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Conservation and Sustainable Use of Agrobiodiversity

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The Food and Agriculture Organization of the United Nations (FAO) has a longstanding history in pursuing the goal of alleviating poverty and eradicating hunger through the promotion of sustainable agricultural development, and the conservation and sustainable use of biodiversity for food and agriculture. Since its inception, FAO has provided an intergovernmental platform where biodiversity-related policies are discussed and relevant agreements are negotiated and adopted by member countries. The International Plant Protection Convention (IPPC), the adoption of which reaches back into the early 1950s, the 1995 Code of Conduct for Responsible Fisheries and the International Treaty on Plant Genetic Resources for Food and Agriculture (Treaty) adopted in 2001 are examples of such agreements. Beyond policy development and support, FAO assists its Members in operational activities, including in the implementation of global policy instruments. FAO manages a broad range of programmes and activities to enhance sustainable agricultural systems and management practices.

Conservation and sustainable use of agrobiodiversity are global responsibilities, as evidenced by an increasing number of international instruments and organizations that have joined FAO's early efforts. In fact, a new governance landscape has developed over the last decades, during which FAO expanded and strengthened its activities and intensified collaboration with its partners. In this period, FAO has created new instruments, such as the Treaty, and broadened the mandate of its Commission on Genetic Resources for Food and Agriculture (Commission), which since 1995 covers all genetic resources for food and agriculture (i.e. plant, animal, aquatic, forest, micro-organism and invertebrate genetic resources), and addresses all matters related to biodiversity for food and agriculture. FAO has also taken on a key role in the implementation of related work programmes and global initiatives, including under the Convention on Biological Diversity, and has provided guidance and advice to national policymakers as well as to international initiatives and organizations. Most recently, in 2013, FAO, together with UNEP, UNESCO and UNDP joined a collaborative partnership arrangement in support of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), which will further foster and facilitate better international coordination in the field of biodiversity and ecosystem services.

These developments are evidence of FAO's responsiveness and indicate that governments have recognized the need for global and coordinated action on biodiversity for food and agriculture.

Climate change is one of the reasons for the increasing awareness of policy-makers of the important role of biodiversity for food and agriculture. Biodiversity and genetic resources for food and agriculture are expected to play a key role in the adaptation of agricultural production systems to the impacts of climate change, which is essential to achieve our food security and nutrition objectives, as reflected in the Sustainable Development Goals (SDGs). Genetic resources may contribute greatly to global and national efforts to cope with climate change. They are part of those unique synergies that agriculture offers, according to the IPCC Synthesis Report[1]. We need to build on these synergies to meet the climate change adaptation and mitigation needs of the coming decades.

The two major areas of work of FAO's activities on the conservation and sustainable use of biodiversity for food and agriculture – policy development and technical assistance to countries – complement each other and are mutually supportive. These two aspects are briefly explored below, as well as some of the instruments available to transform policies into practical action and to reflect practical issues in the intergovernmental policy debate.

FAO's Global Policy Mandate on Agrobiodiversity

Various bodies of FAO contribute in many different ways to FAO's biodiversity agenda for food and agriculture.

1 IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp

These include FAO's committees on agriculture, forestry and fisheries and the IPPC's Commission on Phytosanitary Measures established. However, the Commission on Genetic Resources for Food and Agriculture and the International Treaty on Plant Genetic Resources for Food and Agriculture provide perhaps the main intergovernmental fora addressing, within their respective mandates, the conservation, use and exchange of genetic resources for food and agriculture.

The Commission, established in 1983, has a coordinating role and deals with policy, sectoral and cross-sectoral matters related to the conservation and sustainable use of genetic resources for food and agriculture. Through it, countries reach consensus on policies for the sustainable use and conservation of genetic resources for food and agriculture and the fair and equitable sharing of benefits derived from their use. The Commission guides the preparation of FAO's global country-driven assessments and develops in response policies and action plans. It also guides and monitors the implementation of its policy instruments, which allows FAO to report on a regular basis on the state of the different sectors of genetic resources.

In the past, the Commission's work has largely focused on the contribution of genetic resources to specific sectors, such as crop and livestock production. However, with its current work on a country-driven report on *The State of the World's Biodiversity for Food and Agriculture*, the Commission acknowledges the importance of interactions between the biodiversity of the different sectors: for example, the synergies within mixed systems (e.g. crop–livestock, crop– aquaculture, agroforestry, etc.) or the potential benefits of integrated approaches to the management of biodiversity at the ecosystem or landscape scales, or at the level of policy and institutional development. The report will also address various categories of biodiversity, such as pollinators and soil-dwelling organisms, that are not the main targets of management or harvesting, but nonetheless contribute to the productivity and the sustainability of production systems.

The Governing Body of the Treaty promotes its implementation, through the adoption of plans and programmes, the establishment and maintenance of cooperation with other relevant organizations, fundraising strategies as well as the operation of the Treaty's Benefit-Sharing Fund. The Treaty facilitates access to essential genetic materials for research, breeding and IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp. training for food and agriculture. Those who access the materials must agree to use them for research, breeding and training purposes under specific conditions. On the other hand, the Treaty provides for the sharing of monetary and non-monetary benefits arising from the utilization of the materials. The Treaty recognizes, in addition, through its provisions on Farmers' Rights, the enormous contribution farmers have made to the ongoing development of the world's wealth of plant genetic resources and calls for protecting the traditional knowledge of these farmers, increasing their participation in national decision-making processes and ensuring that they share in the benefits from the use of these resources.

FAO'S Operational Activities on Agrobiodiversity

FAO's intergovernmental policy activities are complemented by extensive country-level operations related to the conservation and sustainable use of genetic resources for food and agriculture. FAO implements a significant proportion of these through its Technical Cooperation Programmes, while several are funded through its various bilateral, tripartite and multilateral funding systems. Increasingly, a significant amount of FAO's activities are funded through its south-south cooperation mechanism.

In general, FAO provides technical support and policy guidance that result in strengthened human and institutional capacities, and improved policy-enabling environments. Activities relevant to agrobiodiversity span from action against desertification to support of family farming projects or support of governments in the development and implementation of national biodiversity strategies.

The following examples stand for numerous initiatives and programmes supported by FAO and give evidence of the diversity and richness of approaches:

- In 2002, in order to safeguard and support the world's agricultural heritage systems, FAO started an initiative for the dynamic conservation of **Globally Important Agricultural Heritage Systems** (GIAHS). The GIAHS Initiative promotes public understanding, awareness, and national and

international recognition of agricultural heritage systems. With the aim to safeguard the social, cultural, economic and environmental goods and services for family farmers, smallholders, indigenous peoples and local communities, GIAHS fosters an integrated approach combining sustainable agriculture and rural development.

- **Action Against Desertification** (AAD) is an initiative of the African, Caribbean and Pacific Group of States (ACP) to restore drylands and degraded lands in Africa, the Caribbean and the Pacific to tackle the detrimental social, economic and environmental impact of land degradation and desertification. AAD focuses on restoring degraded lands in drylands and fragile ecosystems using plant-based solutions and putting communities at the heart of the action in Burkina Faso, Niger, Nigeria, Senegal, the Gambia, Ethiopia, Fiji and Haiti, regenerating their productivity for the sustainable livelihoods of rural communities.
- The **Benefit-Sharing Fund of the Treaty** invests directly in high-impact projects supporting farmers in developing countries in conserving crop diversity in their fields and assisting farmers and breeders globally in adapting crops to changing needs and demands. The Fund seeks to accelerate the conservation and use of plant genetic resources on a global scale through technology transfer, capacity building, high-impact projects and innovative partnerships involving farmers, plant breeders, civil society and other stakeholders. The Fund's priorities are on-farm management and conservation, food security and innovative partnerships.
- **Agroecology** applies ecological concepts and principles to farming systems, focusing on interactions between plants, animals, humans and the environment for food security and nutrition. Species and genetic diversification of the agroecosystem in time and space is one of its key principles. Since 2014, FAO has played an instrumental role in facilitating dialogue on the role of agroecology in advancing food security and nutrition, and in supporting the development of the agroecology knowledge base.
- FAO plays a leading role in facilitating and coordinating the **International Pollinator Initiative** (IPI). In 2000, recognizing the decline of pollinators and its effect on agricultural production and agro-ecosystem diversity, the Convention on Biological Diversity (CBD) established the International Initiative for the Conservation and Sustainable Use of Pollinators (also known as the International Pollinator Initiative – IPI). Since then, a range of actions have been undertaken, including the establishment of FAO's Global Action on Pollination Services for Sustainable Agriculture. A number of tools and guidance documents have been prepared on issues such as the economic valuation of pollination services, determining the risk of pesticides to wild bees, detecting and evaluating pollination deficits in crops, the socio- economic evaluation of pollinator-friendly practices, and monitoring pollinator communities.
- FAO assists countries in implementing globally agreed action plans, such as the Second **Global Plan of Action for Plant Genetic Resources**. Through guidelines and work on the ground, FAO assists countries in the formulation and implementation of national conservation and sustainable use strategies. Botswana, Egypt, Iran, Jordan, Lebanon, Lesotho, Malawi, Mozambique, Rwanda, Tanzania and Zambia have most recently made use of the guidelines.
- FAO's **Global Soil Partnership** (GSP) was established in December 2012 as a mechanism for enhanced collaboration and synergy among all stakeholders to increase the implementation of sustainable soil management. According to FAO's 2015 report on the Status of the World's Soil Resources, soil organic carbon and soil biodiversity are crucial to increase food availability and the soil's resilience to climate change. The GSP also strives to raise awareness on the role of sustainable soil management in safeguarding biodiversity, highlighting that soils are a key reservoir of global biodiversity.

Strengthening Partnerships for Agrobiodiversity

As recognized on the new Agenda for Sustainable Development (2030 Agenda), the global challenges that we face can only be overcome if we work together through partnerships. This is certainly true of the conservation and sustainable use of agrobiodiversity.

FAO has a longstanding history of collaborating with governments, organizations and other stakeholders on agrobiodiversity. FAO is a key partner of the work

programme on agricultural biodiversity of the Convention on Biological Diversity and leads three of its cross- cutting initiatives, for (i) soil biodiversity, (ii) biodiversity for food and nutrition, and (iii) pollinators.

FAO also facilitates global and regional partnerships and networks, and hosts various partnership alliances, such as the Global Soil Biodiversity Initiative. For example, FAO's *Global Action on Pollination Services for Sustainable Agriculture* has been created to increase synergies and collaboration among a number of global and regional initiatives, programmes and projects to work towards the common goal of promoting the conservation, restoration and sustainable use of pollinator diversity in agriculture and related ecosystems. Under this partnership, a recent GEF/UNEP/FAO project demonstrated that enhancing pollinator density and richness could improve yields in Africa, Asia, and Latin America, and that ecological intensification through enhancement of pollinators can contribute to food security and nutrition[2,3].

FAO also co-hosts instruments relevant to agrobiodiversity, such as the FAO-WHO International Code of Conduct on Pesticide Management, or the IPPC, which promotes international cooperation on plant protection from harmful pests which may be introduced through international trade.

A new but very important collaborative arrangement in the field of biodiversity is the afore-mentioned Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), which assesses the state of biodiversity and ecosystem services. FAO, together with UNEP, UNESCO and UNDP have committed themselves to collaborate closely with IPBES.

2 http://www.fao.org/3/a-i1929e.pdf.

3 Garibaldi *et al.* (2016).Mutually beneficial pollinator diversity and crop yield outcomes in small and large farms. Science. 351 (6271) pp.388-391.

A Global Platform for Mainstreaming Biodiversity

While collaboration is an integral part of the global biodiversity agenda, it is probably fair to say that we all struggle to leave the silos of our disciplines, sectors and organizations. We need to collaborate rather than compete. If we want real transformation and lasting protection of the biodiversity that humanity and its food systems depend on, we have to respond through collaborative efforts that cut across sectors.

The 2030 Agenda is an important step in this regard, as it requires us to do more and to do it together. It embodies a growing recognition that sustainable, biodiversity-friendly and climate-smart agricultural development are of pivotal importance to the global transformation needed to achieve the Sustainable Development Goals (SDGs). Together with the Aichi Biodiversity Targets, the SDGs provide the global framework for action on biodiversity. FAO is committed to their achievement, in the firm belief that agrobiodiversity will be key to this successful transformation.

In this context, at its last session in September of this year, FAO's Committee on Agriculture requested FAO to mainstream biodiversity in agriculture, including livestock, to promote its contribution to ecosystem services and to climate change adaptation and mitigation. The Committee also requested that the issue of mainstreaming biodiversity across agriculture, forestry and fisheries be addressed as a cross-cutting issue at the next meetings of the relevant technical committees. FAO stands ready to support its Members in their efforts to mainstream biodiversity across the agricultural sectors and to conserve and sustainably use agrobiodiversity with a view to achieve the SDGs and the Aichi Targets. In addition, FAO will continue to provide a neutral platform for stakeholders to discuss and agree on concrete action to facilitate the conservation and sustainable use of agrobiodiversity.