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BIODIVERSITY AND NUTRITION

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I. INTRODUCTION

1. At its Fourteenth Regular Session the Commission on Genetic Resources for Food and Agriculture (the Commission) highlighted the importance of biodiversity for food and nutrition and noted that its potential role in nutrition is underexplored and undervalued. It welcomed the progress FAO had made in awareness raising and requested FAO to continue its leading role in the Cross Cutting Initiative on Biodiversity for Food and Nutrition. The Commission appreciated that food biodiversity, in the context of the Initiative, regarded genetic resources as including neglected and underutilized species and varieties, and noted that improved information on the nutrient contents of such plants and animals could facilitate new market opportunities.¹
2. The Commission requested FAO to further develop its work on biodiversity and nutrition, recognizing the importance of linking food biodiversity and the environment sector to human nutrition and healthy diets. It stressed the need to strengthen collaboration with relevant organizations and fora and to avoid duplication of work.²
3. The Commission requested FAO to continue to incorporate biodiversity into relevant nutrition activities and to further mainstream nutrition within its work on biodiversity. It requested FAO, subject to the availability of funds, to develop *Draft Guidelines for Mainstreaming Biodiversity into Policies, Programmes and National and Regional Plans of Action on Nutrition* (Draft Guidelines). It requested its intergovernmental technical working groups to review the Draft Guidelines and to provide recommendations for the Commission's consideration at its Fifteenth Regular Session.³
4. This document gives a brief overview of FAO's recent work on biodiversity and nutrition and introduces the Draft Guidelines, as revised in the light of comments received from the Commission's Intergovernmental Technical Working Groups on animal, forest and plant genetic resources (Working Groups).⁴ The revised Draft Guidelines are contained in the *Appendix* to this document.

II. FAO'S WORK ON BIODIVERSITY AND NUTRITION

5. During the current biennium, FAO continues to contribute to the knowledge base on biodiversity and nutrition through the regular updating of the FAO/INFOODS Food Composition Database for Biodiversity, the monitoring of the Nutrition Indicators for Biodiversity, the publication of guidelines and scientific articles, as well as through awareness-raising.
6. In 2013, FAO held a technical expert meeting to consider the assessment of food biodiversity in dietary intake surveys. This work will result in technical guidelines expected to be published in 2015. The guidelines aim to assist countries in better capturing biodiversity in food consumption surveys. FAO also addresses specific aspects of biodiversity for agriculture and nutrition in two Major Areas of Work of FAO's Strategic Objective 2 "Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner".

III. DRAFT GUIDELINES FOR MAINSTREAMING BIODIVERSITY INTO POLICIES, PROGRAMMES AND NATIONAL AND REGIONAL PLANS OF ACTION ON NUTRITION

Rationale of the Draft Guidelines

7. The importance of consuming diversified diets that can provide all the nutrients and non-nutrients needed to sustain healthy lives is well-understood but it is challenging for many to achieve this quality of diet. Increased dietary diversity contributes to healthy growth, development and maintenance and may help to prevent non-communicable diseases such as diabetes, heart diseases and some cancers.

¹ CGRFA-14/13/Report, paragraph 42.

² CGRFA-14/13/Report, paragraph 43.

³ CGRFA-14/13/Report, paragraph 46.

⁴ CGRFA-15/15/12 paragraphs 24-26; CGRFA-15/15/14 paragraphs 32-37; CGRFA-15/15/9 paragraphs 29-33.

8. FAO recognizes that improving nutrition requires a multi- sectoral approach and a range of interventions. Some nutrition interventions target the immediate causes of malnutrition⁵ and address their symptoms by supplementing nutrient intakes through various means, promoting breast-feeding and addressing the immediate causes of undernutrition (but not the root causes). Other interventions aim to improve diets and prevent malnutrition through policies and programmes that ensure safe, healthy, affordable, accessible, and sustainable food supply to all people and advocacy and public awareness for the promotion of production and consumption of foods to enhance dietary diversity. A variety of interventions are essential to achieve nutritional well-being in a sustainable manner. While efforts to treat malnutrition are commonly led by the health sector, ensuring access to nutritious foods and diversity in diets, the foundations for achieving well- nourished populations over time, must be carried out within the food and agriculture sector, often in collaboration with the health and other relevant sectors. The mainstreaming of biodiversity for improved food and nutrition security can be carried out within the context of a range of nutrition policies and programmes.

9. The Draft Guidelines aim to support mainstreaming biodiversity for food and agriculture (in particular the varieties, cultivars and breeds of plants and animals used as food, as well as wild, neglected and underutilised species) into policies, programmes and national and regional plans of action on nutrition, and to specifically promote the knowledge, conservation, development and use of varieties and breeds contributing to health and nutrition, in view of addressing malnutrition in all its forms. The Draft Guidelines recognize the strong links between biodiversity, agriculture, food, nutrition and health. Indeed, taking advantage of variety-specific differences in food composition can make a difference between nutrient deficiency and nutrient adequacy in populations and individuals, and contribute to combating malnutrition. Yet, this approach is challenging, as conventional models of agricultural productivity often do not adequately consider the nutritional quality of foods. It is therefore necessary to develop new concepts to be able to measure agricultural outputs in a nutrition-sensitive manner, i.e. nutrient productivity, which should be reported in addition to conventional agricultural considerations.

10. A number of nutrition-sensitive programmes have successfully demonstrated that food biodiversity from specific varieties, cultivars and breeds of plants and animals from local/ traditional food systems can be mobilized and used to engender food and nutrition security within communities. The acquisition policy of national school meal programmes, for example, may be used to increase the demand for fresh locally produced foods and for the diversification of food resources. Complementary feeding programmes may stress the importance of making use of the diversity of local/ traditional foods. Similarly, home garden programmes which may play a vital role for food and nutrition security of households, may emphasize the need to use the full diversity of locally available resources. The improvement of traditional varieties or the improvement of related technologies or marketing mechanisms may help to increase the production of underutilized varieties. Finally, awareness-raising and information campaigns may help consumers to understand the nutritional value of these foods and thus help to increase the demand for and the production of foods with better nutrient profiles at larger scale. FAO is supporting projects in a number of countries that are putting these ideas into practice.

11. The International Conference on Forests for Food Security and Nutrition, held in FAO in 2013, highlighted that many forest and tree foods have very high nutritional value.⁶ The Draft Guidelines take into account the important role of forest-derived wild foods as a genetic resources pool and for food security and nutrition.

12. Examples in support of the approach taken by these Guidelines are also coming from the ongoing GEF project “Mainstreaming Biodiversity Conservation and Sustainable Use for Improved Human Nutrition and Well-being”, coordinated by Bioversity International and implemented by FAO and UNEP in Brazil, Sri Lanka, Turkey and Kenya. The objective of the project is to addresses declining diversity in both the environment and diet by: (a) demonstrating the nutritional value of

⁵ Malnutrition includes undernutrition, micronutrient deficiency and overweight/obesity.

⁶ *Forests and trees outside forests are essential for global food security and nutrition - Summary of the International Conference on Forests for Food Security and Nutrition* FAO headquarters, Rome, Italy, 13–15 May 2013, available at <http://www.fao.org/docrep/018/aq110e/aq110e.pdf>

agricultural biodiversity and the role it plays in promoting healthy diets and strengthening livelihoods; (b) using the evidence generated from the project to influence policies, programmes and markets that support the conservation and sustainable use of agricultural biodiversity with nutrition potential for improved human nutrition and wellbeing; and (c) developing tools, knowledge and best practices for scaling up the use of biodiversity for food and nutrition in development programmes, value chains and local community initiatives. Focusing on the diversity of crops and their wild relatives, trees, animals, microbes and other species in a number of discrete agro-ecological zones, their nutrient content, and their role in traditional food systems, also helps to strengthen the evidence-base for coupling biodiversity and good nutrition. The results are expected to enhance the development of policies and regulatory frameworks that promote good nutrition, food security, environmental sustainability and biodiversity conservation through sustainable use.

Review by intergovernmental technical working groups

13. As requested by the Commission, the Working Groups reviewed the Draft Guidelines.⁷ They welcomed the Draft Guidelines,⁸ provided suggestions for their improvement and recommended them for endorsement by the Commission. The Working Groups stressed the need to strengthen the scientific evidence of the linkages between biodiversity, nutrition and health, and to fill research gaps in relation to the composition of foods from the different sectors of genetic resources for food and agriculture, including through the meta-analysis of existing data. They highlighted the need for strengthening national and international policies and programmes that would facilitate the incorporation of biodiversity in nutrition and nutrition-related policies and interventions as well as the importance of a multi-sectorial approach, school-based interventions and of raising the awareness of farmers and consumers of the importance of biodiversity for food security and nutrition.⁹

14. The Working Group on Animal Genetic Resources for Food and Agriculture specifically emphasized the importance of considering the outcomes of the Second International Conference on Nutrition (ICN2) in the revision of the Draft Guidelines, especially in relation to the linkages between nutrition, biodiversity and agriculture, and giving due attention to the relevance of agricultural biodiversity for nutrition.

15. The Draft Guidelines, as revised in the light of comments received, are contained in the *Appendix* to this document.

Second International Conference on Nutrition

16. The Second International Conference on Nutrition (ICN2) was held in November 2014 by FAO and WHO in Rome at FAO headquarters. The high-level conference, which attracted over 2,200 participants, including senior policy makers from health and agriculture and other relevant sectors from more than 170 governments, 150 representatives from civil society and nearly 100 from the business community, focused on policies aimed at eradicating malnutrition in all its forms and transforming food systems to make nutritious diets available to all.

17. Participants at ICN2 endorsed the Rome Declaration on Nutrition and the Framework for Action.¹⁰ While these documents do not specifically mention the potential use of biodiversity or genetic resources for food and agriculture to address malnutrition, some of their recommendations may well be relevant to the Draft Guidelines.

- Recommendation 8 of the Framework for Action highlights the need to “review national policies and investments and integrate nutrition objectives into food and agriculture policy, programme design and implementation, to enhance nutrition sensitive agriculture, ensure food security and enable healthy diets”.

⁷ CGRFA/WG-FGR-3/14/6; CGRFA/WG-PGR-7/14/6; CGRFA/WG-AnGR-8/14/8.

⁸ CGRFA/WG-FGR-3/14/6 Appendix I; CGRFA/WG-PGR-7/14/6 Appendix I; CGRFA/WG-AnGR-8/14/8 Appendix I.

⁹ CGRFA-15/15/12 paragraphs 24-26; CGRFA-15/15/14 paragraphs 32-37; CGRFA-15/15/9 paragraphs 29-33.

¹⁰ See ICN2 2014/2 and ICN2 2014/3 Corr.1

- Recommendation 10 stresses the need to “promote the diversification of crops including underutilized traditional crops, more production of fruits and vegetables, and appropriate production of animal-source products as needed, applying sustainable food production and natural resource management practices”.
- Recommendation 42 refers to the importance to “improve intake of micronutrients through consumption of nutrient-dense foods, especially foods rich in iron, where necessary, through fortification and supplementation strategies, and promote healthy and diversified diets”.¹¹

18. The Draft Guidelines have been updated taking into account the outcomes of ICN2, the comments provided by the Working Groups as well as preliminary results of the GEF project *Mainstreaming Biodiversity Conservation and Sustainable Use for Improved Human Nutrition and Well-being*.

IV. GUIDANCE SOUGHT

19. The Commission may wish to:
- i. Review and revise, as necessary, the *Draft Guidelines for Mainstreaming Biodiversity into Policies, Programmes and National and Regional Plans of Action on Nutrition* with a view to endorse them;
 - ii. Invite governments and stakeholders to contribute to raising awareness of the importance of integrating biodiversity in nutrition policy, programmes and plans to address malnutrition issues;
 - iii. Call upon governments and stakeholders to support research on the nutrient composition of foods derived from different varieties, cultivars and breeds of plants and animals, as well as wild, neglected and underutilized species, with a view to improve the scientific evidence base for biodiversity and nutrition;
 - iv. Request FAO, to publish the Guidelines and to provide support to their implementation, including through capacity development, subject to the availability of the necessary resources; and
 - v. Further request FAO to continue improving the scientific evidence base for biodiversity and nutrition.

¹¹ See document *Conference Outcome Document: Framework for Action ICN2 2014/3 Corr.1*.

APPENDIX I

**DRAFT GUIDELINES FOR MAINSTREAMING BIODIVERSITY
INTO POLICIES, PROGRAMMES AND NATIONAL AND REGIONAL
PLANS OF ACTION ON NUTRITION**

Objective

The objective of the Guidelines is to support countries to integrate biodiversity into all relevant policies, programmes and national and regional plans of action in view of addressing malnutrition in all its forms, and to specifically promote the knowledge, conservation, development and use of varieties, cultivars and breeds of plants and animals used as food, as well as wild, neglected and underutilised species contributing to health and nutrition.

Principles

The Guidelines support the development of nutrition-sensitive agriculture that considers the nutrient composition of biodiversity for food and agriculture (in particular the varieties, cultivars and breeds of plants and animals used as food, as well as wild, neglected and underutilised species) to address malnutrition in all its forms.

The Guidelines support the development of multi-sectoral strategies to improve nutrition and food security through the involvement of actors and stakeholders at all levels, e.g. decision-makers, policy makers and practitioners. The appropriate institutional set-up will need to be put in place at the national level to successfully implement the Guidelines. Main actors should include ministries and institutions dealing with nutrition, health, agriculture (forestry, fisheries, livestock, horticulture, and aquaculture), education, environment, trade, planning, poverty reduction, food security, rural development, economy and finance; UN organizations and other relevant international agencies; Civil Society Organizations and the private sector. Both the genetic resources for food and agriculture and the nutrition communities should be involved and actively guiding the process.

Key to the implementation of these Guidelines is the need to work with the different institutions and individuals, at different levels, involved in the planning and implementation of relevant policies and programmes. This effort should involve not just the health sector and nutrition programmes but also the agriculture sector as well as the environment, food security, education, trade, economy, and social protection sectors and their relevant stakeholders. Policies and programmes need to be mutually reinforcing across government sectors and departments and should take into account the potential contribution of biodiversity for food and agriculture. In order to be effective, strong political will and leadership are key as well as better co-operation between relevant sectors, building capacity and alliances, mobilising resources and enhancing motivation and convincing institutions and decision-makers of the crucial role biodiversity can play for nutrition outcomes if implemented in their respective policies and programmes.

The following key principles have been formulated for the successful implementation of the Guidelines which need to be taken into account during the planning stage:

- Identify all relevant sectors and development goals into which concerns on biodiversity for nutrition can be mainstreamed, including countries' follow up actions of ICN2
- Establishment of an effective institutional set-up, dialogue and cooperation at all levels and identifying relevant entry points;
- Identification of specific malnutrition issues and micro-nutrient deficiencies to be addressed;
- Development of a national action plan involving all relevant stakeholders including resource mobilization and the design of a monitoring and evaluation system;
- Strengthening of the scientific evidence base demonstrating the value of biodiversity to nutrition outcomes and creating awareness on the importance of building more nutrition-sensitive agriculture;

- Raising the awareness at all levels on the role of varieties, cultivars and breeds of plants and animals, as well as wild, neglected and underutilised species, and their unique nutrient composition, in addressing malnutrition issues;
- Strengthening individual and institutional capacity.

The Guidelines are divided into three main elements:

- A. RESEARCH, aiming at improving knowledge of the benefits of using different varieties, cultivars and breeds of plants and animals, as well as wild, neglected and underutilized species to address malnutrition; assessing the opportunities to address specific country nutrition issues through biodiversity for food and agriculture; and filling research gaps in relation to the composition of foods from the different sectors of genetic resources for food and agriculture, including through the meta-analysis of existing data;
- B. IMPLEMENTATION, aiming at putting activities into action that integrate biodiversity for food and agriculture in nutritional and nutrition-related policies, programmes and action plans; and
- C. AWARENESS, aiming at increasing the awareness of the general public and of the different stakeholders on the importance of foods from different varieties, cultivars and breeds of plants and animals, as well as wild, neglected and underutilized species, in addressing malnutrition.

A: RESEARCH

- i. Support research on nutrient contents of foods from different varieties, cultivars and breeds of plants and animals, as well as wild, neglected and underutilized species including from forest-derived foods and aquatic genetic resources.
 - a. This will involve the development of partnerships at national and international level, the use of existing databases (e.g. FAO/INFOODS) and scientific literature, the generation of new data and their compilation into databases, and analysis of these data to determine the various impacts of biodiversity for food and agriculture on malnutrition prevention and treatment.
 - b. The research should also support the identification of the main malnutrition issues, at local or country level, that could be addressed by biodiversity-relevant nutritional and nutrition-related policies and programmes as well as the species and/or foods that most likely would be of use to address those issues.
- ii. Collaborate with regional and international bodies in the funding and organization of regional courses on the development of food composition databases on biodiversity that seek information on the influence of production systems, soil, seasons and feed, and integration of foods at the level below species (e.g. varieties, cultivars and breeds). Special emphasis should be given to analysing the vitamin and mineral content of foods, especially in animal products as these data are still scarce.
- iii. Collaborate with relevant stakeholders to integrate biodiversity into food consumption surveys.
- iv. Support breeding of plant and animal species based on existing biodiversity in order to obtain the necessary nutrient profile to address the existing malnutrition while maintaining positive agricultural characteristics.
- v. Support research related to nutrition-sensitive production systems on the identification, characterization, conservation, development and use of varieties and breeds including of crops, livestock, forest-derived foods and aquatic genetic resources potentially useful in addressing existing malnutrition issues.
- vi. Investigate mechanisms to improve the seed production system of plant varieties with appropriate nutrient profiles for their inclusion into large-scale production.
- vii. Support local research to study the development of market systems for food from different varieties and breeds with appropriate nutrient profiles in order to identify ways of promoting these products to consumers.
- viii. Devise mechanisms and regulations to support the presence of biodiversity even in a highly competitive market.

- ix. Encourage and support investments for research into the nutrition and health attributes of food from different varieties, cultivars and breeds of plants and animals, as well as wild, neglected and underutilized species, including the private sector and food industries in order to generate data and information. This could also include meta-analysis and consumer research.

B: IMPLEMENTATION

- i. Support nutrition-sensitive agricultural extension services and agricultural innovation systems to establish genetic resources systems and banks for varieties with potentially useful nutrient profiles, in collaboration with national researchers, farmers and local communities. Provide support to strengthen production capabilities of small-scale producers of local foods with appropriate nutrient profiles through subsidized credits and technical support with production technologies.
- ii. Identify and put in place mechanisms to re-introduce and promote backyard/homestead gardening of local/traditional fruits and vegetables, and where possible, integrated homestead gardening with fish farms and small animal management. Through the agriculture extension services, ensure the availability of seeds/saplings of varieties with high nutritional value.
- iii. Promote and enhance urban agriculture and the production of local/traditional vegetables in particular, and ensure easy availability of seeds to interested groups and individuals.
- iv. Promote the integration of genetic resources with appropriate nutrient profiles in large-scale agriculture policies and programmes at national and international level, including the private sector such as seed producers.
- v. Support and promote initiatives such as school gardens/farms as vehicles for educating young people about the benefit of foods from specific varieties and breeds, including considering their institutionalization, so as to ensure their viability and sustainability.
- vi. Promote the incorporation of foods from specific varieties, cultivars and breeds of plants and animals used as food, as well as wild, neglected and underutilised species into relevant nutrition activities (e.g. food composition, food-based dietary guidelines, nutrition education, dietary assessment and nutrition policy development), and into relevant agriculture activities (e.g. research, breeding, seed selection and production, large-scale production).
- vii. Promote food-based approaches based on the use of different varieties, cultivars and breeds of plants and animals, as well as wild, neglected and underutilized species, to combat malnutrition.
- viii. Support the establishment of market infrastructure for wild foods or for specific varieties and breeds with appropriate nutrient profiles in order to enable market access for these foods thereby engendering their easy availability to the population.
- ix. Align mainstreaming initiatives with government priorities, as well as international mainstreaming efforts, e.g. of the CBD and other relevant inter-governmental processes.

C: AWARENESS

- i. Support the development of national awareness campaigns¹² which include elements such as the establishment of “know your foods” radio talk shows, and television programmes that present the nutrition and health attributes of using foods from different varieties, cultivars and breeds of plants and animals, as well as wild, neglected and underutilized species, and their possible uses in everyday meals.
- ii. Support the organization, at regular intervals, of initiatives such as policy advocacy workshops, round table discussions and stakeholder meetings to increase awareness of the public sector and of decision makers of the importance of food from different varieties, cultivars and breeds of plants and animals, as well as wild, neglected and underutilized species, and of its role in ensuring good nutrition and food security. Sectors related to

¹² FAO, 2011. “Let’s Go Local” Guidelines for Promoting Pacific Island Food. Prepared by Dr. Lois Englberger

- agriculture, health, education, rural development, environment and finance are also important targets of these awareness initiatives.
- iii. In collaboration with partners such as the FAO, universities, research institutes and farmers groups and associations, organize national and regional workshops that target the promotion of biodiversity for food and agriculture.
 - iv. Extend the existing FAO curriculum guide for nutrition education in primary schools to include curriculum for teaching biodiversity for food and agriculture from local/traditional food systems including aquatic and animal food resources, their uses in diets and their nutrition and health protecting and promoting attributes.
 - v. As an educational tool for young children and the population at large, promote and encourage the display on the cover of school textbooks, workbooks and exercise books, of pictures of local plant and animal breeds and varieties with short and easy to comprehend messages on their nutrition and health attributes, and arrange practical cooking and tasting sessions for children and their parents, to promote their integration into food preparation and eating patterns.
 - vi. Disseminate research results within the scientific communities of nutrition, agriculture, health and environment through, for example, conferences, websites, scientific articles, and guidance documents.
 - vii. Organize special events related to biodiversity for food and agriculture such as fairs, festivals or a national 'Traditional Biodiversity Food Day'. Often there are many organisations working on similar activities and initiatives and synergies can be developed through facilitating collaboration and networking.