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REVIEW OF WORK ON BIODIVERSITY, NUTRITION AND HUMAN HEALTH

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I. INTRODUCTION

1. At its Seventeenth Regular Session, the Commission on Genetic Resources for Food and Agriculture (Commission) decided to schedule, within its Multi-Year Programme of Work (MYPOW), a review of work on biodiversity and nutrition and health as part of the agenda for its Nineteenth Regular Session.¹

2. A report on activities² and a concept note on biodiversity for food and agriculture (BFA) and health³ were provided to the Commission at its Eighteenth Regular Session. This document provides an overview of FAO activities on BFA and genetic resources for food and agriculture (GRFA), food security, nutrition and human health since the Eighteenth Regular Session of the Commission. More detailed information is provided in the document *FAO activities on biodiversity for food and agriculture for food security, nutrition and human health*.⁴

II. FAO WORK ON BIODIVERSITY, NUTRITION AND HUMAN HEALTH

A. Nutrition

3. In the FAO Strategic Framework 2022–31,⁵ “better nutrition” is one of the four “betters” (better production, better nutrition, a better environment and a better life, leaving no one behind) through which FAO aims to support the 2030 Agenda for Sustainable Development via transformation to more efficient, inclusive, resilient and sustainable agrifood systems. “Healthy diets” is one of the five programme priority areas (PPAs) under the better nutrition aspiration.⁶ Nutrition is recognized as a key technical theme of a cross-cutting nature. A dedicated cross-organizational Vision and Strategy of FAO’s Work in Nutrition with specific accountability to Members was adopted by the 166th Session of the Council.⁷

4. At its Eighteenth Regular Session, the Commission requested FAO to continue raising awareness of, and increasing knowledge on, the important roles that GRFA and BFA may play in food system transformations and in addressing challenges related to food security, nutrition and human health.⁸

5. The document *FAO activities on biodiversity for food and agriculture for food security, nutrition and human health*⁹ shows that a range of FAO guidelines, projects and partnerships have promoted and raised awareness of healthy diets. Under the Vision and Strategy of FAO’s Work in Nutrition, relevant activities include work in support of the Committee on World Food Security (CFS) voluntary guidelines, work on the principles of, and metrics and data for, assessing healthy diets, work on Indigenous Peoples’ food systems, work on follow-up to the UN Decade on Nutrition, work on the outcomes of the Food Systems Summit, work on the International Years of Fruits and Vegetables, Millet and Camelids, and work on evidence related to a variety of topics, including microbiota. Recent activities include the preparation of the publication *Climate change, biodiversity, and nutrition nexus - Evidence and emerging policy and programming opportunities*.¹⁰ The breadth and depth of FAO’s work in nutrition are increasing, including with respect to data, evidence and action that enhance the contribution of agrifood systems to efforts to achieve healthy diets.

6. FAO conducts research and releases evidence, data and guidelines on healthy diets for nutrition, including on food composition, and indicators and data on dietary intake.¹¹ FAO, in

¹ CGRFA-17/19/Report, *Appendix F, Annex 1*.

² CGRFA-19/23/2/Inf.1.

³ CGRFA-18/21/2.

⁴ CGRFA-19/23/2/Inf.1.

⁵ FAO. 2021. FAO Strategic Framework 2022-2031. Rome. <https://www.fao.org/3/cb7099en/cb7099en.pdf>

⁶ C 2021/3, Figure 1.

⁷ CL 166/REP, paragraph 24.b.

⁸ CGRFA-18/21/Report, paragraph 14.

⁹ CGRFA-18/21/2/Inf.1.

¹⁰ FAO. 2021. *Climate change, biodiversity and nutrition nexus – Evidence and emerging policy and programming opportunities*. Rome. <https://doi.org/10.4060/cb6701en>

¹¹ <http://www.fao.org/infoods/infoods/en/>

collaboration with INFOODS, developed the FAO/INFOODS Food Composition Database for Biodiversity (BioFoodComp). Version 4.0 of BioFoodComp includes composition values for foods at within-species level (i.e. variety/cultivar/breed level) and for wild and underutilized foods. It contains data on 10 156 foods, of which 3 118 (31 percent) are identified as wild plant or animal foods (belonging to more than 1 200 species).¹² Data on the nutrient composition of varieties/cultivars of many species of crops have also been generated by others, particularly by crop breeders. To date, these data have not been considered in nutrient composition tables. FAO is exploring the possibility of doing so, particularly for neglected species. The Rockefeller Foundation Periodic Table of Foods Initiative (PTFI) is also generating food-composition data using novel analysis methodologies. FAO is engaging closely in technical discussions to explore PTFI's potential to complement current work on food composition.

7. Robust indicators of healthy diets are critical for understanding trends, setting targets and monitoring progress at national and subnational levels. Data on the environmental sustainability of foods as part of healthy diets are also critically important, but there is little agreement to date on the metrics for assessing this. A recent FAO review¹³ highlighted that research to date is geographically imbalanced and focuses on only some aspects of healthy diets and some environmental impacts. It also noted that there is no consensus on appropriate metrics and data sources. FAO, together with the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), is co-leading the Healthy Diets Monitoring Initiative to address these gaps and foster consensus.

8. The Commission, at its Eighteenth Regular Session, requested FAO to strengthen its support to Members, at their request, in integrating the conservation and sustainable use of BFA and GRFA across their food security, nutrition and health policies, plans and activities.¹⁴

9. In 2022, FAO joined forces with the United States Department of State and the African Union to lead the Vision for Adapted Crops and Soils (VACS) initiative for Africa. VACS will identify nutritious neglected crops, including a variety of food groups (e.g. cereals, legumes, fruits, vegetables and nuts/seeds) with potential for climate adaptation. VACS will then invest in supporting any breeding activities needed to enhance productivity, nutrient content and climate adaptability of these crops and in fostering their adoption across the region.

10. In 2022, FAO implemented 336 projects that targeted nutrition as a principal objective and 915 that targeted it as a significant objective.¹⁵ FAO supported 35 countries with the development or revision of their food-based dietary guidelines and 30 countries with the development of school food and nutrition programmes.¹⁶ One hundred and eighty-three projects target biodiversity as a principal objective. A lower, but substantial, number of projects have been tagged as combining both biodiversity and nutrition. The Global Environmental Facility (GEF) is funding an increasing number of national and regional projects with FAO involvement. Biodiversity and healthy diets were identified as the two levers with which to deliver nutritional and environmental benefits together. FAO and the International Fund for Agricultural Development (IFAD) are now leading the GEF-8 Food Systems Integrated Programme. However, there are only a few projects that specifically address GRFA.

11. More than 3 billion people around the world, mostly in Africa, Asia and Latin America, cannot afford a healthy diet of nourishing, diverse foods that provide sufficient essential nutrients, especially vitamins and minerals (micronutrients).¹⁷ Hidden hunger or micronutrient deficiencies arising from poor-quality diets elevate the risk of disease, disability and mortality. Over half

¹² FAO. 2017. *FAO/INFOODS Food Composition Database for Biodiversity Version 4.0 – BioFoodComp4.0*. Rome. <https://www.fao.org/infoods/infoods/tables-and-databases/faoinfoods-databases/en/>; the associated user guide is available at <https://www.fao.org/3/i7364e/i7364e.pdf>.

¹³ Harrison, M.R., Palma, G., Buendia, T., Bueno-Tarodo, M., Quell, D. & Hachem, F. 2022. A scoping review of indicators for sustainable healthy diets. *Frontiers in Sustainable Food Systems*, 5: 822263. <https://doi.org/10.3389/fsufs.2021.822263>

¹⁴ CGRFA-18/21/Report, paragraph 15.

¹⁵ FAO Field Programme Management Information Systems (FPMIS).

¹⁶ CFS 2021/49/6.

¹⁷ FAO, IFAD, UNICEF, WFP & WHO. 2022. *The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make healthy diets more affordable*. Rome, FAO. <https://doi.org/10.4060/cc0639en>

(56 percent) of all preschool-aged children and 69 percent of women of reproductive age are deficient in at least one of three critically important micronutrients – iron, zinc and vitamin A.¹⁸

12. While soil quality and pollination also influence the nutrient quality of plants, biofortification adds micronutrients through crop cross-breeding with varieties that contain higher concentrations of the desired micronutrient(s) or through genetic modification or mineral fertilization. The aim of biofortification is to increase the density of nutrients in staple foods, especially those commonly consumed by poor households. Since the early 2000s, micronutrient density, especially of iron, zinc and vitamin A, has been increased in staple foods through conventional breeding without negative effects on other farmer-preferred traits.¹⁹ More than 400 biofortified varieties have been released, in 40 countries. As of 2022, 17 million farm households have switched to nutrient-enriched varieties of staple foods, reaching at least 86 million people: provitamin A maize, cassava and orange-fleshed sweet potatoes; high-iron bean and pearl millet; and high-zinc rice, wheat and maize.²⁰

13. In 2020, FAO, together with HarvestPlus, published a brief entitled *Biofortification: A food-systems solution to help end hidden hunger*.²¹ It is currently developing implementation guidelines. FAO supports biofortification projects in the Democratic Republic of the Congo, Ethiopia, Malawi and Zimbabwe. It is collaborating with HarvestPlus to scale up implementation in more countries, including Indonesia and Pakistan.

14. Biofortification can be an effective intervention in terms of cost per disability-adjusted life years (DALYs) saved.²² While most biofortified crops have so far been bred conventionally, genetic modification can add more micronutrients to a given variety, as well as other traits, such as resistance to climate change and disease. The genetically modified vitamin A-enriched Golden Rice has been approved in the Philippines.²³ It can be expected that reduced costs and wider use of gene-editing could increase the bioavailability of several essential micronutrients, as well as improving other relevant production and health traits, in a wider range of foods. Consideration should be given to ensuring that there are no trade-offs between the conservation of biodiversity and meeting the nutrition requirements of poor populations at affordable costs.

B. One Health

15. At its Eighteenth Regular Session, the Commission noted that the “One Health” approach and other holistic approaches are important to the achievement of the 2030 Agenda for Sustainable Development and related Sustainable Development Goals (SDGs) and requested FAO to consider the contribution of BFA and GRFA to nutrition and the “One Health” approach, based on scientific evidence and within FAO’s mandate.²⁴ The Commission also recommended that FAO continue collaboration with its partners to increase the sustainability of agricultural practices and protect the livelihoods of farmers from the impacts of plant and animal diseases, to promote food safety and to prevent and control infectious diseases and antimicrobial resistance, as appropriate.²⁵

¹⁸ Stevens, G.A., Beal, T., Mbuya, M.N.N., Luo, H. & Neufeld, L.M. on behalf of the Global Micronutrient Deficiencies Research Group. 2022. Micronutrient deficiencies among preschool-aged children and women of reproductive age worldwide: a pooled analysis of individual-level data from population-representative surveys. *Lancet Global Health*, 10(11): e1590–9. [https://doi.org/10.1016/S2214-109X\(22\)00367-9](https://doi.org/10.1016/S2214-109X(22)00367-9)

¹⁹ Osendarp, S.J.M., Martinez, H., Garrett, G.S., Neufeld, L.M., De-Regil, L.M., Vossenaar, M. & Darnton-Hill, I. 2018. Large-scale food fortification and biofortification in low- and middle-income countries: a review of programs, trends, challenges, and evidence gaps. *Food and Nutrition Bulletin*, 39(2): 315–331. <https://doi.org/10.1177/0379572118774>

²⁰ <https://bcr.harvestplus.org/>

²¹ Harvest Plus & FAO. 2019. *Biofortification: a food-systems solution to help end hidden hunger*. Rome. <https://www.fao.org/documents/card/en/c/ca8711en>

²² CAST (Council for Agricultural Science and Technology). 2020. *Food biofortification—reaping the benefits of science to overcome hidden hunger*. A paper in the series on the Need for Agricultural Innovation to Sustainably Feed the World by 2050. Issue Paper 69. Ames, USA, CAST.

²³ <https://www.irri.org/news-and-events/news/philippines-becomes-first-country-approve-nutrient-enriched-golden-rice>

²⁴ CGRFA-18/21/Report paragraph 14.

²⁵ CGRFA-18/21/Report, paragraphs 12–15.

16. In December 2021, the One Health High Level Expert Panel (OHHLEP) published a definition of One Health.²⁶ One Health is a PPA under the “better production” aspiration. The One Health PPA promotes an integrated and coordinated One Health approach to reduce losses in agrifood systems and adverse ecosystem impacts caused by the spread of animal, plant and aquatic pests and diseases, including zoonotic infections of pandemic potential and antimicrobial resistance (AMR). The main goals of the PPA are to enhance productivity and reduce risks from biological threats, applying integrated pest and biosecurity management approaches at national level for more sustainable, resilient and inclusive agrifood systems in a changing climate and environment.

17. In 2022, FAO implemented 24 projects whose titles addressed One Health and 28 projects whose titles addressed AMR. Many more projects address specific aspects of plant and animal health. FAO’s Action Plan on Antimicrobial Resistance 2021–2025²⁷ is one of the Organization’s One Health flagship programmes. With FAO assistance, 47 countries have accelerated the implementation of national action plans on AMR by applying the FAO Progressive Management Pathway for AMR (FAO-PMP-AMR), legal methodology, etc.

18. External efforts on One Health build on and benefit from collaboration with WHO and the World Organisation for Animal Health (WOAH, founded as OIE), the so-called Tripartite. At its annual executive meeting in March 2022, the Tripartite signed a memorandum of understanding with the United Nations Environment Programme (UNEP) to formally establish the Quadripartite.

19. The 166th Session of the Council “welcomed FAO’s One Health work, including the positive collaboration within the Tripartite and UNEP and their work to develop reporting mechanisms and a joint strategy and joint work plan on One Health.”²⁸ The need to develop a joint vision for One Health, including a joint work plan, was reinforced by the World Health Assembly’s call, under resolution WHA74.7, to build on and strengthen existing cooperation between FAO, WHO, UNEP and WOAH.

20. The Quadripartite published the One Health Joint Plan of Action (2022–2026) (OH JPA) in October 2022.²⁹ The OH JPA, which was developed through a participatory process, provides a set of activities that aim to strengthen collaboration, communication, capacity building and coordination equally across all sectors responsible for addressing health concerns at the human–animal–plant–environment interface. Its Action Track 6 focuses on One Health and the environment and aims to “protect and restore biodiversity, prevent the degradation of ecosystems and the wider environment to jointly support the health of people, animals, plants and ecosystems, underpinning sustainable development.” Several guidelines, tools, databases and studies have been developed.

21. Other One Health-related activities are being implemented under the European Union-funded Sustainable Wildlife Management (SWM) Programme and as part of work on reducing emerging infectious disease risks through forest ecosystem health. Additionally, FAO produced a series of policy briefs in response to the global COVID-19 pandemic, including on biodiversity loss, habitat destruction and wild-meat consumption.³⁰ Under its new strategy, the Collaborative Partnership on Sustainable Wildlife Management³¹ has a theme on embedding the sustainable use and management of wildlife in the One Health agenda. In 2022, FAO and the EcoHealth Alliance published a policy brief, *How natural resource management sectors can contribute to reducing emerging infectious diseases: the example of forest ecosystems*,³² on One Health Day, 3 November.

22. The One Health approach is more prominent in the human–animal health realm than in the human–plant health realm, despite the human-health impacts of plant pests and diseases beyond their

²⁶ <https://www.who.int/news/item/01-12-2021-tripartite-and-unesp-support-ohhlep-s-definition-of-one-health>

²⁷ FAO. 2021. *The FAO Action Plan on Antimicrobial Resistance 2021–2025*. Rome.

<https://doi.org/10.4060/cb5545en>

²⁸ CL 166/REP, paragraph 24.

²⁹ FAO, UNEP, WHO & WOAH. 2022. *One Health Joint Plan of Action (2022–2026). Working together for the health of humans, animals, plants and the environment*. Rome. <http://www.fao.org/3/cc2289en/cc2289en.pdf>

³⁰ FAO. 2020. *Global emergence of infectious diseases: links with wild meat consumption, ecosystem disruption, habitat degradation and biodiversity loss*. Rome. <https://doi.org/10.4060/ca9456en>

³¹ <https://www.fao.org/forestry/wildlife-partnership/en>

³² FAO. 2022. *How natural resource management sectors can contribute to reducing emerging infectious diseases: the example of forest ecosystems – Policy brief*. Rome. <https://www.fao.org/3/cc2752en/cc2752en.pdf>

impacts on crop yields (e.g. the effects of mycotoxins) and their linkages with climate change.³³ FAO collaborated with the Secretariat of the International Plant Protection Convention on plant health. As with nutrition, FAO's work on One Health is more focused on biodiversity in general than on BFA or GRFA specifically.

III. DEVELOPMENTS IN OTHER FORA

23. At its Eighteenth Regular Session, the Commission noted FAO's evolving work in this area, especially on the One Health approach, in the context of global efforts to transform food systems in line with the SDGs, and requested FAO to monitor relevant developments at the nexus of BFA, food security, nutrition and human health in other fora and report them to the Commission, as appropriate.³⁴ The following paragraphs present these updates.

24. The United Nations Decade of Action on Nutrition aims to accelerate implementation of the commitments of the Second International Conference on Nutrition (ICN2), achieve the global nutrition and diet-related non-communicable disease (NCD) targets by 2025 and contribute to the realization of the SDGs by 2030. Detailed progress reports were provided to the CFS.³⁵

25. The Secretary-General of the United Nations (UN) convened a Food Systems Summit (FSS) in 2021 as part of the Decade of Action to achieve the SDGs by 2030. Three of the five action areas that emerged from the summit process are particularly relevant: (1) Nourish All People; (2) Boost Nature-based Solutions; and (4) Build Resilience to Vulnerabilities, Shocks and Stresses. Several country and stakeholder coalitions have emerged from the FSS. The Rome-based agencies – FAO, IFAD and the World Food Programme – jointly lead a coordination hub that collaborates with the wider UN System, and draws on its capacities, to support follow-up to the FSS. The hub collaborates with UN Resident Coordinators and UN Country Teams. In July 2023, the Secretary-General will convene, at FAO, a global stock-taking meeting that will review progress in implementing the outcomes of this process and its contributions to the achievement of the 2030 Agenda for Sustainable Development.

26. The *Voluntary Guidelines on Food Systems and Nutrition* (VGFSyN),³⁶ which were endorsed by the CFS at its 47th Session in February 2021, recognize that enhancing BFA contributes to the sustainability of food systems and their resilience, and to safeguarding healthy diets for current and future generations. FAO, with the support of UN Nutrition, has developed an online dissemination platform of supporting evidence³⁷ to support FAO Members and their stakeholders with the implementation of the VGFSyN. This platform includes UN-published documents that provide detailed guidance on the biodiversity-related recommendations of the VGFSyN.

27. At its 27th Session, in October 2020, the Committee on Agriculture (COAG) requested FAO “to produce a comprehensive, science and evidence-based global assessment of the contribution of livestock to food security, sustainable food systems, nutrition and healthy diets” (Assessment).³⁸ The preparation of the Assessment is being overviewed by COAG's newly established Sub-Committee on Livestock. At its First Session in March 2022, the Sub-Committee reviewed the proposed approach, scope, content, timeline, stakeholder involvement and progress of the Assessment.³⁹ It is proposed that the Assessment follow an agrifood systems approach and use a One Health perspective to assess economic, social and environmental sustainability dimensions linked to the 2030 Agenda for

³³ IPCC Secretariat. 2021. *Scientific review of the impact of climate change on plant pests – A global challenge to prevent and mitigate plant pest risks in agriculture, forestry and ecosystems*. Rome. FAO on behalf of the IPCC Secretariat.

³⁴ CGRFA-18/21/Report, paragraph 12.

³⁵ CFS 2021/49/6; CFS 2019/46/3; CFS 2017/44/INF/17.

³⁶ FAO. 2021. *CFS Voluntary Guidelines on Food Systems and Nutrition*. Rome. <https://www.fao.org/cfs/vgfsn/en/%3f>

³⁷ <https://www.fao.org/evidence-platform-agri-food-systems-nutrition/en>

³⁸ FAO. 2020. *Report of the 27th session of the Committee on Agriculture (28 September–2 October 2020)*. Rome. <https://www.fao.org/3/ne021en/ne021en.pdf>.

³⁹ COAG:LI/2022/2.

Sustainable Development. Component Document 1⁴⁰ of the Assessment describes the world nutrition situation, dietary patterns and food systems in relation to terrestrial animal source foods.

28. The Convention on Biological Diversity (CBD), under its cross-cutting initiative on biodiversity for food and nutrition, within its Programme of Work on Agricultural Biodiversity, aims to promote the sustainable use of biodiversity in programmes contributing to food security and improved human nutrition. The initiative is implemented by Bioversity International and FAO, and progress has been reported to the Commission.⁴¹

29. The Fifteenth Conference of the Parties (COP) to the CBD, under Decision 15/4,⁴² requested the Executive Secretary of the CBD to conduct a strategic review and analysis of the CBD's programmes of work in the context of the Kunming-Montreal Global Biodiversity Framework to facilitate its implementation, and to prepare draft updates of these programmes of work for consideration by the Sixteenth meeting of the COP, which is scheduled to take place in late 2024. Decision 15/13 requests the Executive Secretary, in consultation with the secretariats of relevant multilateral environmental agreements and organizations, to identify opportunities for cooperation in work towards the goals and targets of the Kunming-Montreal Global Biodiversity Framework and to provide a list of relevant initiatives and action plans for review by the CBD's Subsidiary Body on Implementation at its fourth meeting.⁴³

30. COP 15 also addressed biodiversity and health. Decision 15/29 makes multiple references to the One Health and other holistic approaches. It invites the Quadripartite Alliance for One Health, the OHHLEP and others to take into account the linkages between health and biodiversity and the need for the One Health approach, among other holistic approaches, recognizing social determinants of health and socioeconomic inequities.⁴⁴ It further invites the Global Environment Facility (GEF), Contracting Parties and others to consider providing support for mainstreaming biodiversity and health linkages.⁴⁵ It requests the CBD Secretariat to produce an updated version of the draft global action plan for biodiversity and health, based on wide consultations, recognizing the issues of equity, including through the fair and equitable sharing of benefits arising from the utilization of genetic resources, and report back to the CBD's Subsidiary Body on Scientific, Technical and Technological Advice, with a view to recommendations being made for consideration by COP 16.⁴⁶ The question of the fair and equitable sharing of benefits arising from the utilization of genetic resources in relevant health sectors, and especially digital sequence information, remained unresolved under this decision.

31. Access and benefit-sharing also features in the negotiation of a WHO convention, agreement or other international instrument on pandemic prevention, preparedness and response.⁴⁷ More details are given in documents *Access and benefit-sharing for genetic resources for food and agriculture*⁴⁸ and *Digital sequence information and genetic resources for food and agriculture*.⁴⁹

32. The seventh work programme of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) includes a thematic assessment of the interlinkages between biodiversity, water, food and health. The first external review of the chapters of this nexus

⁴⁰ FAO. 2023. *Contribution of terrestrial animal source food to healthy diets for improved nutrition and health outcomes – An evidence and policy overview on the state of knowledge and gaps*. Rome. <https://doi.org/10.4060/cc3912en>

⁴¹ CGRFA-18/21/2/Inf.1.

⁴² CBD/COP/DEC/15/4, paragraph 9.

⁴³ CBD/COP/DEC/15/13, paragraph 15.

⁴⁴ CBD/COP/DEC/15/29, paragraph 2.

⁴⁵ CBD/COP/DEC/15/29, paragraph 3.

⁴⁶ CBD/COP/DEC/15/29, paragraph 5.

⁴⁷ A74/A/CONF./2.

⁴⁸ CGRFA-19/23/4.2.

⁴⁹ CGRFA-19/23/5.

assessment took place in early 2023.⁵⁰ A Workshop on Biodiversity and Pandemics was convened by IPBES in July 2020.⁵¹

IV. CONSIDERATIONS FOR THE COMMISSION'S FUTURE WORK

33. The Commission has considered work on GRFA and different aspects of food security and nutrition at each of its sessions since the Fourteenth Regular Session.⁵² The Voluntary Guidelines for Mainstreaming Biodiversity into Policies, Programmes and National and Regional Plans of Action on Nutrition were adopted at the Fifteenth Regular Session.⁵³ In discussing the nutrition and health workstream of its MYPOW,⁵⁴ the Commission may wish to consider its future role in this area of work.

34. As reported to this and to previous Commission Sessions,⁵⁵ FAO's work on genetic resources and other components of biodiversity relevant to food and agriculture and food security, nutrition and One Health has expanded and deepened, and its visibility has increased. Biodiversity is addressed with increasing consistency across the nutrition and One Health work areas. However, work is more focused on biodiversity in general rather than on BFA or GRFA specifically. There is little recognition of, or specific reference to, diversity below species level (e.g. different varieties of the same crop having different dietary effects, including on human health), and data at this level are rarely available.⁵⁶ Where the genetic level is directly targeted, such as for biofortification, close linkages exist with the Commission's workstreams on biotechnology and digital sequence information.

35. FAO's work on nutrition and One Health is closely aligned with developments in other fora and UN initiatives, and is undertaken in partnership with many organizations and stakeholders. FAO has routinely reported developments in these fora and partnerships to the Commission. However, most of the work on nutrition and One Health within FAO is undertaken by units other than the Secretariats of the Commission and its Working Groups.

36. Implementation of agreed policies and guidance at national level, including implementation of the Voluntary Guidelines for Mainstreaming Biodiversity into Policies, Programmes and National and Regional Plans of Action on Nutrition, is not easy for the Secretariat to trace if countries do not provide information on this. However, invitations by the Commission produced no country responses on experiences in the development and implementation of policies related to biodiversity and nutrition, on best practices and lessons learned in mainstreaming biodiversity into nutrition policies and programmes, or on traditional food knowledge,⁵⁷ and only one response on the contribution of GRFA to the four pillars of food security.⁵⁸ It is therefore hardly possible for the Commission to assess the impact of its work on nutrition and health.

37. The CBD's upcoming review of its initiatives, including the cross-cutting initiative on biodiversity for food and nutrition within the Programme of Work on Agricultural Biodiversity, provides an opportunity to stress the important role of GRFA to nutrition and health.

⁵⁰ <https://ipbes.net/nexus>

⁵¹ IPBES. 2020. *Workshop Report on Biodiversity and Pandemics of the Intergovernmental Platform on Biodiversity and Ecosystem Services*. Daszak, P., das Neves, C., Amuasi, J., Hayman, D., Kuiken, T., Roche, B., Zambrana-Torrel, C. *et al.* IPBES secretariat, Bonn, Germany, DOI:10.5281/zenodo.4147317.

[https://ipbes.net/sites/default/files/2020-](https://ipbes.net/sites/default/files/2020-12/IPBES%20Workshop%20on%20Biodiversity%20and%20Pandemics%20Report_0.pdf)

[12/IPBES%20Workshop%20on%20Biodiversity%20and%20Pandemics%20Report_0.pdf](https://ipbes.net/sites/default/files/2020-12/IPBES%20Workshop%20on%20Biodiversity%20and%20Pandemics%20Report_0.pdf)

⁵² CGRFA-13/11/Report, *Appendix F*.

⁵³ CGRFA-15/15/Report, paragraph 24.

⁵⁴ CGRFA-19/23/12.

⁵⁵ CGRFA-15/15/6; CGRFA-16/17/5; CGRFA-17/19/2; Background Study Paper No. 69; CGRFA-18/21/2.

⁵⁶ CGRFA-17/19/2; Rawal, V., Bansal V. & Doordarshni Thokchom, D. 2019. *Biodiversity for food and agriculture and food security - An exploration of interrelationships*. CGRFA Background Study Paper 69. Rome. FAO. <https://www.fao.org/3/CA3218EN/ca3218en.pdf>; the lack of data at levels below species level also relates to climate change, see FAO. 2022. *The role of genetic resources for food and agriculture in adaptation to and mitigation of climate change*. Rome. <https://doi.org/10.4060/cb9570e>.

⁵⁷ CGRFA-17/19/Report, paragraph 36; CGRFA-18/21/2, paragraph 5.

⁵⁸ CGRFA-16/17/Report Rev.1, paragraph 21; CGRFA-17/19/2/Inf.1.

V. GUIDANCE SOUGHT

38. The Commission may wish to:
- i. invite Members to raise awareness of, and implement, the Voluntary Guidelines for Mainstreaming Biodiversity into Policies, Programmes and National and Regional Plans of Action on Nutrition, including through capacity development;
 - ii. invite Members to integrate GRFA into their food security and nutrition policies, including public research and extension programmes, public procurement and education policies, and market and value chain development, with the aim of arriving at policies that support food security, adequate nutrition, resilience to climate change and the conservation and sustainable use of GRFA;
 - iii. invite Members and relevant stakeholders to undertake research and raise awareness on the nutrient composition of foods derived from different varieties of plants and breeds of animals as well as foods from wild, neglected and underutilized species, including for biofortification;
 - iv. invite Members and relevant stakeholders to consider improved use of BFA and GRFA across the various work areas of One Health;
 - v. recommend that FAO continue collaborating with its partners on healthy diets and nutrition, their metrics and indicators, and on plant, animal and human health, and raising awareness of the importance of genetic diversity and BFA; and
 - vi. recommend that FAO strengthen its support to Members in their efforts to promote food security, improved nutrition and the One Health approach through the improved use of BFA and GRFA.