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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

Tenth Session

22–24 June 2021

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. The Commission on Genetic Resources for Food and Agriculture (Commission), at its Seventeenth Regular Session, requested FAO to continue supporting countries, in close coordination with its partners, in strengthening their crop improvement capacity and, in particular, in support of the implementation of the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture (Second GPA) and Article 6 of the International Treaty on Plant Genetic Resources for Food and Agriculture (Treaty). It also requested FAO to continue assisting countries in strengthening national seed systems for the delivery of quality seeds and planting materials, in particular to smallholder farmers, and supporting countries in the development and revision of their national seed policy and legislation, taking into account the Commission's *Voluntary Guide for National Seed Policy Formulation*.[1]

2. The Commission requested FAO to hold two international symposia on (i) *in situ* conservation of crop wild relatives and wild food plants; and (ii) on-farm management of farmers' varieties/landraces.[2]

3. The Commission also requested FAO to continue providing support to national genebanks in their efforts to collect, conserve, regenerate, multiply, characterize and evaluate crop germplasm. It requested FAO to prepare practical guides for the use of the Genebank Standards for Plant Genetic Resources for Food and Agriculture.[3]

4. The Commission further requested FAO to continue developing the World Information and Early Warning System on Plant Genetic Resources for Food and Agriculture (WIEWS) portal and strengthening cooperation with the Global Information System (GLIS) and Genesys to avoid duplication of efforts. In addition, it requested a report clarifying the specific roles of these databases for the next session of the Intergovernmental Technical Working Group on Plant Genetic Resources for Food and Agriculture (Working Group) to streamline country reporting to the Commission and the Treaty.[4]

5. Since the last session of the Commission, FAO, in close collaboration with its partners, continued to support countries in strengthening their capacities to implement the Second GPA. This document provides information on action taken by FAO in response to the Commission's requests and on other relevant work initiated or completed since its last session, for consideration by the Working Group.

II. BACKGROUND

6. The Second GPA, a strategic framework for the conservation and sustainable use of plant genetic diversity, was adopted by the FAO Council at its 143rd Session in November 2011. The implementation of the 18 Priority Activities (PAs) of the Second GPA contributes directly to the achievement of Sustainable Development Goal (SDG) 2 on Zero Hunger and several of the other 16 SDGs.[5] Its implementation also aligns with FAO's vision of sustainable, inclusive and resilient food systems and with the aspirational 'four betters', i.e. better production, better nutrition, a better environment and a better life.[6]

7. Since the Commission's last session in January 2019, FAO's ability to respond to the identified needs of Members in the conservation and sustainable use of plant genetic resources for food and agriculture (PGRFA), including plant breeding and seed delivery systems, has been severely hampered, as in past reporting periods, by limited budgetary resources. The still-evolving COVID-19 pandemic, which has further highlighted the planetary emergency of inter-related global challenges of

[1] CGRFA-17/19/Report, paragraphs 59–60.
[2] CGRFA-17/19/Report, paragraph 62.
[3] CGRFA-17/19/Report, paragraph 65.
[4] CGRFA-17/19/Report, paragraph 66.
[5] https://sdgs.un.org/goals
[6] C 2021/3.

biodiversity loss, climate change and health crisis, and the imperative of leaving no one behind, has exacerbated this situation, as there are even many more unmet needs.

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

A. First International Multi-stakeholder Symposium on Plant Genetic Resources for Food and Agriculture – Technical Consultation on *in situ* conservation and on-farm management of plant genetic resources for food and agriculture

8. The Commission, at its last session, requested FAO to hold two international symposia on: (i) *in situ* conservation of crop wild relatives and wild food plants; and (ii) on-farm management of farmers' varieties/landraces. It requested FAO to hold the symposia in cooperation with the Treaty Secretariat and to make the outcomes available to the Working Group, the Commission and the Governing Body of the Treaty well in advance.[7]

9. Upon consultation with the Bureau of the Commission, FAO decided to hold in June 2020, in collaboration with the Treaty Secretariat and the Global Crop Diversity Trust, one symposium addressing both *in situ* conservation and on-farm management and development of PGRFA. Due to the COVID-19 pandemic, the symposium had to be postponed and was finally held on 29 and 30 March 2021 as a virtual meeting, which was attended by more than 800 participants.[8]

10. The symposium served as a forum for the diverse range of stakeholders involved in *in situ* conservation and on-farm management of PGRFA. It provided an overview of the state of knowledge on the conservation and sustainable use of crop wild relatives (CWR) and wild food plants. It highlighted advances in science and technology that are increasingly being used to mine novel alleles from CWR for use in crop improvement and to identify populations that are under threat and therefore require priority action.

11. The highlighted methods to mainstream the conservation and sustainable use of famers' varieties/landraces included grassroots multi-stakeholder engagements that result in the establishment of community seed banks and the formal registration of these cultivars – resulting ultimately in the ready availability of their quality-assured seeds.

12. Lessons to be learnt from PGRFA conservation outside genebanks by various networks and communities of practice were shared during the symposium. The symposium indicated a widespread and deep interest in the subject matter and the need for a forum that facilitates exchange of information and multi-stakeholder discourse.

13. Key results of the symposium and possible actions for follow up are presented in the document *Towards a global framework for* in situ *conservation and on-farm management of plant genetic resources for food and agriculture*.[9] Presentations of the symposium are contained in the *Draft Report of the First International Multi-stakeholder Symposium on Plant Genetic Resources for Food and Agriculture*.[10]

B. Voluntary Guidelines: Crop Wild Relatives and Farmers' Varieties/Landraces

14. At its Seventeenth Regular Session, the Commission endorsed the *Voluntary Guidelines for the Conservation and Sustainable Use of Farmers' Varieties/Landraces*.[11] In response to the Commission's request, FAO published and disseminated the Voluntary Guidelines and encouraged countries to use them in planning and implementing efforts to conserve and sustainably use farmers' varieties/landraces. The Guidelines are available in four languages (Arabic, English, French and Spanish) in print and online.[12] They complement the *Voluntary Guidelines for the Conservation and*

[7] CGRFA-17/19/Report, paragraph 62.
[8] http://www.fao.org/about/meetings/multi-stakeholder-symposium-on-pgrfa/en/
[9] CGRFA/WG-PGR-10/21/2.1.
[10] CGRFA/WG-PGR-10/21/2.1/Inf.1.
[11] CGRFA-17/19/Report, paragraph 64.
[12] http://www.fao.org/documents/card/en/c/ca5601en

Sustainable Use of Crop Wild Relatives and Wild Food Plants,[13] which the Commission had endorsed in 2017.[14]

C. Direct support to Members

15. During the reporting period, FAO, in collaboration with international and local partners, supported several activities on *in situ* conservation and on-farm management of PGRFA. These included the support to four countries in southern Africa (Angola, Eswatini, Namibia and Zimbabwe) in the use of crop diversity to mitigate the effects of climate change on livelihoods.[15] Activities included: the identification of diversity hotspots; the organization of seed diversity fairs; the establishment of community seed banks; and the identification of promising PGRFA materials in *ex situ* collections and on-farm, with adaptive traits relevant to extreme climate conditions.

16. Initiatives to conserve and promote crop diversity on-farm and in the wild are being developed and implemented with support from the Global Environment Facility (GEF) in Bolivia,[16] Chile,[17] China,[18] Cuba,[19] India,[20] Indonesia,[21] Mauritania,[22] Mexico,[23] Philippines[24] and Tajikistan.[25] These initiatives, *inter alia*, improve capacities of stakeholders in managing local crops and varieties, promote market-based incentive mechanisms, identify platforms for scaling up successes and promote the creation of an enabling policy environment.

17. National policy frameworks have been assessed and incentives and disincentives for agricultural diversification and dietary diversity identified in four countries (Cambodia, Lao People's Democratic Republic, Myanmar and Nepal) within the framework of the Zero Hunger Challenge.[26] This work contributes to both the UN Decade of Nutrition and the International Year of Fruits and Vegetables 2021.

18. FAO participated in the activities of the EU-funded BigPicnic project,[27] coordinated by Botanic Gardens Conservation International (BGCI) and involving 19 partner organizations, including botanic gardens, universities and non-governmental organizations (NGOs) across European and African countries. Efforts focused on raising public awareness of the contributions of crop diversity to food security and nutrition. FAO also participated in the implementation of the EU-funded project "Networking, Partnerships and Tools to Enhance *In Situ* Conservation of European Plant Genetic Resources" (short name, Farmer's Pride),[28] which started in November 2017. The overarching objective of Farmer's Pride was to establish a network of stakeholders and conservation sites that

[13] http://www.fao.org/publications/card/en/c/8f366de9-08a8-42ad-aae1-4f8f6822420e/
[14] CGRFA-16/17/Report Rev.1, paragraph 62.
[15] TCP/SFS/3601: *Support for the development of national capacities for conservation and sustainable utilization of plant genetic resources for food and agriculture.*
[16] GCP /BOL/046/GFF: *Biodiversity conservation and sustainable use in five macroregions to improve human nutrition.*
[17] GCP /CHI/042/GFF: *Establish a network of national important agricultural heritage sites.*
[18] GCP /CPR/060/GFF: *On-farm conservation and sustainable use of genetic diversity of crops originating in China.*
[19] GCP /CUB/018/GFF: *Introduction of new farming methods for the conservation and sustainable use of biodiversity, including plant and animal genetic resources, in production landscapes in selected areas of Cuba*.
[20] GCP/IND/087/GFF: *Green-agriculture: Transforming Indian agriculture for global environmental benefits*
[21] GCP /INS/803/GFF: *Crop diversity for improved food security, nutrition and livelihoods in Indonesia (FSP).*
[22] GCP/MAU/001/GFF: *Integrated ecosystem management program for the sustainable human development in Mauritania.*
[23] GCP /MEX/306/GFF: *Securing the future of global agriculture in the face of climate change by conserving the genetic diversity of the traditional agroecosystems of Mexico (PPG).*
[24] GCP/PHI/062/GFF: *Dynamic conservation and sustainable use of agricultural biodiversity to ensure food security and ecosystems services and resiliency.*
[25] GCP /TAJ/014/GFF: *Facilitating agrobiodiversity (ABD) conservation and sustainable use to promote food and nutritional resilience in Tajikistan.*
[26] TCP/RAS/3602 (16/IX/RAS/284): *Creating enabling environments for nutrition-sensitive food and agriculture to address malnutrition*.
[27] https://www.bgci.org/our-work/projects-and-case-studies/bigpicnic/
[28] http://www.farmerspride.eu/ (Accessed on 13 April 2021).

effectively coordinates conservation actions to safeguard the wealth of Europe's *in situ* plant genetic resources (PGR) and integrates the user community to maximize their sustainable use.[29]

IV. *EX SITU* CONSERVATION

A. Draft Practical Guides for the Application of the Genebank Standards for Plant Genetic Resources for Food and Agriculture

19. At its Seventeenth Regular Session, the Commission requested FAO to prepare practical guides for the use of the Genebank Standards for Plant Genetic Resources for Food and Agriculture (Genebank Standards), for consideration by the Working Group and the Commission.[30]

20. In response to the Commission's request and with a view to facilitating and increasing the use of the Genebank Standards in conserving PGRFA, FAO has developed three stand-alone *Draft Practical Guides for the Application of the Genebank Standards for Plant Genetic Resources for Food and Agriculture* (Draft Practical Guides) for the: (i) conservation of orthodox seeds; (ii) conservation in field genebanks; and (iii) conservation via *in vitro* culture. Conceived as companion volumes to the Genebank Standards, each of the Draft Practical Guides details the step-by-step routine genebank operations for the relevant conservation approaches. The document *Implementation of the Genebank Standard for Plant Genetic Resources for Food and Agriculture*[31] provides an overview of the Draft Practical Guides, which are contained in the document *Draft Practical Guides for the Application of the Genebank Standards.*[32] The Practical Guides are primarily addressed to technical staff of genebanks.

B. Direct support to Members

21. The Commission requested FAO to continue providing support to national genebanks in their efforts to collect, conserve, regenerate, multiply, characterize and evaluate crop germplasm.[33] In response, FAO supported various *ex situ* conservation activities in a number of countries, including Armenia,[34] Azerbaijan,[35] Philippines[36] and Venezuela.[37] Technical support was provided to Angola, Eswatini, Namibia and Zimbabwe, to sustain targeted germplasm collecting and expand conservation to more crops and their wild relatives.[38] In Oman, support was provided to the citrus industry sector to improve the production and multiplication of citrus plant propagating materials.[39] Efforts also are under way to assist Lebanon in the conservation and sustainable use of endemic and wild fruit tree germplasm. Crop wild relatives of 52 species of ten different tree crops have been collected, multiplied, evaluated, characterized, conserved and used in pre-breeding to generate intermediate breeding materials.

22. FAO contributed to discussions on the proposed Consultative Group for International Agricultural Research (CGIAR) GreenPass Phytosanitary Protocol for Germplasm Exchange aimed at facilitating the movement of germplasm through the CGIAR Centers. This protocol would involve an accepted quality assurance system that recognizes compliance with global phytosanitary standards, which would include the accreditation of procedures and processes, proficiency testing, periodic auditing and presentation of a quality assurance statement for the exchanged germplasm. FAO also

[29] https://cordis.europa.eu/project/id/774271
[30] CGRFA-17/19/Report, paragraph 65.
[31] CGRFA/WG-PGR-10/21/2.2.
[32] CGRFA/WG-PGR-10/21/2.2/Inf.1.
[33] CGRFA-17/19/Report, paragraph 65.
[34] TCP/ARM/3503: *Grape genetic resources conservation and sustainable use in Armenia*.
[35] UTF/AZE/016/AZE: *Catalysing the efficiency and sustainability of Azerbaijan's hazelnut sector*.
[36] GCP/PHI/062/GFF: *Dynamic conservation and sustainable use of agricultural biodiversity to ensure food security and ecosystems services and resiliency*.
[37] TCP/VEN/3702/C2: *Fortalecimiento de las potencialidades técnico-científica en producción de semillas de leguminosas vinculadas a la agricultura familiar y campesina*.
[38] TCP/SFS/3601: *Support for the development of national capacities for conservation and sustainable utilization of plant genetic resources for food and agriculture*.
[39] UTF/OMA/023/OMA: *Development, production and multiplication of certified citrus propagating materials.*

contributed to an initiative of the CGIAR Genebank Platform to develop a guide supporting informed decision-making in the management of large and diverse germplasm collections. Moreover, FAO provided support to an initiative by the Islamic Organization for Food Security for the establishment of national genebanks in the Member States of the Organization of Islamic Cooperation.

V. SUSTAINABLE USE

A. Review of status and trends of seed policies

23. At its Seventeenth Regular Session, the Commission considered the status and trends of seed policies and laws, and requested that FAO undertake in-depth case studies for consideration by its Working Group.[40]

24. In response, FAO prepared a survey exploring the *Impact of implementation of seed legislation on diversity of PGRFA.*[41] The results of the survey have been summarized and next steps for possible future work are presented in the document *Effects of seed policies, laws and regulations,*[42] for consideration by the Working Group.

B. Strengthening seed systems

25. A critically important component of FAO's work on sustainable use of PGRFA is strengthening seed systems. This is being achieved by providing support to countries in creating an enabling environment for the establishment of seed enterprises and in promoting their efficient management. FAO's key objective in this regard is to ensure that farmers, in particular small-scale farmers, have sustained access to affordable quality seeds and planting materials of their preferred well-adapted, productive, nutritious crop varieties, which are resistant to prevailing biotic and abiotic stresses. FAO intervenes typically at the regional level to facilitate harmonization of seed laws and policies. Interventions at the national or local community levels aim to develop and implement regulatory frameworks and strengthen institutional and human capacities.

26. During the reporting period, initiatives aimed at strengthening the seed delivery value chain were implemented in 32 countries.[43] The suite of interventions includes the provision of support for the enhanced adoption of crop varieties, including: biofortified ones; community-level seed production and delivery systems; pre-basic and basic seed production and supply; capacity development for seed testing laboratories and international accreditation; training and provision of seed processing equipment; and the strengthening of seed certification systems. Support was provided, for instance, to Azerbaijan in the evaluation and release of new potato varieties and potato seed production[44] and strengthening the seed quality assurance systems across 11 seed testing laboratories in the country. In addition, FAO, through its South–South and Triangular Cooperation Programme, strengthened capacities for the production and delivery of quality rice seed in ten African countries.[45]

27. Seed legislation and regulatory frameworks at national and regional levels are essential for creating a robust enabling environment for efficient and effective seed sectors. FAO continued to respond to the requests of Members and provided assistance to countries in the development of

[40] CGRFA-17/19/Report, paragraph 67.
[41] CGRFA/WG-PGR-10/21/3/Inf.1.
[42] CGRFA/WG-PGR-10/21/3.
[43] Armenia, Azerbaijan, Benin, Bhutan, Cameroon, Congo, Democratic People's Republic of Korea, Kyrgyzstan, Ecuador, Ethiopia, Georgia, Guinea Bissau, Honduras, Kenya, Mali, Mozambique, Nicaragua, Nigeria, North Macedonia, Pakistan, Peru, Seychelles, Senegal, South Sudan, Sri Lanka, Sudan, Tajikistan, the Gambia, Uganda, United Republic of Tanzania, Venezuela (Bolivarian Republic of), Yemen.
[44] UTF/AZE/011/AZE: *Establishment of disease-free national seed potato production system in Azerbaijan*
[45] GCP/RAF/489/VEN: *Partnership for sustainable rice systems development in sub-Saharan Africa* *Benin, Cameroon, Côte d'Ivoire, Guinea (Conakry), Kenya, Mali, Nigeria, Senegal, the United Republic of Tanzania and Uganda*.

national seed policies, legislation and sundry regulatory documents in 12 countries across different regions.[46]

28. Over the past four years, FAO has collaborated with the World Food Programme (WFP) and the International Fund for Agricultural Development (IFAD) under the auspices of a European Union-funded project with significant components aimed at the overhaul of the seed sector in Mozambique. The outputs include the widespread adoption of 19 varieties of maize, cowpea, beans and rice – including four biofortified varieties, one of maize and three of beans.[47,48,49,50] In 2019, a second phase of a five-year duration of the project was approved to upscale the intervention activities to include other provinces of the country.

C. Strengthening plant breeding

29. The Commission requested FAO to continue supporting countries, in close coordination with the Treaty, in strengthening their crop improvement capacity, including through the Global Partnership Initiative for Plant Breeding Capacity Building (GIPB) and the Joint Centre of FAO and the International Atomic Energy Agency (IAEA) on Nuclear Techniques in Food and Agriculture and, in particular, in support of the implementation of the Second GPA and Article 6 of the Treaty.[51]

30. The GIPB is no longer functional as the funding has elapsed. During the reporting period, FAO continued to strengthen capacities for developing well-adapted crop varieties that are most suited to local agro-ecosystems and farming systems. In this regard, FAO supported the genetic improvement of berries in the Republic of Moldova[52] and the strengthening of the crop's value chain, including improved access to markets. In Mongolia, FAO's intervention resulted in the enhanced access of farmers to quality planting materials of 36 different well-adapted varieties of apple, plum, cherry, blueberry, blackcurrant and strawberry.[53]

31. In 15 African countries, the adoption of improved crop varieties was facilitated.[54] In southern Africa, FAO is supporting the production of Crop Specific Field Inspection Manuals as part of the Southern African Development Community (SADC) Harmonized Seed Regulatory System (HSRS). An EU-funded initiative has supported the sustainable production and overall value chains of root and tuber crops in seven sub-Saharan African countries.[55]

32. In Latin America and the Caribbean, FAO is supporting Venezuela (Bolivarian Republic of)[56] in the strengthening of the capacities of its technical staff and farmers in the production of quality seeds of different legumes. In Dominica, Suriname and Trinidad and Tobago, FAO facilitated enhanced farmers' access to new cassava varieties (three per country), which were introduced as disease-free plantlets.[57]

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[46] Armenia, Azerbaijan, Georgia, Kyrgyzstan, Mali, Mozambique, Nicaragua, North Macedonia, Rwanda, Sudan, Tajikistan and the Gambia.
[47] GCP /MOZ/111/EC: *National programme on food security - (EU-MDG Initiative - Agriculture, food security, rural development and natural resource management)*.
[48] GCP /MOZ/116/BEL: *Food security and nutrition program for Gaza Province, Mozambique*.
[49] TCP/MOZ/3503 *Capacity building and activation of the Angonia seed plant in the region of Tete in Northern Mozambique*.
[50] GCP /MOZ/127/EC *PROMOVE Agribiz.*
[51] CGRFA-17/19/Report, paragraph 60.
[52] TCP/MOL/3608: *Strengthening the capacity of smallholders in berry production.*
[53] TCP/MON/3605: *Improving fruits and berry production in Mongolia.*
[54] Angola, Benin, Cameroon, Côte d'Ivoire, Eswatini, Guinea, Kenya, Mali, Namibia, Nigeria, Senegal, United Republic of Tanzania, Uganda, Zambia and Zimbabwe.
[55] GCP/RAF/448/EC: *Strengthening linkages between small actors and buyers in the roots and tubers sector in Africa*.
[56] TCP/VEN/3702/C2: *Fortalecimiento de las potencialidades técnico-científica en producción de semillas de leguminosas vinculadas a la agricultura familiar y campesina.*
[57] GCP/SLC/010/CDB: *Cassava industry development - market assessment and technology validation and dissemination.*

33. The Joint FAO/IAEA Centre (CJN) supported the design and implementation of 80 crop-improvement related national and regional Technical Cooperation Projects (TCPs) in over 100 countries. Additionally, through IAEA's Coordinated Research Projects (CRP) mechanism, CJN networked with researchers from more than 50 institutions across 39 different countries to collaborate on five crop improvement-themed projects. The Centre's Plant Breeding and Genetics sub-programme supported the formalization of the Mutation Breeding Network for the Asia-Pacific Region and of its first Workshop in Jingzhou, Hubei, China in July 2019.

34. Between January 2019 and April 2021, CJN trained 459 scientists in mutation breeding and associated biotechnologies, both at CJN's Agricultural and Biotechnology Laboratory in Seibersdorf, Austria, and at other advanced training facilities around the world. In 2020, almost all work aimed at strengthening capacities was limited to the improvement of infrastructure, including the procurement of laboratory equipment and the upgrading of laboratory and glasshouse facilities in Member Nations. The organization of training courses, fellowships and scientific visits was curtailed significantly because of the travel restrictions that were imposed by countries in response to the COVID-19 pandemic. Irradiation services provided by CJN during 2020 were also lower than average, with the requests for the irradiation of plant propagules – to induce mutations – received during the year totalling 24. The FAO/IAEA Mutant Variety Database currently holds records of 3 365 mutant varieties of 228 crop species that have been released for cultivation in more than 70 countries.[58,59]

D. Rehabilitation of seed systems

35. An underlying principle of FAO's support to countries in the re-building of agricultural production systems following disasters and strife has been to ensure that the provision of emergency seed relief forms part of the overall seed sector development in the long term. In this regard, FAO, under its Strategic Programme 5, *Increase the Resilience of Livelihoods to Threats and Crises*, and in collaboration with other partners, carries out seed security assessments in countries that require assistance with restarting crop production after crises. Based on these assessments, both the immediate seed relief responses and the long-term seed sector development strategies reflect as accurately as possible the prevailing national contexts.

36. Over the reporting period, FAO, in collaboration with national and international partners, carried out seed security assessments in four African countries,[60] with further activities planned in an another five.[61]

37. In 2018–19, FAO distributed quality seeds worth USD 74 million to farmers in 97 countries as part of its emergency responses to massive crop failures that resulted from natural hazards, such as hurricanes in the Caribbean;[62] earthquakes in Indonesia;[63] floods in Kenya[64] and Sierra Leone;[65]

[58] Mutant Variety Database: http://mvd.iaea.org/#!Home
[59] Maluszynski, M., Nichterlein, K., van Zanten, L., Ahloowalia, B.S. 2000. Officially released mutant varieties—The FAO/IAEA database. *Mutation breeding review*, 12: 84. IAEA; Vienna.
[60] The Niger, Nigeria, Sierra Leone and South Sudan.
[61] Afghanistan, Democratic Republic of the Congo, Somalia, Sudan and the Syrian Arab Republic.
[62] OSRO/HAI/701/EC: *Réhabilitation et renforcement des moyens d'existence des ménages affectés par l'ouragan Matthew*; OSRO/HAI/607/BEL: Protection, réhabilitation et diversification des moyens d'existence des populations affectées par l'ouragan Matthew en Haïti; OSRO/DMI/701/CHA: *Emergency support for the immediate restoration of food production in Dominica after Hurricane Maria*.
[63] OSRO/INS/802/BEL: *Emergency assistance for the post-earthquake and tsunami recovery in Central Sulawesi.*
[64] TCP/KEN/3701: *Emergency agricultural livelihoods assistance for flood-affected households in Kenya.*
[65] TCP/SIL/3701: *Promoting transfer of technology for sustainable food crop production in Sierra Leone.*

cyclones in Malawi, [66] Mozambique[67] and Zimbabwe[68] and acute drought in southern Africa,[69] Mali,[70] the Marshall Islands[71] and Zambia.[72]

38. FAO also provides seed assistance to conflict areas. In 2019, seed assistance reached 833 000 households in South Sudan (5 million people), 25 000 in Haiti,[73] nearly 25 000 in the Syrian Arab Republic,[74] over 40 000 in Yemen,[75] 98 000 in Nigeria[76], to 137 000 in Afghanistan,[77] and to over 100 000 households in the Democratic Republic of the Congo.[78]In 2020, emergencies that resulted from natural disasters and strife were further exacerbated by the COVID-19 pandemic. In response to these crises, FAO distributed seeds worth USD 42 million in 78 countries. In some countries, seed assistance was provided in direct response to COVID-19. In Guinea-Bissau, for example, seeds of staple food crops were provided to farmers to forestall food insecurity and malnutrition arising from the loss of incomes due to the disruptions to the production and sale of their main export market – cashews – due to the pandemic.[79] In 2020, FAO continued to provide seed assistance to respond to disasters, including newly emerging threats such as COVID-19[80] [81] [82] and desert locust in the Horn of Africa.[83] Countries that received large-scale seed assistance in 2020 included Burundi, Lesotho, Madagascar, Malawi, Mozambique, Pakistan, Somalia, Sudan and Uganda.

39. FAO assists displaced people as well as vulnerable populations in host communities.[84] As part of rehabilitation efforts, technical support was provided to farmer groups for producing quality seeds and planting materials of adapted crop varieties. In the Central African Republic,[85] FAO is supporting the rehabilitation of young people and demobilized former combatants from the areas affected by

[66] GCP/MLW/072/EC *KULIMA -Promoting farming in Malawi "Revitalising Agricultural Clusters and Ulimiwa Mdandanda through Farmer Field Schools in Malawi".*
[67] OSRO/MOZ/902/BEL: *Emergency livelihood support to the most vulnerable populations affected by Tropical Cyclone Idai*
[68] OSRO/GLO/908/GER: *Foundations for rebuilding seed systems post Cyclone Idai: Zimbabwe, Mozambique and Malawi.*
[69] OSRO/SFS/604/CAN: *Emergency livelihood response to assist El Niño-affected households in Southern Africa Region*
[70] TCP/MLI/3703 : *Projet de renforcement de la résilience des petites exploitations familiales et des ménages ruraux vulnérables face aux effets des changements climatiques dans la région de Kayes, Cercle de Yélimané.*
[71] TCP/MAS/3601: *Emergency assistance in support of food security recovery of drought-affected communities.*
[72] TCP/ZAM/3703: *Emergency assistance to mitigate impact of El Nino-induced droughts on livelihoods in Zambia.*
[73] http://www.fao.org/3/ca7636en/CA7636EN.pdf
[74] http://www.fao.org/3/ca7646en/ca7646en.pdf
[75] http://www.fao.org/fileadmin/user_upload/emergencies/docs/FAOYemenSitrepDec2019.pdf
[76] http://www.fao.org/emergencies/resources/documents/resources-detail/en/c/1293148/
[77] http://www.fao.org/3/ca7647en/ca7647en.pdf
[78] http://www.fao.org/3/ca7640en/ca7640en.pdf
[79] UTF/GBS/037 : *Projet d`urgence en sécurité alimentaire en Guinée-Bissau (pusa-gb / efsp-gb) covid-19.*
[80] http://www.fao.org/emergencies/la-fao-en-accion/historias/historia-detalle/es/c/1296482/
[81] UTF/GBS/037/GBS : Projet d`urgence en sécurité alimentaire en Guinée-Bissau (PUSA-GB) COVID-19.
[82] OSRO/AFG/908/DEN: Integrated emergency agriculture and livelihood assistance to food insecure farming families.
[83] OSRO/GLO/006/GER: Emergency livelihoods assistance to vulnerable farmers, agropastoralists and pastoralists affected by desert locust in Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan and Uganda.
[84] OSRO/MLI/901/CHA: *Appui d`urgence à la restauration immédiate des moyens d`existence des ménages vulnérables affectés par l`insécurité alimentaire et la crise sécuritaire dans la région de Mopti*; OSRO/BGD/704/IOM: *Emergency Nutrition and Food Security Intervention for People Affected by the Refugee Crisis in Cox`s Bazar*; OSRO/CAF/802/FRA: *Appui en urgence au renforcement de la sécurité alimentaire et nutritionnelle et des moyens de subsistance des ménages vulnérables touchés par la crise dans la Nana-Gribizi et la Kémo, en République centrafricaine*; OSRO/DRC/704/BEL: *Réponse d'urgence en intrants agricoles en faveur de 5 000 ménages les plus vulnérables (déplacés internes, retournés et ménages des communautés hôtes), victimes de la crise humanitaire au Kasaï Central, Kasaï, Kasaï Oriental*.
[85] GCP/CAF/014/ITA: *Projet d`appui à la création d`un centre pilote de formation et d`insertion socio-économique en RCA*, TCP/CAF/3603: *Assistance d`urgence pour la relance d`activités agricoles des jeunes ex-combattants démobilisés*, OSRO/CAF/704/UNO: *United Nations Pilot Project for Social Cohesion, Conflict Prevention, Violence Reduction and Human Security in support to Youth of the Central African Republic*.

crises by training them in vegetable production and providing them access to quality seeds. In Chad,[86] FAO is supporting refugees, host populations and groups of returnees from the areas affected by the crisis in the Central African Republic by training them in the field of crop production (vegetables, fruits, millet, sorghum, peanut and rice) and providing them access to quality seeds. In Haiti, Artisanal Seed Production Groups were established across the country,[87] while decentralized seed production groups have been supported in South Sudan.[88] In Niger and Nigeria,[89] several emergency projects were implemented to provide short cycle diversified varieties of vegetables, cereal and cash crop seeds to farm households affected by the conflict and, more specifically, the internally displaced populations in order to restore their production systems.

40. During the reporting period, FAO has also supported affected households in Afghanistan,[90] Burundi,[91] Congo[92] and the Syrian Arab Republic[93] in rehabilitation of seed systems with a view to improving their food security and nutritional status.

41. FAO continued to expand the use of input trade fairs (ITFs) to help farmers gain access to the seeds and planting materials of productive crop varieties. Through ITFs, beneficiaries receive cash, vouchers or electronic vouchers to obtain seeds and planting materials of their choice from the assembled suppliers, which may include seed production groups supported by FAO. In 2019 alone, ITFs reached over 20 000 households in Mozambique, at least 30 000 in South Sudan,[94] and 24 500 in the Central African Republic,[95] and were also promoted in Burundi, Haiti and Malawi.

VI. BUILDING SUSTAINABLE INSTITUTIONS AND HUMAN CAPACITIES

42. FAO has continued to support the strengthening of human and institutional capacities for the conservation and sustainable use of PGRFA especially in developing Member Nations. The strengthening of partnerships and linkages is a critical delivery mechanism for FAO's work in this regard. Work in countries is facilitated by collaboration with various partners, including UN agencies, such as WFP and IFAD and the World Meteorological Organization. Other partners with whom FAO has been working closely are the Global Crop Diversity Trust, CGIAR Centers, West and Central African Council for Agricultural Research and Development (i.e. CORAF-WECARD), the International Seed Federation and the International Seed Testing Association.

43. Networks and coordination bodies are also key to effective collaborations among partners for implementing the Second GPA with enhanced efficiencies. Over the reporting period, FAO provided support to various networks and bodies, including the Coconut Genetic Resources Network (COGENT), Global Food Security Cluster, Standards for Supporting Agricultural Livelihoods in Emergencies (SEADS) and the African Orphan Crops Consortium (AOCC).

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[86] UTF/CHD/045/CHD : *Projet d'urgence de réponse à la crise alimentaire et d'élevage.*
[87] OSRO/HAI/701/EC : *Réhabilitation et renforcement des moyens d'existence des ménages affectés par l'ouragan Matthew.*
[88] OSRO/SSD/705/NET: *Improving seed production, availability and access for crisis-affected populations in South Sudan.*
[89] OSRO/NIR/810/GER; *Emergency agricultural assistance and livelihood support to IDPs, returnees and host communities affected by conflict in North East Nigeria (Borno, Yobe and Adamawa States)*; OSRO/NIR/901/USA: *Emergency agricultural and livestock assistance to returnees, IDPs and host communities affected by the insurgency in northeastern Nigeria (Adamawa, Borno and Yobe States)*; OSRO/NIR/804/EC: *Restoring livelihood of IDPs, returnees and vulnerable host families in North East Nigeria and strengthening food security coordination and analysis*; OSRO/NER/804/ITA: *Renforcement des moyens d'existence et la résilience des ménages vulnérables affectés par les crises.*
[90] OSRO/AFG/905/CHG: *Emergency agriculture assistance to vulnerable seed insecure farmers in 16 Provinces.*
[91] UNJP/BDI/044/EC : *Renforcement de la résilience des communautés rurales à la sécurité alimentaire et nutritionnelle.*
[92] UNJP/PRC/015/EC: *Appui aux petits producteurs de haricots des districts de Boko-Songho et Loudima.*
[93] GCP/SYR/023/EC: *FAO Syria smallholder support programme (SSP) for agriculture transformation.*
[94] http://www.fao.org/emergencies/resources/photos/photo-detail/vn/c/1200307/ for OSRO/SSD/709/USA; http://www.fao.org/emergencies/fao-in-action/projects/detail/ru/c/1029433/ for OSRO/SSD/710/SSD.
[95] http://www.fao.org/3/ca6129fr/ca6129fr.pdf

44. FAO implemented several field activities to strengthen capacities in countries. For instance, FAO provided support to integrate information on genebank holdings in Lebanon into two regional information systems, as well as strengthening national germplasm information networks on genebank collections. FAO supported capacity development in Dominica, Suriname, and Trinidad and Tobago for the handling and multiplication of tissue culture-derived plantlets, in micro- and macro-propagation techniques, and in the establishment, management and associated monitoring systems of research plots for the adaptive evaluation of improved cassava varieties.[96] In addition, in Suriname, specific training was conducted for diagnosing and managing cassava frog skin disease. Furthermore, Barbados was supported to strengthen capacity in virus elimination and micro-propagation of sweet potato vines using tissue culture techniques and to prepare the requisite standard operating procedures.[97] FAO also provided training on *ex situ* and on-farm conservation of PGRFA in Peru,[98] on crop varietal development in Pakistan[99] and seed production in Yemen.[100]

A. National strategies for plant genetic resources for food and agriculture

45. FAO supported Angola, Eswatini, Namibia and Zimbabwe to develop, validate and launch their national strategies and action plans.[101] The work also enabled the strengthening of the capacity of national staff of these countries in modern and efficient methods for characterizing, evaluating and improving promising germplasm to address climate change.

B. National Focal Points

46. At its Fifteenth Regular Session, the Commissions invited countries that have not yet done so to nominate a National Focal Point (NFP) for reporting on the implementation of the Second GPA.[102] To date, 139 countries have nominated NFPs, of which 59 nominations were received over the intersessional period. This reflects the high level of commitment for reporting on the state of conservation and sustainable use of PGRFA. In addition to the periodic reporting on the implementation of the Second GPA and on SDG indicator 2.5.1 (see below, paragraphs 48–50), the NFPs are critical for assessing the implementation of the Second GPA and the preparation of country reports for *The Third Report on the State of the World's Plant Genetic Resources for Food and Agriculture.*

C. World Information and Early Warning System on Plant Genetic Resources for Food and Agriculture

47. The Commission, at its last session, invited FAO to continue elaborating, based on country reporting, the status of the implementation of SDG Target 2.5, and to share the results with the Working Group and the Commission. It also requested FAO to continue developing the World Information System and Early Warning System on plant genetic resources for food and agriculture (WIEWS) portal and strengthening cooperation with the global information system (GLIS) and Genesys to avoid duplication of efforts. In addition, it requested a report clarifying the specific roles of these databases for the next session of the Working Group in order to streamline country reporting to the Commission and the Treaty.[103] A report clarifying the specific roles of WIEWS, GLIS and Genesys

[96] GCP/SLC/010/CDB: *Cassava industry development - market assessment and technology validation and dissemination.*
[97] TCP/BAR/3701: *Protocols for the conservation and propagation of S. potato planting material through tissue culture.*
[98] GCP /PER/045/GFF: *Sustainable management of agro-biodiversity and vulnerable ecosystems recuperation in Peruvian Andean regions through Globally Important Agricultural Heritage Systems (GIAHS) approach.*
[99] TCP/PAK/3702: *Improved capacity in use of plant genetic resources for varietal development and integration in the seed system.*
[100] TCP/YEM/3702: *Strengthening improved seeds production capabilities.*
[101] TCP/SFS 3601: *Support for the development of national capacities for conservation and sustainable utilization of plant genetic resources for food and agriculture.*
[102] CGRFA-15/15/Report, paragraph 18.
[103] CGRFA-17/19/Report, paragraph 66.

is presented in the document *Strengthening cooperation among global information systems on plant genetic resources for food and agriculture.*[104]

48. WIEWS serves as the global system to monitor the implementation of the Second GPA and the plant component of SDG Target 2.5. One of the indicators agreed by the Commission for monitoring the Second GPA, has also been adopted by the United Nations General Assembly, in July 2017, to monitor the plant component of SDG Target 2.5. SDG 2.5.1.a[105] is a Tier I indicator, i.e. an indicator with internationally agreed methodology and a global reporting rate equal to or higher than 50 percent. Progress on SDG 2.5.1 continues to be monitored worldwide on an annual basis.

49. Data on the implementation of the plant component of SDG Target 2.5 are available for 2014, 2016, 2017, 2018, 2019 and 2020. Over these years, the geographical coverage of the indicator has significantly increased from 71 countries in 2014 and 103 in 2019, to 114 in 2020. Detailed records of *ex situ* accessions, totalling over 5.7 million as of December 2020, have been published through WIEWS.[106] Metadata results and narratives for the annual reports on all the SDG indicators under FAO custodianship[107] have been made available through the FAO portal.[108]

50. In order to raise awareness of the importance of monitoring the indicator on *ex situ* holdings, an e-learning course on SDG 2.5.1.a was developed in 2019 and made available in English, French and Spanish.[109] In 2021, the number of reporting countries increased by almost 11 percent over the previous year, including four additional countries from Central America, three from Western Africa, three from Central Asia and one from South-eastern Asia.

VII. GUIDANCE SOUGHT

51. The Working Group may wish to recommend that the Commission:

IN SITU CONSERVATION AND ON-FARM MANAGEMENT OF PGRFA

(i) Request FAO to provide support to countries, including in the development or revision of their national plans for the conservation and sustainable use of farmers' varieties and landraces, taking into account the Commission's *Voluntary Guidelines for the Conservation and Sustainable Use of Farmers' Varieties and Landraces*.

(ii) Request FAO and donors to continue supporting countries in their efforts to conserve PGRFA *in situ* and on-farm and to strengthen the links and complementarity between *ex situ* and *in situ* conservation.

EX SITU CONSERVATION

(iii) Request FAO to continue providing support to countries in their efforts to maintain genebanks for the continued collecting, conservation, characterization and evaluation of crop germplasm.

SUSTAINABLE USE

(iv) Request FAO to continue assisting countries in strengthening national seed systems for the delivery of quality seeds and planting materials, in particular to smallholder farmers.

[104] CGRFA/WG-PGR-10/21/2/Inf.1.
[105] 2.5.1a addresses the plant component of Target 2.5, while 2.5.1b the animal component.
[106] http://www.fao.org/wiews/data/ex-situ-sdg-251/overview/en/
[107] http://www.fao.org/sdg-progress-report/en/ and http://www.fao.org/fileadmin/templates/SDG-progress-report/2019-final/sdg-progress-report-print.pdf, pages 12–13.
[108] http://www.fao.org/sustainable-development-goals/indicators/en/
[109] https://elearning.fao.org/course/view.php?id=392

(v) Request FAO to continue to support countries in the development or revision of their national seed policy and legislation, taking into account the Commission's *Voluntary Guide for National Seed Policy Formulation.*

(vi) Call upon donors to support countries, in their review, development and implementation of national seed policy and legislation.

(vii) Request FAO to continue supporting countries, in close coordination with the Treaty, in strengthening their crop improvement capacity, including through the Joint FAO/IAEA Centre and, in particular, in support of the implementation of the Second GPA and Article 6 of the Treaty;

BUILDING SUSTAINABLE INSTITUTIONS AND HUMAN CAPACITIES

(viii) Call for extrabudgetary funds to support countries in the implementation of the Second GPA, including through the development and implementation of national strategies for PGRFA, in close coordination with the Treaty and its Funding Strategy.

(ix) Request FAO to continue elaborating, on an annual basis, the status of implementation of SDG Target 2.5 and share results with the Working Group and the Commission.

(x) Request FAO to continue developing the WIEWS portal and strengthening cooperation with GLIS and Genesys to avoid duplication of efforts.