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AGROECOLOGY:

An approach to support food security and sustainable agriculture

Agroecology is one approach, among others, to contribute to feeding sustainably a growing population and support countries in achieving Sustainable Development Goals and coexists with a broad range of sustainable agricultural approaches that can contribute to meeting the challenges facing farmers and food systems¹.

Agroecology involves the integrated local application of sustainable agriculture and food systems. It applies ecological principles in order to design and manage agro-ecosystems in more sustainable and productive ways. As such it supports the development of best practices, integrated solutions, and techniques that allow agriculture to minimize its ecological footprint, including approaches at the landscape level while optimizing yields.

Meeting the Sustainable Development Goals (SDGs) requires locally adapted agricultural practices that foster productivity, maintain environmental sustainability and promote rural livelihoods. At its best, agroecology is one approach that can use a multiplicity of solutions including technology and traditional techniques, improved inputs and outputs and applying unique localized and practical, knowledge based solutions, which allow for intensification of agriculture and greater food production while complying with the ecological imperatives.

The UNGA (December 2017) has formally supported the need for convergence of all the available technologies and their use in integrated solutions that are able to address local needs and societal requirements.

"Recognizing the need to further enhance the linkages between agricultural technology and agroecological principles, such as recycling, resource use efficiency, reducing external inputs, diversification, integration, soil health and synergies, in order to design sustainable farming systems that strengthen the interactions between plants, animals, humans and the environment for food security and nutrition, enhance productivity, improve nutrition and conserve the natural resource base, and attain more sustainable and innovative food systems".²

¹ Further integration of sustainable agricultural approaches, including agroecology, in the future planning activities of FAO. FAO Conference, Rome, 22-29 June 2019 (C 2019/LIM/13).

² General Assembly resolution Dec 2017 <http://undocs.org/A/C.2/72/L.33/Rev.1>

Furthermore, the FAO Conference (June 2019) endorsed the Resolution 7/2019 “*Further integration of sustainable agricultural approaches, including agroecology, in the future planning activities of FAO*”³ which requested FAO to assist countries and regions towards sustainable agriculture and food systems by, ‘inter alia’:

- Strengthening science and evidence-based normative work on all sustainable agricultural approaches;
- Catalyzing scientific evidence and co-creation of knowledge and innovation, and facilitating their dissemination;
- Encouraging innovation in agriculture, *inter alia*, through the utilization of relevant and context adapted technology and tools - including ICT and biotechnology.

The FAO Council (December 2019) approved the Ten Elements of Agroecology⁴ and again reiterated the FAO Conference statement that agroecology is one approach, among others. The updated elements include, ‘inter alia’:

- the ‘co-creation and sharing of knowledge and practices, science and innovation’ as a specific Element;
- the importance of partnerships, cooperation and responsible governance, involving different actors at multiple scales, including multistakeholder partnerships to promote synergies within the wider food system, and best manage trade-offs;
- responsible governance mechanisms supporting transitions to sustainable agriculture and food systems in line with existing national legislative frameworks;
- strengthening food supply chains, including short supply chains, which can increase the incomes of food producers, including new innovative markets.

It is important to recognize sustainable agriculture as a process that evolves over time rather than a prescribed and static set of practices. As such, there is not one particular set of farming practices that fits all different ecological conditions nor the different farming systems. Indeed, it is important to recognize that there are no agroecological ‘fixed prescriptions’. In fact, many of the practices promoted under the heading ‘agroecological farming’ are already best practice, such as crop rotation or integrated soil fertility management (the use of manure and compost in combination with mineral fertilizer, “tailored to fit the environmental, social, economic, and cultural context”⁵). By default, all farming systems have an impact on the environment from traditional slash and burn to conventional cropping methods. The future lies in an evolving multiplicity of systems with agroecology as an important component in building sustainable agricultural policies, practices and ecosystem management that address climate change, strengthen biodiversity and contribute to the SDG Goals.

³ Op.cit.

⁴ ‘The Ten Elements of Agroecology’ FAO Council, Rome, 2-6 December 2019 (CL 163/13).

⁵ Op. cit.

Key principles:

- 1) Reducing the footprint of agriculture on the environment per unit of output is a goal shared by farmers, consumers, national and local government, academics, business and civil society.**

Agroecology seeks to apply ecological principles in order to design and manage agro-ecosystems in more sustainable ways. There is a need to produce more for the planet with less from the planet. As such, we need a suite of best practices, integrated solutions, techniques and technologies that allow agriculture to minimize its ecological footprint.

Specifically, agroecology can be used as a scientific and analytical tool that helps to understand the impacts of different practices on long-term⁶ productivity and the local environment. Agroecological and other innovative approaches can advance agriculture in the face of growing environmental challenges, including climate change, finite water resources, and loss of biodiversity.

It is important to recognize the need for strengthening science and evidence-based normative work on all sustainable agricultural approaches. That includes creating metrics that measure outcomes at farm level (e.g. returns to labour, yields) and developing appropriate indicators and supporting countries' capacities to measure their compliance, tools and protocols to evaluate the contribution of these practices to sustainable agriculture and food systems.

- 2) Agroecology applies to all types of farms and farming systems in all countries.**

In meeting SDG 2, an important element is the understanding of the interaction between agriculture and the environment, which requires increased attention on the influence, at local level, of what constitutes 'climate smart' and sustainable agriculture practices, e.g. factors such as soil type and quality, weather patterns, and water availability. Other social and economic dimensions, e.g. fragile farming communities; the specific needs of smallholders; access to and ownership of land; establishment of agricultural value chains; or access to training are of equal importance to ensure that agroecological considerations are addressed and implemented sustainably across the cross section of farming systems.

Furthermore, agroecology and high productivity are not mutually exclusive. Modern farming and breeding techniques, precision agriculture, social media innovations (in terms of phone 'apps' that provide knowledge and training for example) etc. are already increasingly being taken into consideration and integrated into the concept and understanding of agroecology. From an

⁶ Short-term productivity can be delivered without these considerations, agroecology is understanding short-term changes in the agroecosystem and how those are buffered/compensated by its ecological capacity over repeated crop cycles.

agroecological perspective, agroecological considerations are an integral part of Integrated Pest Management (IPM). This necessitate interactions, dialogues, partnerships and actions from all actors involved in increasingly globalized food systems with clear data metrics to measure impact and effect.

3) Enabling of people and capacity building of institutions.

An ecological environment includes the farm families that live and interact with it, and informed and trained people in well-functioning institutions are essential for making choices based on agroecological considerations. Local application of agroecology practices must address environmental considerations but also must be inclusive of economic and social considerations of the people and their institutions to be truly sustainable. As per SDG 2.3⁷, specific attention should be paid to the capacity building and training needs of smallholders, their existing and indigenous knowledge and ways to increase the productivity of smallholders, including their participation in local value chains.

⁷ SDG2.3. *By 2030 double the agricultural productivity and the incomes of small-scale food producers, particularly women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment*