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CONFERENCE

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The Ten Elements of Agroecology, guiding the transition to sustainable food and agricultural systems

Executive Summary

The 10 elements guiding FAO's vision on agroecology were submitted to the Committee on Agriculture (COAG) at its 26th Session (document COAG/2018/5). These elements emanated from FAO's global and regional dialogues and were developed based on scientific literature.

The 26th Session of COAG supported the Ten Elements of Agroecology, as presented by FAO, as a guide to one of the ways to promote sustainable agriculture and food systems, as it benefits each country's national context, and requested FAO to further revise them to reflect the discussions of that session (C 2019/21 Rev.1, paragraph 14).

The Council at its 160th Session requested that the Ten Elements of Agroecology be further revised by FAO to reflect the discussions of the 26th Session of COAG and to present the revised version to the 41st Session of the Conference [CL 160/REP, paragraph 6(e)].

The underlined text in the present document corresponds to the revisions introduced, as requested by the 26th Session of the COAG and the 160th Session of the Council.

Suggested action by the Conference

The Conference is invited to approve the revised version of the Ten Elements of Agroecology and endorse it as a guide to one of the ways to promote sustainable agriculture and food systems and to request the Committee on Agriculture (COAG) to update the Ten Elements of Agroecology at its 28th session in 2022.

Queries on the substantive content of this document may be addressed to:

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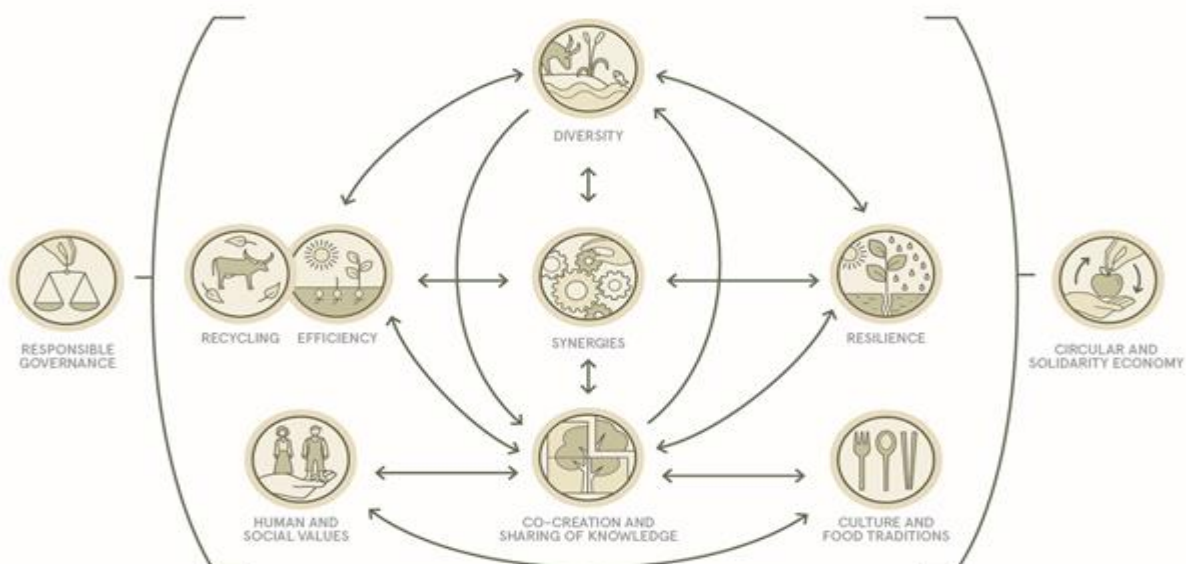


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THE 10 ELEMENTS OF AGROECOLOGY, GUIDING THE TRANSITION TO SUSTAINABLE FOOD AND AGRICULTURAL SYSTEMS

1. Agroecology considers the interactions among key environmental, social and economic characteristics, processes and an enabling environment that are typical of diversified agricultural systems. It also recognizes the great potential of collective action processes to foster knowledge sharing, and deepened understanding, that favour behavioural changes in food systems that are required for sustainable agriculture to become a reality.
2. In guiding countries to transform their food and agricultural systems, to mainstream sustainable agriculture on a large scale, and to achieve Zero Hunger and multiple other SDGs, the following 10 elements emanated from the FAO regional seminars on agroecology. The 10 elements characterizing agroecology were developed through a synthesis process. They are based on the seminal scientific literature on agroecology – in particular, Altieri’s (1995) five principles of agroecology¹ and Gliessman’s (2015) five levels of agroecological transitions². This scientific foundation was complemented by discussions held in workshop settings during FAO’s multi-actor regional meetings on agroecology from 2015 to 2017, also incorporating aspects put forward by international and FAO experts.
3. The 10 elements are further described in a FAO publication made available for the 2nd International Symposium on Agroecology: “The 10 elements of agroecology, guiding the transition to sustainable food and agricultural systems”³.
4. As an analytical tool, the 10 elements can help countries to operationalise agroecology. By identifying important properties of agroecological systems and approaches, as well as key considerations in developing an enabling environment for agroecology, the 10 elements serve as a guide for policymakers, practitioners and stakeholders in planning, managing and evaluating agroecological transitions. The 10 elements are the framework for the multi-dimensional assessment tool that FAO is developing to generate evidence on agroecology’s performance across the social, environmental and economic sustainability spheres. The 10 elements do not address international trade related issues.
5. The 10 elements of agroecology are interlinked and interdependent.

The ten elements of Agroecology



¹ Altieri, M.A. 1995. *Agroecology: The Science of Sustainable Agriculture*. CRC Press.

² Gliessman, S.R. 2015. *Agroecology: The Ecology of Sustainable Food Systems*. 3rd Edition. Boca Raton, FL, USA, CRC Press, Taylor & Francis Group.

³ <http://www.fao.org/3/i9037en/I9037EN.pdf>

I. **DIVERSITY.** Diversification is key to agroecological transitions to ensure food security and nutrition while conserving, protecting and enhancing natural resources. Agroecological systems are highly diverse. From a biological perspective, agroecological systems optimize the diversity of species and genetic resources in different ways. Increasing biodiversity contributes to a range of production, socio-economic, nutrition and environmental benefits. By planning and managing diversity, agroecological approaches enhance the provisioning of ecosystem services, including pollination and soil health, upon which agricultural production depends. Agroecological diversification contributes to soil health by fostering soil management that minimizes soil erosion, enhances soil carbon storage, promotes soil nutrient balance and cycles, and preserves and enhances soil biodiversity. Diversification can increase productivity and resource-use efficiency by optimizing biomass and water harvesting. Agroecological diversification also strengthens ecological and socio-economic resilience by including and creating new markets opportunities. Soil health, as well as crop and animal diversity, reduce the risk of failure in the face of climate change.

II. **CO-CREATION, INNOVATION AND SHARING OF KNOWLEDGE.** Agricultural innovations respond better to local challenges when they are co-created through participatory processes. Agroecology does not offer fixed prescriptions – rather, practices are tailored to fit the environmental, social, economic, and cultural context. The co-creation and sharing of knowledge plays a central role in the process of developing and implementing agroecological innovations to address challenges across food systems including adaptation to climate change. Through the co-creation process, agroecology blends traditional, local knowledge including producers’ and traders’ practical knowledge, and global scientific knowledge. Producer’s knowledge of agricultural biodiversity and management experience for specific contexts as well as their knowledge related to markets and institutions are essential elements in this process. Education – both formal and non-formal – plays a key role in sharing agroecological innovations resulting from co-creation processes, creating space for farmers’ capacity building, including women’s education.

III. **SYNERGIES.** Building synergies enhances key functions across food systems, supporting production and multiple ecosystem services. Agroecology pays careful attention to the design of diversified and synergistic systems, including the combination of annual, perennial and cover crops, livestock, aquatic animals, and trees. It pays particular attention in the careful use of soils, water and other components of farms and agricultural landscapes to enhance resilience in the context of an increasingly changing climate allowing for sustained productivity increases over time. To promote synergies within the wider food system, and best manage trade-offs, agroecology emphasizes the importance of partnerships, cooperation and responsible governance, involving different actors at multiple scales.

IV. **EFFICIENCY.** Innovative agroecological transitions move from input-based systems to knowledge-based systems of food production aiming at further increasing productivity while using less external (including non-renewable) resources. Increased resource-use efficiency is an emergent property of agroecological systems that carefully manage diversity to create synergies between different system components. Agroecological systems improve the use of natural resources, especially those that are abundant and free, such as solar radiation, atmospheric carbon and nitrogen. By enhancing biological processes and recycling biomass, nutrients and water, producers are able to use available resources more efficiently, reducing costs and negative environmental impacts and contributing to increase their net income over time.

V. **RECYCLING.** More recycling supports an agricultural production with less waste and emissions and reduces economic and environmental costs. By imitating natural ecosystems, agroecological practices support biological processes that drive the recycling of nutrients, biomass and water within production systems, thereby increasing resource use efficiency. Recycling can take place at farm-scale and within landscapes, through diversification and building of synergies between different components and activities. Recycling delivers multiple benefits by closing nutrient cycles and reducing waste. Recycling also permits producers to save costs on inputs, reducing their

vulnerability to climate shocks and price volatility. Recycling organic materials and by-products offers great potential for agroecological innovations.

VI. RESILIENCE. Enhanced resilience of people, communities and ecosystems is key to sustainable agricultural and food systems. Diversified agroecological systems are more resilient, i.e. they have a greater capacity to recover from disturbances including extreme weather events such as drought, floods or hurricanes, and to resist pest and disease attack. By maintaining a functional balance, agroecological systems enhance resilience to pest and disease attack. Agroecological practices work with the biological complexity of agricultural systems promoting a diverse community of interacting organisms to allow the ecosystem to self regulate when facing pest outbreaks. On a larger scale, diversified agricultural landscapes have a greater potential to contribute to pest and disease control functions building on ecosystem services (e.g. natural enemies for biological control). Agroecological approaches can also enhance socio-economic resilience. Through diversification and integration, producers can better manage risks and thus reduce their vulnerability should a single crop, livestock species or other commodity fail. By reducing dependence on external inputs, agroecology can also reduce producers' vulnerability to economic risk.

VII. HUMAN AND SOCIAL VALUES. Protecting and improving rural livelihoods, income and equity is essential for sustainable food and agricultural systems. Agroecology emphasizes human and social values and inclusion of all contributing to the improved livelihoods dimension of the SDGs. Agroecology seeks to address gender inequalities by creating opportunities for women. By building autonomy and adaptive capacities to manage their agro-ecosystems, agroecological approaches empower people and communities to overcome poverty, hunger and malnutrition. As a bottom-up, grassroots paradigm for sustainable rural development, agroecology empowers people to become their own agents of change.

VIII. CULTURE AND FOOD TRADITIONS. By supporting healthy, diversified and culturally appropriate diets, agroecology contributes to food security and nutrition while maintaining healthy ecosystems. Agriculture and food are core components of the human heritage. Culture and food traditions play an important role in society and in shaping human behaviour. The genetic diversity of different crops, breeds and species is important in contributing macronutrients, micronutrients and other bioactive compounds to human diets. Cultural identity and sense of place are often closely tied to landscapes and food systems. As people and ecosystems evolved together, cultural practices and indigenous and traditional knowledge offer a wealth of experience that can inspire innovative solutions.

IX. RESPONSIBLE GOVERNANCE. Sustainable food and agriculture requires responsible and effective governance mechanisms at different scales – local, national, regional and global. Agroecology calls for responsible and effective governance to support the transition to sustainable food and agricultural systems. Transparent, accountable and inclusive governance mechanisms are necessary to create an enabling environment that supports producers to transform their systems while considering agroecological concepts and practices. Land and natural resources governance is a prime example. The majority of the world's rural poor and vulnerable populations heavily rely on terrestrial and aquatic biodiversity and ecosystem services for their livelihoods, yet lack secure access to these resources.

X. CIRCULAR AND SOLIDARITY ECONOMY. Circular and solidarity economies that reconnect producers and consumers provide innovative solutions for living within our planetary boundaries while ensuring the social foundation for inclusive and sustainable development. Agroecological approaches help promote fair solutions based on local needs, resources and capacities, creating more equitable and sustainable markets. Strengthening short food circuits can increase the incomes of food producers while maintaining a fair price for consumers. These include new innovative markets, along with more traditional markets, where most smallholders sell their products. Social and institutional innovations play a key role in encouraging production and consumption based on agroecological approaches appreciating the hidden value of biodiversity and ecosystem services.