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COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

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REVIEW OF WORK ON THE ROLE OF GENETIC RESOURCES FOR FOOD AND AGRICULTURE AND FOOD SECURITY

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CGRFA 17

I. INTRODUCTION

1. The Commission on Genetic Resources for Food and Agriculture (Commission), at its Sixteenth Regular Session, considered the document *Options to raise awareness of the role genetic resources for food security and nutrition*.¹ It stressed the importance of genetic resources for food and agriculture (GRFA) to food production, and to all four dimensions of food security.
2. The Commission requested FAO to prepare a study addressing the contribution of GRFA to the four pillars of food security and to the achievement of relevant Sustainable Development Goals (SDGs), and to reflect the outcomes of the study in the Revised Draft Report on *The State of the World's Biodiversity for Food and Agriculture*. The Commission also requested FAO to invite Members and observers to provide inputs to the Secretariat.² The Commission also requested FAO to report, on a regular basis, on its awareness raising activities with respect to the contributions of GRFA to food security, and stressed the importance of its collaboration with FAO's Technical Committees and the Committee on World Food Security.³
3. This document presents a selection of FAO activities contributing to raising awareness of the important role of GRFA to food security and the achievement of relevant SDGs. It further contains a summary of the study addressing the contribution of GRFA to the four pillars of food security.

II. RAISING AWARENESS OF THE ROLE OF GENETIC RESOURCES FOR FOOD AND AGRICULTURE FOR FOOD SECURITY AND THE ACHIEVEMENT OF RELEVANT SDGS

4. The 2030 Agenda on Sustainable Development and the SDGs provide an integrated and universal action plan for all countries, and considers biodiversity and GRFA as crucial for food security and development. FAO and its Commission continued raising awareness in different policy forums of the important role GRFA for food security and the achievement of the 2030 Agenda and the SDGs.
 - i. In 2017 and 2018, the Commission's Chair reported to the High Level Political Forum (HLPF) on the Commission's contribution to the HLPF's annual themes, as part of the FAO input.
 - ii. FAO raised awareness of the importance of genetic resources in the context of SDG 2. It contributed to the *Expert Group Meeting on Progress in Achieving SDG 2 in Preparation for the High Level Political Forum* (June 2017)⁴ and to the *2017 HLPF Thematic review of SDG2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture*.⁵
 - iii. The importance of genetic resources for food security and nutrition was also part of FAO's corporate messages during the high-level segment of the UN General Assembly (UNGA).
 - iv. FAO contributed to the negotiations of Resolution A/C.2/73/L.7 in the UNGA Second Committee on Agriculture Development, Food Security and Nutrition, providing evidence and technical support to the formulation, including suggestions for inclusion of biodiversity as one of the key components to ensure food security and nutrition.
 - v. The reports of the High Level Panel of Experts on Food Security and Nutrition (HLPE), 'Sustainable forestry for food security and nutrition and *Nutrition and food systems*, mention genetic resources as a basis for yield improvement.

¹ CGRFA-16/17/5.

² CGRFA-16/17/Report, paragraph 21.

³ CGRFA-16/17/Report, paragraph 19–23.

⁴ http://www.fao.org/fileadmin/templates/lon/2017_HLPF/EGM2/Draft_EGM_Full_Report_Draft_28_Aug-clean.pdf

⁵ https://sustainabledevelopment.un.org/content/documents/14371SDG2_format.revised_FINAL_28_04.pdf

- vi. A Multi-stakeholder Dialogue on Biodiversity Mainstreaming across Agricultural Sectors, jointly organized with the Convention on Biological Diversity (CBD), was held at FAO headquarters in Rome from 29 to 31 May 2018.⁶ The Dialogue included plenary sessions and parallel working groups, which considered specific aspects of biodiversity mainstreaming: national legislation; global governance; certification; and incentives and investment such as voluntary standards schemes to protect local biodiversity.
 - vii. A High-Level Expert Seminar on Indigenous Food Systems took place from 7 to 9 November 2018 at FAO headquarters in Rome.⁷ Experts and researchers from all over the world gathered to present indigenous food systems' research from different regions and discussed how to scale up efforts to protect and build on their contributions to achieve the SDGs.
5. Furthermore, FAO prepared and distributed a range of technical and policy papers related to genetic resources and food security within sustainable food systems.
- i. The FAO corporate brochure on *Sustainable agriculture for biodiversity – Biodiversity for sustainable agriculture*⁸ presents the Commission's work and the contributions of GRFA to food security. It also presents FAO's work on mainstreaming biodiversity in the agriculture, fisheries and forestry sectors as a key step to achieving food security and nutrition. It shows how biodiversity and ecosystems benefit people in countless ways by providing nutritious food, clean water, shelter and raw materials for basic human needs. The revised brochure *FAO's Work on Biodiversity – Using and conserving biodiversity for food and agriculture*⁹ has been made available to the 14th Conference of the Parties to the CBD.
 - ii. As a follow-up to the earlier guidance on geographic indication,¹⁰ FAO and the European Bank for Reconstruction and Development published *Strengthening sustainable food systems through geographical indications. An analysis of economic impacts*.¹¹
 - iii. FAO published *Transforming food and agriculture to achieve the SDGs – 20 interconnected actions to guide decision-makers*,¹² and *The 10 Elements of Agroecology – Guiding the transition to sustainable food and agricultural systems*,¹³ both of which include actions on GRFA.
 - iv. The Commission Secretariat coordinated module B8 on “Genetic resources for Climate-Smart Agriculture Production” that complements the sectoral chapters in Section B: Production and resources modules, of the Climate-smart agriculture sourcebook.¹⁴
 - v. FAO presented the Commission's work and the importance of genetic resources for food security at conferences in Latin America (SIRGEAC), North and Central America (CABI) at an Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) expert workshop on scenarios.
 - vi. FAO's Regional Office for Asia and the Pacific, at the Thirty-fourth Session of the FAO Regional Conference for Asia and the Pacific, launched a publication *Future Smart Food: Rediscovering Hidden Treasures of Neglected and Underutilized Species for Zero Hunger in Asia*.¹⁵

⁶ <http://www.fao.org/about/meetings/multi-stakeholder-dialogue-on-biodiversity/en/>

⁷ <http://www.fao.org/indigenous-peoples/en/>

⁸ <http://www.fao.org/3/a-i6602e.pdf>

⁹ <http://www.fao.org/3/CA2227EN/ca2227en.pdf>

¹⁰ Linking people, places and products. A guide for promoting quality linked to geographical origin and sustainable Geographical Indications. <http://www.fao.org/docrep/012/i1057e/i1057e00.htm>

¹¹ <http://www.fao.org/3/I8737EN/i8737en.pdf>

¹² <http://www.fao.org/publications/transforming-food-agriculture-to-achieve-sdg/en/>

¹³ <http://www.fao.org/3/I9037EN/i9037en.pdf>

¹⁴ <http://www.fao.org/climate-smart-agriculture-sourcebook/en/>, <http://www.fao.org/climate-smart-agriculture/en/>

¹⁵ <http://www.fao.org/3/I9136EN/i9136en.pdf>

6. In 2017, FAO, together with IFAD, UNICEF, WFP and WHO, launched *The State of Food Security and Nutrition in the World*, marking a new era in monitoring progress towards achieving a world without hunger and malnutrition, within the framework of the SDGs.¹⁶ This publication highlights several innovations aimed at promoting new ways of thinking about food security and nutrition in the context of the 2030 Agenda and responding to the challenges of the Second International Conference on Nutrition (ICN2) Framework for Action and the UN Decade of Action on Nutrition 2016–2025. It is clear that a shift is needed towards nutrition-sensitive agriculture and food systems that provide safe and high-quality food, promoting healthy diets for all. As indicated in the Commission’s Multi-Year Programme of Work,¹⁷ the Commission currently has a work stream on nutrition¹⁸ into which all aspects of food security are being incorporated.

III. THE CONTRIBUTION OF GENETIC RESOURCES FOR FOOD AND AGRICULTURE TO THE FOUR PILLARS OF FOOD SECURITY AND THE ACHIEVEMENT OF RELEVANT SDGS

7. Through Circular State Letter C/CBD-7 of 22 May 2017, Members and observers have been invited to provide inputs for the study on the role of GRFA for food security to the Secretariat which were considered in the preparation of the study.

8. FAO commissioned Background Study Paper No. 69 on the contribution of biodiversity for food and agriculture (BFA) to the four pillars of food security and to the achievement of relevant SDGs, taking into account inputs received from Members and observers. Outcomes of the study were reflected in *The State of the World’s Biodiversity for Food and Agriculture*.

9. The study concludes that **availability** is ultimately dependent on production. GRFA provide the raw material for breeding new varieties and breeds. Genetic-improvement programmes have been major contributors to the increases in crop and livestock yields that have occurred over recent decades, and are also picking up in aquaculture; they contributed to lifting millions out of poverty. Wild foods gathered and hunted from natural habitats of plants and animals augment food supply. Although the overall contribution of wild foods to food supply is small, their contribution is significant for some commodities and in food supplies in locations situated in/on the fringes of these natural habitats. Captured fish account for about half of the global supply of fish. Furthermore, biodiversity contributes to food availability through the provision of various kinds of ecosystem services, such as feed for domesticated animals, soil formation and restoration, or pollination. The major challenge will be to ensure that the food supply not only meets the energy needs of the population but also provides it with all the nutrients it requires. Use will have to become more efficient (e.g. by reducing waste) and production increases will need to be achieved without degrading the natural resources that underpin future production and the supply of other ecosystem services.

10. There are several ways in which BFA improves **access** of households and individuals to food. Food production at household level (or the supply of products and services that can be sold for cash that is used to purchase food) generally requires the use of genetic resources that are well adapted to the local environment, particularly in areas where the environment is harsh and when the household is unable to access inputs. Associated biodiversity is particularly important for the provision of ecosystem services of resource poor producers. By contributing to increasing production, BFA improves access of subsistence farmers to food and helps raise cash incomes from market-oriented agriculture. Increased production also puts downward pressure on food prices. Associated biodiversity and wild foods can be an important source of food for rural households; they also provide a range of food and non-food products (timber, fuelwood, medicinal products, etc.) that can be sold to obtain cash that can then be used to buy food. Common property resources and various ecosystem-based services are also an important source of cash income for rural households.

11. Diet diversity, and in turn biodiversity in food systems, is a critical requirement for adequate human nutrition. Data from FAO/INFOODS database and various studies on food composition show

¹⁶ <http://www.fao.org/3/I9553EN/i9553en.pdf>

¹⁷ CGRFA-17/19/13.

¹⁸ CGRFA-17/19/6.

that there are considerable species and subspecies level variations in nutrient composition. Apart from being the basis for breeding more nutritious cultivars, wild foods and neglected and underutilized species can themselves be used as a means for improved nutrition. Many kinds of tree barks, gums and resins, roots, fruits, galls, stems, mushrooms, honey, animals and fish are rich sources of protein, fats, vitamins, minerals and other micro-nutrients. Appropriate **utilization** requires knowledge of foods and how to process, store and prepare them, and access to various non-food inputs, such as clean water and fuel, is also essential. However, traditional knowledge related to many components of BFA, including on how to process and cook traditional food products, is being lost.

12. Diversity is significant to **stability**, whether at household level or at larger scales. The presence of a range of different food-producing species, varieties and breeds that have different life cycles and different adaptive characteristics helps to maintain food supplies throughout the seasons of the year. Historically, in many parts of the world, wild foods have been used to smooth seasonality in agricultural production, and to deal with food shortages in emergencies. A diverse agricultural system is also more resilient to inter-year climate variations and to various types of shocks including pests and diseases, and price fluctuations. Practices such as polyculture, sequential crop rotation and mixed farming help spread the risk of crop failure. Certain forms of polyculture also help in reducing pest infestation and the severity of diseases. In the case of food or non-food products raised or harvested for sale, diversity can also help to maintain stability of income in the face of market-related risks. The conservation of GRFA *in situ* and *ex situ* is an important element of stability.

13. The study also identified a range of knowledge gaps in the area of BFA. It found large gaps in sub-species-level data on number and area planted with different crop varieties, on population of different breeds of livestock or stocks of aquatic genetic resources, on productivity differentials across varieties and breeds, and on sub-species' variations in nutrient composition. Most countries do not regularly collect data on collection and consumption of wild foods. There are no systematic data collections on practices such as mixed farming, inter-cropping and polyculture, and production in home gardens. It is important that countries establish data collection systems for better data on biodiversity.

IV. GUIDANCE SOUGHT

14. The Commission may wish to

- Welcome FAO's activities on raising awareness of the contribution of GRFA to food security and the achievement of the SDGs and request FAO to continue conducting such activities.
- Take note of Background Study Paper No. 69 and request the Secretariat to prepare a brochure on the contribution of GRFA to food security, based on the key messages of this paper.