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 | Продовольственная и сельскохозяйственная организация Объединенных Наций | Organización de las Naciones Unidas para la Alimentación y la Agricultura | منظمة الأغذية والزراعة للأمم المتحدة

COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Item 5 of the Provisional Agenda

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

Tenth Session

22–24 June 2021

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

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* Replaces CGRFA/WG-PGR-10/21/4 in English only.

I. INTRODUCTION

1. The Multi-Year Programme of Work (MYPOW) of the Commission on Genetic Resources for Food and Agriculture (Commission) foresees the presentation of *The Third Report on the State of the World's Plant Genetic Resources for Food and Agriculture* (Third Report) at the Commission's Nineteenth Regular Session.

2. In 2019, the Commission requested National Focal Points (NFPs) to report between January and December 2020 on the implementation of the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture (Second GPA) for the period of July 2014 to December 2019 through the World Information and Early Warning System on Plant Genetic Resources for Food and Agriculture (WIEWS). In addition, it invited the NFPs to provide a summative narrative of the progress made (between January 2012 and December 2019) and the remaining gaps and constraints. The Commission requested FAO to propose thematic background studies, including on the global exchange of germplasm from and to genebanks, to complement the information used for the preparation of the Third Report. It requested FAO to specify the purpose and content of proposed thematic background studies and how the studies would contribute to the Third Report, for consideration by the Working Group.

3. This document details progress on the preparation of the Third Report, in particular country reporting, and provides brief descriptions of the proposed thematic background studies.

II. BACKGROUND

4. The first report on *The State of the World's Plant Genetic Resources for Food and Agriculture* (First Report) was launched in 1996 on the occasion of the Fourth International Technical Conference on Plant Genetic Resources.[1] Over 155 countries contributed to the preparation of the First Report. The findings of this first global assessment of plant genetic resources for food and agriculture (PGRFA) triggered the adoption of the first Global Plan of Action on the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture (GPA) by the Fourth International Technical Conference on Plant Genetic Resources.

5. In 2009, FAO launched *The Second Report on the State of the World's Plant Genetic Resources for Food and Agriculture* (Second Report)[2] that was endorsed by the Commission at its Twelfth Regular Session.[3] Country reports of 115 countries provided the main source of information for the Second Report. The Second Report highlighted the main changes and developments that had occurred since 1996 and identified the most significant gaps and needs related to the conservation and sustainable use of PGRFA. In response to the Second Report, the Commission agreed to revise the GPA and, in 2011, approved the *Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture* (Second GPA),[4] subsequently adopted by the FAO Council on behalf of the FAO Conference.[5]

6. In 2013, the Commission decided that the draft Third Report should be made available at its Eighteenth Regular Session in 2021.[6] In 2017, at its Sixteenth Regular Session, the Commission revised the timeline for the preparation of the Third Report and postponed its launch to its Nineteenth Session in 2023.[7]

[1] ITCPGR/96/REP.
[2] http://www.fao.org/3/i1500e/i1500e00.htm
[3] CGRFA-12/09/Report, paragraph 17.
[4] FAO, 2011. *Second Global Plan of Action on Plant Genetic Resources for Food and Agriculture*. Rome. (also available at http://www.fao.org/3/i2624e/i2624e00.htm).
[5] CL 143/REP, paragraph 43.
[6] CGRFA-14/13/Report, paragraph 101.
[7] CGRFA-16/17/Report Rev.1, paragraph 66.

III. COUNTRY REPORTING AND OTHER DATA GATHERING PROCESSES

7. In line with the previous global assessments, the Third Report will be based on information provided by countries, complemented by reports from relevant international organizations, and thematic background studies.

8. In line with the approach endorsed by the Commission at its last session, the preparation of the Third Report no longer relies on stand-alone country reports.[8] Instead, the Third Report will be based on data gathered during two reporting periods with the first reporting period spanning from January 2012 to June 2014 and the second from July 2014 to December 2019. NFPs reported between January 2015 and December 2017 on the first reporting period and commenced reporting on the second reporting period in January 2020. Reporting was facilitated through an online questionnaire, which was based on the indicators that the Commission had previously agreed on. During the second reporting cycle, in 2020, NFPs complemented the data provided by a report on the progress made in the implementation of the Second GPA between January 2012 and December 2019 and on remaining constraints ("summative narrative").

9. The guidelines for country reporting include the Reporting Format, as revised by the Commission in 2019,[9] and assist countries in completing the summative narratives for each of the 18 priority activities of the Second GPA.

10. The use of the WIEWS Reporting Tool, developed by FAO as an online application available in all FAO official languages, facilitates standardized data reporting by NFPs and national stakeholders, and helps to analyse country data. The WIEWS Reporting Tool enables NFPs to rate progress made in the implementation of the Second GPA and guide them in the elaboration of the summative narrative for each of the 18 priority activities of the Second GPA.

11. A total of 78 countries contributed information on the first reporting period (2012–2014), even though not every country replied to all questions. In 2016, FAO presented a preliminary analysis of the state of the implementation of the Second GPA, based on data received from 43 countries by March 2016.[10]

12. In 2019, FAO invited Member Nations[11] to submit data for the second reporting period through their NFPs between January and December 2020. NFPs were also given the opportunity to report, revise or complement data for the first reporting period. A reminder was sent in April 2020.[12] More detailed information, including on the online WIEWS Reporting Tool, the user manual,[13] as well as the guidelines for country reporting, was made available online in all official languages of FAO.[14] Furthermore, a comprehensive list of frequently asked questions (FAQs), including detailed explanations for all questions and indicators and a glossary, were provided online.

13. With a view to assist NFPs and stakeholders in reporting, FAO held online training sessions in English, French and Spanish in 2020. The trainings included brief introductions to the process for the preparation of the Third Report and to the guidelines for country reporting, as well as a detailed overview of the functionality of the WIEWS Reporting Tool and the expected outputs. Over 440 participants from more than 75 countries attended the training sessions; recordings of the training sessions were made available to the participants through the Zoom platform. FAO provided technical assistance, including short training sessions addressing country-specific issues and queries, as required, to individual NFPs and their stakeholders on an *ad hoc* basis.

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[8] CGRFA-17/19/9.4; CGRFA-17/19/Report, paragraph 69.
[9] CGRFA-17/19/9.2/Inf.6.
[10] Assessment of the Implementation of the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture 2012–2014 - CGRFA/WG-PGR-8/16/Inf.1 Rev.1 and CGRFA-16/17/Inf.17.2.
[11] CSL C/CBD-10 (June, 2019) http://www.fao.org/3/ca5229en/ca5229en.pdf
[12] CSL C/AGP-30 (April, 2020) http://www.fao.org/fileadmin/user_upload/wiews/docs/C_AGP_30_e.pdf
[13] http://www.fao.org/wiews/en/; WIEWS Reporting Tool on the Implementation of the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture - User Manual (also available at http://www.fao.org/pgrfa/resources/documentlogs/UserManual_EN.pdf).
[14] CGRFA/WG-PGR-10/21/4/Inf.1, Preparation of country reports for the *Third Report on the State of the World's Plant Genetic Resources for Food and Agriculture*.

14. As of 31 March 2021, a total of 128 countries had nominated a NFP and, despite the challenges posed by the COVID-19 pandemic and the resulting quarantine and travel restrictions, 45 countries had completed online reporting, while one country had provided a stand-alone report. In addition, 24 countries were in an advanced stage of the reporting process while 15 had just begun. Furthermore, while reporting on the implementation of the Second GPA during July 2014 – December 2019, 50 countries also provided information on the implementation of the Second GPA during January 2012 – June 2014. Six of the 50 countries reported for the first time on the first reporting period, bringing the total number of countries that reported on this period to 84.

15. The participation of key national stakeholders in the preparation of the Third Report is essential. Over 600 institutions and organizations provided information on the conservation and sustainable use of PGRFA during the first reporting cycle. Preliminary results from the second reporting cycle indicate that data have been provided by more than 900 stakeholders. In total over 1 130 stakeholders have so far provided data on the implementation of the Second GPA, which feed into the preparation of the Third Report.

16. Relevant international and regional organizations were invited to contribute to the preparation of the Third Report by completing an *ad hoc* survey. As of 17 April 2021, twelve international organizations provided information on their activities for both reporting periods.

IV. THEMATIC BACKGROUND STUDIES

17. At its last session, the Commission requested FAO to propose thematic background studies, including on the global exchange of germplasm from and to genebanks, to complement the information used for the preparation of the Third Report. It requested FAO to specify for all thematic background studies proposed their purpose, content and contribution to the Third Report.[15] The list of proposed thematic background studies, as given in *Appendix I* to this document, responds to this request.

V. BUDGET

18. Financial support has already been provided by FAO through its regular programme budget and by Norway, Spain and Switzerland, including through the Commission's Multi-donor Trust Fund (GCP/GLO/841/MUL) to support reporting in 48 country reports, including stakeholder consultations at national level and the hiring of local experts. The budget required for completing the preparation of the Third Report is provided in *Appendix II*. Extra budgetary resources in the amount of 675 000 USD are still required.

VI. REVIEW OF THE SECOND GLOBAL PLAN OF ACTION FOR PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

19. As a strategic framework, the Second GPA needs to be periodically reviewed and updated as necessary to ensure that it continues to be fit for purpose.

20. According to the Second GPA, the Commission will plan the review of the implementation of the Second GPA as well as the review of the Second GPA itself within its MYPOW, in close cooperation with the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture (Treaty). The review should deal with the progress made at the national, regional and international levels in the implementation, elaboration and adjustment, as appropriate, of the Second GPA.

21. The Working Group may wish to recommend to the Commission that, based on the findings of the Third Report, and following regional consultations, the Second GPA be reviewed and revised as appropriate for consideration by the Commission at its Twentieth Regular Session.

[15] CGRFA-17/19/Report, paragraph 70.

VII. GUIDANCE SOUGHT

22. The Working Group may wish to:

(i) review and revise, as appropriate, the list of thematic background studies, for consideration by the Commission;

(ii) recommend that the Commission extend the deadline for country reporting for the Third Report to 31 December 2021;

(iii) recommend that based on the findings of the Third Report, and following regional consultations, the Second GPA be reviewed and revised as appropriate for consideration by the Working Group, and subsequently the Commission at its Twentieth Regular Session; and

(iv) recommend that the Commission invite donors to continue supporting FAO through the extra-budgetary resources needed for the finalization and publication of the Third Report and the review process of the Second GPA.

APPENDIX I

REVISED LIST OF PROPOSED THEMATIC BACKGROUND STUDIES

The Third Report on the State of the World's Plant Genetic Resources for Food and Agriculture (Third Report) shall be based on data and summative narratives on the implementation of the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture (Second GPA) for the period, January 2012 to June 2019. It will document the progress made and the identified gaps and constraints in relation to the 63 Indicators for the implementation of the Second GPA as reported by National Focal Points. In response to the Commission's request to propose thematic background studies to complement the above sources of information used in preparing the Third Report, a revised list of studies on cross-cutting themes that impact the conservation and sustainable use of plant genetic resources for food and agriculture (PGRFA) is proposed in this *Appendix*. The thematic background studies shall provide context for the Third Report. They shall review the relevant emerging issues, advances and/or trends, especially in scientific and technological disciplines, legal and regulatory matters, policies, norms and societal developments since the publication of the *Second Report on the State of the World's Plant Genetic Resources for Food and Agriculture* (Second Report).[16] The proposed themes are:

- **Climate change**. Extreme weather events will continue to impact on where and how PGRFA are conserved, especially crop wild relatives (CWR) and wild food plants. These events therefore affect the distribution and continuing evolution of adaptive traits of these PGRFA and also shape decisions on how they are used, especially in the breeding of crop varieties that are tolerant of harsh environmental conditions. It is for this reason that a majority of the Nationally Determined Contributions (NDCs)[17] to the implementation of the Paris Climate Accord[18] includes measures to adapt agricultural production to the vagaries of changing climatic conditions. Therefore, countries, in order to meet their obligations in the NDCs and to implement the related Sendai Framework for Disaster Risk Reduction[19] and the Koronivia Joint Work on Agriculture[20] (that also seeks to address the vulnerabilities of agriculture and hence food security and nutrition to climate change), will require support and tools for, *inter alia*, predicting the PGRFA that are most at risk and determining how to safeguard and use them sustainably. A study deepening the results of the scoping study "The role of genetic resources for food and agriculture in climate change adaptation and mitigation"[21] on how climate change is influencing both adaptation and mitigation practices would therefore be a significant addition to the Third Report. Empirical evidence on the observed trends – over time and across regions; identified gaps and needs and prognosis for the future would certainly serve as an invaluable companion piece to the Report's Chapters 2 and 3, on conservation and sustainable use of PGRFA, respectively.
- **Nutrition**. Hidden hunger, i.e. micronutrient deficiency, and obesity, are critically important public health concerns. The international community, through, *inter alia*, the ICN2 Framework of Action[22] and its facilitating United Nations Decade of Action on Nutrition (2016–2025),[23] commit to address the scourges. While the 2016 World Food Prize was awarded for work on the biofortification of staple crops and their enhanced availability to vulnerable populations,[24] the levels of malnutrition have continued to rise steadily over the past few years.[25] The enhancements of the quality and nutritional attributes of improved crop varieties, as standard plant breeding objectives, and more diversified diets that include leafy vegetables and pulses, must therefore be accorded high priorities.

[16] http://www.fao.org/docrep/013/i1500e/i1500e00.htm
[17] http://unfccc.int/focus/items/10240.php
[18] http://unfccc.int/files/home/application/pdf/paris_agreement.pdf
[19] https://www.unisdr.org/we/coordinate/sendai-framework
[20] https://unfccc.int/files/meetings/bonn_nov_2017/application/pdf/cp23_auv_agri.pdf
[21] CGRFA/WG-PGR-10/21/7/Inf.1.
[22] http://www.fao.org/3/a-mm215e.pdf
[23] http://www.who.int/nutrition/decade-of-action/workprogramme-2016to2025/en/
[24] https://www.worldfoodprize.org/en/laureates/2016__andrade_mwanga_low_and_bouis/ 6 CGRFA/WG-PGR-9/18/4
[25] FAO, IFAD, UNICEF, WFP & WHO. 2020. *The State of Food Security and Nutrition in the World 2020*. *Transforming food systems for affordable healthy diets*. Rome, FAO. (also available at https://doi.org/10.4060/ca9692en).

In addition to this obvious relevance to the Report's Chapter 3 on the sustainable use of PGRFA, this study shall additionally provide context to Chapter 2 on the conservation of PGRFA, especially as resource-poor people in developing countries rely on wild plants harvested for food as their reliable sources of micronutrients. Currently, though almost 30 000 plant species are edible[26] and over 6 000 have been cultivated for human consumption, only three crops (maize, wheat and rice) account for 42 percent of total food supply (kcal/capita/day) in the human diet. A majority of the potential sources of plant-based nutrients are therefore neglected, harvested only from the wild or are only semi-domesticated. A thematic background study that reviews the documented and potential contributions of PGRFA to enhanced nutrition will be a worthy complement to information provided by countries.

- **Genotyping and phenotyping PGRFA**. New efficiency-enhancing tools and methods are increasing our capacities for generating large amounts of reliable data on germplasm at cost and time-efficient rates previously unimaginable. For instance, Focused Identification of Germplasm Strategy (or FIGS) enables the predictive characterization of new genetic resources by permitting the assignment of potential phenotypic or genotypic properties based on environmental information of the collecting sites or data on already characterized samples. The average costs for generating molecular genetic data have decreased sharply in the recent past. This, coupled with increasingly improved human and institutional capacities, is permitting the routine use of high throughput molecular genetic platforms to generate unprecedented amounts of data quickly and cheaply. Genotyping by Sequencing (or GBS), whereby whole genome sequences of several samples of individuals are used to catalogue variations, is one example. In like manner, high throughput phenotyping platforms, including those based on imaging, are being used to generate vast amounts of morphological, physiological and biochemical data that are of important predictive values. Phenomics is a relatively new biological discipline that is concerned with aligning phenotypic and genotypic data and therefore aiding the establishment of cause–effect relationships between observed traits and their underlying molecular bases. A review of the advances, trends and gaps in these areas shall provide context not only for data obtained from countries for Chapters 2 and 3 of the Report but also for Chapter 4 on institutional and human capacities.

- **Novel biotechnologies**. Biotechnologies are continually evolving and have a profound impact on the conservation and sustainable use of PGRFA. New biotechnologies are described in document "Recent developments in biotechnologies relevant to the characterization, sustainable use and conservation of genetic resources for food and agriculture".[27] A background thematic study will explore the evolutions of the applications of novel biotechnologies, such as genome editing, gene drive, synthetic biology and Next Generation Sequencing, on the conservation and use of PGRFA. Both the advances in science and technology and the enabling policy regimes will be examined.

- **Germplasm exchange.** The continued improvement of food security and nutrition largely depends on the possibility to exchange germplasm across countries and regions. Germplasm exchange and distribution may also play an important role for restoring crop collections in centres of origin or making available crop diversity in farmers' fields after disaster situations. Information on germplasm exchange, as reported by countries through the WIEWS Reporting Tool on indicators 6, 28 and 29 of the Second GPA monitoring framework[28] and under the Data Store of the Multilateral System of the Treaty will form the basis for this thematic background study. However, the thematic background study will go beyond data usually reported by countries and make use of additional sources of information by incorporating data from other existing active collections currently not covered by country reporting in WIEWS. The study will also cover germplasm of crops that do not fall under Annex 1 of the Treaty and, thus, complement information about material transferred with the Treaty's Standard Material Transfer Agreement. The study will also provide information on the

[26] Food Plants International Database. http://foodplantsinternational.com/plants/
[27] CGRFA/WG-PGR-10/21/8/Inf.1
[28] Indicator 6. Number of farmers' varieties/landraces distributed from national or local genebanks to farmers (either directly or through intermediaries); 28. Number of accessions distributed by genebanks to users of germplasm; and 29. Number of samples distributed by genebanks to users of germplasm.

impact of the COVID-19 pandemic on germplasm distribution. The study will be conducted in collaboration with the Secretariat of the Treaty.

APPENDIX II

PROPOSED BUDGET FOR COMPLETING THE PREPARATION OF THE THIRD REPORT 2021 AND 2022-2023[29] (AMOUNTS IN US$1000s)

	2021		2022-2023		TOTAL		
	RP[30]	EB	RP[31]	EB	RP	EB	RP+EB
Assist National Focal Points' country reporting[32]		68				68	68
Upgrade, maintain and moderate WIEWS	12			49	12	49	61
Develop thematic background studies[33]		100		50		150	150
Analyse data and prepare a synthesis			38		38		38
Prepare draft of The Third Report		30	120		120	30	150
Coordinate the updating of and update the appendices			21	22	21	22	43
Prepare the in-brief version			7	5	7	5	12
Format and translate (5 languages) the Third Report and it's in-brief version[34]				232		232	232
Publish the Third Report and it's in-brief version			24	119	24	119	143
Launch the Third Report (communication strategy)			19		19		19
TOTAL	**12**	**198**	**229**	**477**	**241**	**675**	**916**

RP = Regular Programme; EB = Extra Budgetary

[29] It is assumed that the Nineteenth Regular Session of the Commission will take place in 2023.

[30] Estimated Regular Programme contribution to the preparation process and the Third Report, not covering salaries for existing Professional and General Staff under NSP.

[31] Subject to the approval of PWB by FAO Conference.

[32] Assistance to 15 developing countries to hire a consultant supporting the NFP to produce assessment on the implementation of the Second GPA and summative narratives. Budgeted at USD 4,500/country.

[33] 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 30,000/study for 5 thematic studies.

[34] Estimated for a number of words equivalent to the Second Report.