sup> The Second GPA is a framework, guide and catalyst for action at national, regional and international level 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 supportive policies and programmes for 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 action.

5. At its last session, the Commission endorsed the proposed timeline for the preparation of the Third Report, as given in *Table 1*.<sup>3</sup> Table 1 reflects the full integration of the preparatory process for the Third Report with the process of monitoring the implementation of the Second GPA. An assessment of the implementation of the Second GPA based on the indicators for the implementation

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<sup>1</sup> CGRFA-14/13/Report, paragraph 101.

<sup>2</sup> CL 143/REP, paragraph 43.

<sup>3</sup> CGRFA-14/13/Report, paragraph 101; CGRFA-14/13/21, *Table 1*.

of the Second GPA, will be presented to the Working Group and the Commission in 2016/2017. The Third Report will be based on Country Reports and other additional sources of information.<sup>4</sup>

<b>Table 1: Monitoring the implementation of the Second GPA and preparing <i>The Third Report on the State of the World's Plant Genetic Resources for Food and Agriculture</i></b>				
Reports to the Working Group and the Commission	Information sources	Timeline		
		ITWG-8 2016 CGRFA-16 2017	ITWG-9 2018 CGRFA-17 2019	ITWG-10 2020 CGRFA-18 2021
Second GPA implementation assessment	Data provided through NISM or other sources on the basis of agreed indicators			
Report on feasibility of composite indices for PGRFA				
Third Report	Data provided through NISM or other sources on the basis of agreed indicators, country reports and thematic studies and other relevant sources			

### III. DETAILED OUTLINE OF THE THIRD REPORT ON THE STATE OF THE WORLD'S PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

6. The Third Report will, while building upon previous reports, provide up-to-date information on the global status of the conservation and use of PGRFA. The Third Report will document the developments in policies, processes, practices, advances in science and technology that impact PGRFA at the global, regional and national levels especially in regard to their contributions to food and nutrition security and the safeguarding of ecosystems. It will aim to identify gaps and needs that must be addressed in order to attain the dual goals of conserving PGRFA while utilizing them sustainably.

7. The Third Report is aligned closely with the structure of the Second GPA. It covers the four key areas and identifies gaps and needs within them, focusing on the main changes since the last report. The Third Report, it is suggested, could therefore fall into the following main chapters: (1) Introduction; (2) Conservation of PGRFA; (3) Sustainable Use of PGRFA; (4) Institutional and Human Capacities for PGRFA Conservation and Use. While the Third Report will be primarily based on country reports, in-depth thematic studies may provide further information on the implementation of specific aspects of the conservation and sustainable use of PGRFA. A detailed outline is contained in *Appendix I* to this document. A list of possible thematic studies is given in *Appendix II*, for information.

<sup>4</sup> The review of the implementation of the Second GPA for the Commission's next session, as foreseen in the Strategic Plan for the Commission on Genetic Resources for Food and Agriculture 2014-2023, will be based on a report on FAO activities in support of the implementation of the Second GPA, including on the development of composite indices.

#### IV. PROVISIONAL BUDGET

8. The preparation of the Third Report will require substantial human and financial resources to gather high-quality data and information in a sustained manner and to enable countries to provide/update assessments to WIEWS via National Information Sharing Mechanisms on the implementation of the Global Plan of Action (NISMs). For this purpose, technical adjustments will need to be made to the existing software for which extra-budgetary resources will be required. Financial support will also be required to enable the full participation of developing countries in the process, including for organizing national stakeholder consultations, establishing and updating NISMs and preparing country reports.

9. For the preparation of the Third Report, it is estimated that about USD 1,857,000 will be required as extra-budgetary funds (see Table 1), provided that USD 1,109,000 can be secured from the Regular Programme. The Regular Programme contributions given for the next biennium and beyond are indicative and subject to the approval of the Programme of Work and Budget by the FAO Conference. The budget would support the preparation of assessments of the status of implementation of the Second GPA as well as the preparation of Country Reports in 120 countries and the production of three thematic studies.

10. The total cost of the preparation and publication of the First Report amounted to USD 5.5 million and was fully supported with extra-budgetary resources received from France, Germany, Italy, Japan, The Netherlands, Norway, Spain, Sweden, Switzerland, and the United States of America.<sup>5</sup> For the Second Report, about USD 3 million were spent including extra-budgetary resources from Canada, Italy, Japan, The Netherlands, Norway, and Spain.<sup>6</sup>

#### V. GUIDANCE SOUGHT

11. The Working Group may wish to

- Review and provide suggestions to the proposed outline of the Third Report as given in *Appendix I*; and
- Recommend that the Commission invite donors to provide the necessary extra-budgetary resources to allow for the full participation of developing countries in the monitoring of the implementation of the Second GPA and the preparation of the Third Report.

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<sup>5</sup> *The State of the World's Plant Genetic Resources for Food and Agriculture*. Preface endnote 10, page 8.

<sup>6</sup> CGRFA/WG-PGR-3/05/3, paragraph 20

**Table 1. Proposed core activities and budget for monitoring the implementation of the Second GPA and preparing the Third Report – 2014 to 2021<sup>7</sup> (amounts in US\$1000s)**

	2014-2015		2016-2017		2018-2019		2020-2021		TOTAL		
	RP <sup>8</sup>	EB	RP <sup>8,9</sup>	EB	RP <sup>8,9</sup>	EB	RP <sup>8,9</sup>	EB	RP	EB	RP+EB
<b>Mobilize funding for the process and the report</b>	11		11		11		11		44	0	44
<b>Coordinate the reporting process and communications</b>	77		80		82		64		303	0	303
<b>National stakeholder consultations for GPA-2 assessments (through NISM) and country reports preparation<sup>10</sup></b>		520		520		520			0	1560	1560
<b>Analyse data and prepare a synthesis</b>	55				54				109	0	109
<b>Upgrade, maintain and moderate WIEWS and NISMs</b>	116		67		67		49		299	0	299
<b>Development of thematic background studies<sup>11</sup></b>					18	120			18	120	138
<b>Coordinate the updating of and update the appendices</b>					21	22			21	22	43
<b>Prepare and publish Second GPA implementation report</b>			14						14	0	14
<b>Prepare and publish draft of The Third Report</b>					185	22			185	22	207
<b>Prepare the Third Report for ITWG-PGR-10</b>					14	33			14	33	47
<b>Prepare the Third Report for CGRFA-18</b>							22	18	22	18	40
<b>Publish the Third Report and its in-brief version</b>							61	82	61	82	143
<b>Launch the Third Report (communication strategy)</b>							19		19	0	19
<b>TOTAL</b>	259	520	172	520	452	717	226	100	<b>1109</b>	<b>1857</b>	<b>2966</b>

RP = Regular Programme; EB = Extra Budgetary

<sup>7</sup> It is assumed that the Eighteenth Regular Session of the Commission will take place in early 2021.

<sup>8</sup> Estimated Regular Programme contribution to the preparation process and the Third Report, covering mainly salaries for Professional and General Staff.

<sup>9</sup> Subject to the approval of PWB by FAO Conference

<sup>10</sup> Assistance to 120 developing countries to convene national workshops with stakeholders to produce 2 assessments on the implementation of the Second GPA and country reports. Budgeted at USD 13,000/country

<sup>11</sup> Support the development of thematic studies and other necessary background material and expert meetings for the Report, according to the priorities identified by the Commission. Budgeted at USD 40,000/study for 3 thematic studies

## APPENDIX I

### PROPOSED OUTLINE FOR THE THIRD REPORT OF THE STATE OF THE WORLD'S PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

#### Executive Summary

#### Chapter 1. Introduction

This 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. These may include population trends and demography as they relate to food and nutritional security and climate change and other drivers that impact on the conservation and sustainable use of PGRFA. Other topical issues may include reviews on the prevailing needs and perspectives of stakeholders and the defining trends of their interventions along the PGRFA management continuum. As in previous editions, the emerging challenges and opportunities that may encompass advances in science and technology, intellectual property rights regimes, public-private partnerships, the roles of civil society, etc. that may have evolved since the Second Report will be treated.

#### Chapter 2. Conservation of PGRFA

**[Relevant CGRFA Target: *By 2020, 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.*]**

##### A. *In situ* conservation

Crop wild relatives and wild harvested plant species are increasingly recognized as invaluable repositories of genes for introducing desirable traits into crops as means for enhancing food and nutritional security. The global attention accorded the imperative of conserving this irreplaceable trove of heritable traits that could be gainfully deployed in crop improvement, in manners that permit easy access to them, is expected to increase considerably. Landraces and underutilized local and traditional crops are at increasing risk of being lost and on-farm conservation and management are recognized as means to stem the genetic erosion that threaten these resources. Taken in concert, information from country assessments of the implementation of the Second GPA, country reports and the envisaged thematic studies should provide a valid overview on the status of conservation and use of PGRFA on farms and in wild and managed ecosystems, including genetic reserves.

##### B. *Ex situ* conservation

*Ex situ* collections will likely continue to be the centerpiece of PGRFA conservation and use. Information on the status of germplasm collection, conservation and characterization to be gleaned from national assessments and reports, and updates on international initiatives will together provide an authoritative inference on the statuses of conservation, distribution and exchange, evaluation and utilization, and research for PGRFA held in genebanks. This will enable a treatise on the trends (including opportunities and challenges) that impacts *ex situ* conservation. For instance, the means and extent of gaps in gene bank germplasm holdings, targeted collecting and germplasm exchange levels, the security of collections, regeneration, data and information management, and the full range of *ex situ* strategies (storage of orthodox and recalcitrant seed, various culture conditions, and field gene banks, gardens, and arboreta) shall be showcased.

The above information and results will be analyzed in the context of what has changed or emerged since the Second Report, with an emphasis on the gaps and needs going forward.

### **Chapter 3. Sustainable Use of PGRFA**

**[Relevant CGRFA Target: *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.*]**

In both the First and Second Reports, a chasm can be discerned between the potential for PGRFA – to contribute well adapted crop varieties to sustainable agricultural and economic development, enhance food and nutritional security, allay poverty, and promote health and dietary diversity – and the actual extent to which the resources have been harnessed to do so. This disconnect will still be evident in the Third Report, but it will be a goal of this chapter to document the extent to which the situation has improved in the intervening period since 2009.

Questions to be addressed will include:

- i. will there have been progress in the extent of use of PGRFA in crop improvement, including base-broadening activities through pre-breeding?
- ii. do characterization and evaluation of germplasm result in enhanced use of the germplasm in breeding programs?
- iii. what is the relationship between access to germplasm and national crop and variety diversity?

Country-level information on plant breeding capacity, analysis of seed systems (formal and informal), and promotion of crop diversification and neglected and underutilized species will give an important snapshot of the extent of gains achieved in use and deployment of PGRFA. An important aspect of crop production systems for assessing the utility of PGRFA is in the extent of their contributions to the mitigation of disaster situations via the resilience of crop varieties and seed systems. The chapter will conclude by teasing out identified gaps and needs and projections on how to address these.

### **Chapter 4. Institutional and Human Capacities for PGRFA Conservation and Use**

**[Relevant CGRFA Target: *By 2020, 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.*]**

The management of PGRFA entails more than the germplasm and those who directly work with it. The roles of national policies, legislations, regulations, economics, infrastructure, education, etc. on the management of PGRFA will constitute the overarching subject for this chapter. The country responses to assessment indicators and the country reports will be mined for PGRFA management indices like the status of National PGRFA Programmes, networks, and information systems. This chapter will also take into account current information available from, and ongoing work under, the International Treaty on PGRFA. Considering that up to 15 years that would have passed since the coming into force of the International Treaty on PGRFA, this chapter will also highlight the critical role it has played so far, outlining some key developments and reviewing some of the major progresses made in its implementation, and would be seeking to answer such questions as:

- i. has access to germplasm become easier and exchange improved?
- ii. how effective has use of the standard material transfer agreements been in facilitating access and exchange, and how extensive have the multilateral exchange opportunities been?
- iii. what is the nature of benefits so far derived by key stakeholders, and have benefits (both perceived and actual) increased over time?
- iv. What is the status of national human resources capacity related to PGRFA?
- v. How well integrated into national agricultural and economic priorities are matters relating to the management of PGRFA?
- vi. Have legal and policy frameworks been instituted for facilitating PGRFA access and benefit sharing?

The extent of the promotion of the conservation and use of PGRFA and the creation of awareness will also be reflected in this chapter. Finally, the conclusions will track the prevailing trends since the

publication of the Second Report with the aim to identify progress made and the gaps and needs to be addressed.

**Annexes**

Annex 1. List of countries that provided information for the preparation of the Third Report

Annex 2. Regional distribution of countries

**Appendices**

Appendix 1. Status by country of national legislation related to PGRFA

Appendix 2. Major germplasm collections by crop and institute or organization

Appendix 3. State of diversity for major and minor crops

## APPENDIX II

### THEMATIC STUDIES

The role of thematic studies for the Third Report will be to provide context and background information on relevant themes that may include advances in scientific and technological methodologies, resources, opportunities, and challenges that impact countries' capacities to conserve PGRFA and use them sustainably as means to enhance crop production and protect the environment. At this point, some five or more years before the compilation of a first draft of the Third Report, it is not possible to anticipate with certainty what topics will be relevant for thematic studies. However, going by antecedents and the topical issues relating to the management of PGRFA, candidate studies on below themes (or combinations of) may include:

- Current and expected impacts on the conservation and use of PGRFA of climate change and trends according to the latest assessments and predictions. Consequences of climate change may become more evident; nations may have become more or less effective at adapting to and mitigating climate change impacts; global and regional strategies for coping with climate change may have emerged; etc.
- The latest methodologies and technologies for identifying, measuring, and monitoring genetic diversity, genetic erosion, and genetic vulnerability as part of the management of PGRFA. The concept of genetic erosion is intuitive, but documenting data have been hard for many reasons. Relevant novel advances would be presented, with emphases on costs and feasibility of their deployments at national levels.
- Advances in molecular biology (including genomics, the other –omics and recombinant DNA techniques) that permit enhanced efficiencies and increased assay throughputs will impact significantly the capacities for identification, conservation, and use of PGRFA. Initially available for the few major crops and its applications restricted – by costs and know-how – almost exclusively to developed countries, molecular biology is being used increasingly for minor crops and in developing countries also. For instance, the continuing reduction in costs and myriad collaborative initiatives – aimed at generating public goods – have made the sequencing of the genomes of a number of 'orphan' crops possible and thereby generating robust genomics resources that are mostly accessible in the public domain. It is plausible therefore to explore, say, in the next five years what new frontiers, especially for use of PGRFA, that these initiatives would have opened.