

International Agri-Food Network Position Paper

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AGROECOLOGY:

A scientific discipline to support food security and sustainable agriculture

Agroecology is an important path to achieving the Sustainable Development Goals and delivering a well-functioning agricultural and food system

Agroecology is the study of the relation of agriculture and the environment.¹ **It involves the integrated local application of sustainable agriculture.** 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 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 UN has already (December 2017) 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

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 practices' as such. In fact, many of the

¹ Agroecology is the study of the relation of agricultural crops and environment.
<http://data.un.org/Glossary.aspx>.

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

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, as appropriate), which can be applied in a variety of contexts and farming systems. 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 but that are increasingly tailored to local conditions. Increasingly, agroecology should be seen as an important component in building sound agricultural policies and practices reflecting and highlighting best practices in different contexts.

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-term³ 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.

- 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, on 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.

³ 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.

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 agroecological perspective, agroecological considerations are an integral part of Integrated Pest Management (IPM).

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 2.3⁴, 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.

⁴ 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*