

Definitions on Agroecology

Organisation Authors	Definition	Focus of the definition	Reference	Link	Type of organisation
FAO	Agroecology is a scientific discipline, a set of practices and a social movement. As a science, it studies how different components of the agroecosystem interact. As a set of practices, it seeks sustainable farming systems that optimize and stabilize yields . As a social movement, it pursues multifunctional roles for agriculture, promotes social justice, nurtures identity and culture , and strengthens the economic viability of rural areas.	Multifunctionality, justice, culture	FAO. 2018. Family Farming Knowledge Platform	http://www.fao.org/family-farming/themes/agroecology/en/	Intergovernmental
IPBES	The science and practice of applying ecological concepts, principles and knowledge (i.e., the interactions of, and explanations for, the diversity, abundance and activities of organisms) to the study, design and management of sustainable agroecosystems. It includes the roles of human beings as a central organism in agroecology by way of social and economic processes in farming systems. Agroecology examines the roles and interactions among all relevant biophysical, technical and socioeconomic components of farming systems and their surrounding landscapes .	Science and practice, role of humans	IPBES. 2018 Glossary. Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services	https://www.ipbes.net/glossary/agroecology	Research community / Intergovernmental
IPES Food	Agroecology is understood here as “the science of applying ecological concepts and principles to the design and management of sustainable food systems” (Gliessman, 2007). It encompasses various approaches to maximise biodiversity and stimulate interactions between different plants and species, as part of holistic strategies to build long-term fertility, healthy agroecosystems and secure livelihoods . It also represents a social movement; this usage will be specified where relevant.	Livelihoods and specific on ecological aspects (biodiversity, fertility, health of ecosystem)	IPES-Food. 2016. From uniformity to diversity: a paradigm shift from industrial agriculture to diversified agroecological systems. International Panel of Experts on Sustainable Food systems.	http://www.ipes-food.org/images/Reports/UniformityToDiversity_FullReport.pdf	Research community
CIRAD	Agroecology is one of a family of diverse practices which share a common characteristic in that they use the ecological functions of agricultural systems to ensure sustainable production. These various systems, based on optimizing natural processes, are particularly suited to under-capitalized family farms .	Family farming	CIRAD. 2018. Agroecology for tropical and Mediterranean farming systems. CIRAD’s research position	https://www.cirad.fr/en/our-research/research-topics/agroecology/what-s-cirad-doing	Research community

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De Schutter (UNHRC)	Agroecology is both a science and a set of practices . It was created by the convergence of two scientific disciplines: agronomy and ecology. As a science, agroecology is the “application of ecological science to the study, design and management of sustainable agroecosystems.” As a set of agricultural practices, agroecology seeks ways to enhance agricultural systems by mimicking natural processes, thus creating beneficial biological interactions and synergies among the components of the agroecosystem. It provides the most favourable soil conditions for plant growth, particularly by managing organic matter and by raising soil biotic activity. The core principles of agroecology include recycling nutrients and energy on the farm, rather than introducing external inputs; integrating crops and livestock; diversifying species and genetic resources in agroecosystems over time and space; and focusing on interactions and productivity across the agricultural system , rather than focusing on individual species. Agroecology is highly knowledge-intensive , based on techniques that are not delivered top-down but developed on the basis of farmers’ knowledge and experimentation.	Synergies among component of the system, knowledge intensive practices, bottom-up development	De Schutter, O. 2010. Agroecology and the Right to Food. Report presented at the 16th Session of the United Nations Human Rights Council.	http://www.srfood.org/images/stories/pdf/officialreports/20110308_a-hrc-16-49_agroecology_en.pdf	Intergovernmental
CIDSE	<ol style="list-style-type: none"> 1. A scientific research approach involving the holistic study of agro-ecosystems and food systems; 2. A set of principles and practices that enhance the resilience and sustainability of food and farming systems while preserving social integrity; 3. A socio-political movement, which focuses on the practical application of agroecology, seeks new ways of considering agriculture, processing, distribution and consumption of food and its relationships with society and nature. 	Social integrity, resilience, value chain	CIDSE. 2018. The principles of Agroecology - Towards just, resilient and sustainable food systems. CIDSE Belgium	https://agroecologyprinciple.atavist.com/the-principles-of-agroecology-	Civil society

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SWISSAID	<p>Agroecology means the consistent application scientific connections - the ecology - on agriculture. The concept was later on the entire food system extended, not just on the production, but also on the consumer side, as well as the entire food value chain. The interaction between animals, plants and inanimate nature is specifically used for the efficient production of food. Central to this is the circular thinking with which losses that are harmful to the environment and to health can be minimized. Agroecology preserves rural spaces and structures and many positive aspects of traditional ways of life, is locally adapted, requires a lot of knowledge. It's not just about ecological aspects considered: Man becomes the center of the system. Agroecology is a fundamental part of the political movement of food sovereignty. Agroecology has three different dimensions, scientific discipline, agricultural practice, political-social movement.</p>	Efficient production, locally adapted practices, cultural aspects and well-being, food sovereignty	SWISSAID 2015 Agroökologie SWISSAID Position papier. Bern, Switzerland	https://www.swissaid.ch/en/agroecology	Civil society
Agroecology Europe	<p>Agroecology is considered jointly as a science, a practice and a social movement .It encompasses the whole food system from the soil to the organization of human societies. It is value-laden and based on core principles. As a science, it gives priority to action research, holistic and participatory approaches, and transdisciplinarity that is inclusive of different knowledge systems. As a practice, it is based on sustainable use of local renewable resources, local farmers' knowledge and priorities, wise use of biodiversity to provide ecosystem services and resilience, and solutions that provide multiple benefits (environmental, economic, social) from local to global. As a movement, it defends smallholders and family farming, farmers and rural communities, food sovereignty, local and short food supply chains, diversity of indigenous seeds and breeds, healthy and quality food. Agroecology acknowledges that the whole is more than the sum of its parts and hence fosters interactions between actors in science, practice and movements, by facilitating knowledge sharing and action.</p>	Transdisciplinarity, ecosystem services and resilience, smallholders and family farming	Agroecology Europe. 2018. Our understanding of agroecology. Webpage. A European association for Agroecology	http://www.agroecologyeurope.org/our-approach/our-understanding-of-agroecology/	Civil society

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Herren and al. (IFOAM EU Group)	<p>This definition of agroecology includes farmers and farmers' knowledge, and it sees farmers as stewards of the landscape, of biodiversity and of the diversity of foods. Agroecology is neither a defined system of production nor a production technique. It is a set of principles and practices intended to enhance the sustainability of a farming system, and it is a movement that seeks a new way of food production. Increasingly, agroecology is a science looking at ways of transforming the existing food system, and of further developing agriculture and adapting it to the changing environment – an approach which is vital for food security.</p>	Food security	Herren, H. , Hilbeck, A., Hoffmann, U., Home, R., Levidow, L., Muller, A., Nelson, E., Oehen, B., & Pimbert, M. 2015. Feeding the people: Agroecology for nourishing the world and transforming the agri-food system. IFOAM EU group.	http://www.ifoam-eu.org/sites/default/files/ifoameu_policy_ffe_fee_dingthepeople.pdf	Research community /Civil society
Arc2020	<p>There are three typical ways to define agroecology: as a set of farming practices, as a scientific discipline and as a social movement.</p> <p>Farming: Agroecological practices are based on ecological inputs and processes, as well as the provision of ecosystem services. Agroecological practices contribute to the different goals of sustainable agriculture: to provide sufficient food for a growing world population, not to be harmful to the environment and natural resources, to limit use of non-renewable energy, and to ensure economic viability for farmers and their communities.</p> <p>Organic farming, diversified crop rotations, biological pest control, extensive agro-pastoral systems and agroforestry are examples of farming method using agroecology.</p> <p>As a scientific discipline, agroecology studies are quite holistic: they study agroecosystems through an interdisciplinary lens looking at issues such as productivity, stability, sustainability and equitability. They consider issues related to agronomy, ecology, sociology, economics and politics at all relevant scales from the local level to the global level.</p> <p>Social Movements: Many organisations, as well as many loosely networked individuals are working towards an agro-ecological food and farming future. Taken together, these can be seen, broadly speaking, as a social movement trying to make agri-food more resource savvy and thus genuinely sustainable in the longer term, more people and environment focused.</p>	Preservation natural resources, knowledge-intensive, value chain, decentralisation, participation	Arc2020. 2018. Briefing note: Agroecology	http://www.arc2020.eu/agroecology/briefing-note-agroecology/	Civil society

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Silici (IIED)	Agroecology – ‘the application of ecological concepts and principles to the design and management of sustainable agro-ecosystems’ – has three facets. It is: 1. a scientific discipline involving the holistic study of agro-ecosystems, including human and environmental elements. 2. a set of principles and practices to enhance the resilience and ecological, socio-economic and cultural sustainability of farming systems 3. a movement seeking a new way of considering agriculture and its relationships with society .	Resilience	Silici, L. 2014. Agroecology: What it is and what it has to offer, IIED Issue Paper, London,	http://pubs.iied.org/pdfs/14629IIED.pdf	Research community
Silici (IIED)	Alternative definition: The concept of agroecology has evolved as a scientific discipline, a set of practices and a social movement. As a science, it studies how different components of the agro-ecosystem interact. As a set of practices, it seeks sustainable farming systems that optimise and stabilise yields . As a movement, it pursues food sovereignty and new, multifunctional roles for agriculture.	Optimize and stabilize yield, food sovereignty and multifunctionality	Silici, L. 2014. Agroecology: What it is and what it has to offer, IIED Issue Paper, London,	http://pubs.iied.org/pdfs/14629IIED.pdf	Research community

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INRA	<p>Agroecology aims to promote sustainable food systems, respectful of people and the environment. These systems involve agricultural production methods and sectors which value the ecological, economic and social potential of a territory. Their development relies on transdisciplinary approaches which bring together professionals from the agricultural world, scientists, actors of agroecology and public policy social movements. Agroecology is an alternative to intensive agriculture. It promotes agricultural production systems which value biological diversity and natural processes (the cycles of nitrogen, of carbon, of water, the biological balances between pests and auxiliary crops ...). Agroecology is developing in the scientific field as an approach integrating the concepts and methods of a variety of disciplines including agronomy, ecology, economics, sociology. Aiming to promote the services rendered by natural processes, it analyses at different levels (from field to territory, from individual to community, from short term to long term) the evolutionary relations which are created within these systems between the living, its management method, and the ecological, economic and social context of this management. Agroecology is brought into the public sphere by social movements which defend food sovereignty and small-scale agriculture. It also questions the way we eat, and it supports the development of short circuits in order to restore a link between our food products and their production mode. Agroecology calls for a real transition of the agricultural and agro-food sectors linked to energy transition. Committed to food systems, it also deals in a systemic vision with other aspects of our economy such as the production of alternative energies or fibres.</p>	Territoriality, transdisciplinarity, food sovereignty	INRA. 2016. Dictionary of Agroecology.	https://dicoagroecologie.fr/en/encyclopedia/agroecology/	Research community
USDA	<p>Agroecology can be defined broadly or narrowly. Loosely defined, agroecology often incorporates ideas about a more environmentally and socially sensitive approach to agriculture, one that focuses not only on production, but also on the ecological sustainability of the productive system. This definition implies a number of features about society and production that go well beyond the limits of the agricultural field. At its most narrow, agroecology refers to the study of purely ecological phenomena within the crop field, such as predator/prey relations, or crop/weed competition.</p>	Ecological sustainability	USDA. 2007. Sustainable Agriculture: Definitions and Terms. Special Reference Briefs Series no. SRB 99-02. U.S. Department of Agriculture. USA	https://www.nal.usda.gov/afsic/sustainable-agriculture-definitions-and-terms-related-terms#term1	Public organisation

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Schaller (Center for studies and strategic foresight)	New agricultural model that could purportedly reconcile the economic and environmental challenges in agriculture. Agro-ecology aims to create farming systems that harness functionalities provided by ecosystems. Agro-ecology, as a set of innovative principles and practices, involves obtaining the most efficient and effective socio-technical arrangements in heterogeneous environments	Efficiency, innovation, socio-technical arrangements	Schaller, N. 2013. Agro-ecology: different definitions, common principles. Center for studies and strategic foresight, French Ministry of Agriculture, Food and Forestry Ed., Paris, France.	http://agreste.agriculture.gouv.fr/IMG/pdf/analyse591307anglais.pdf	Public organisation
Nature journal	Agroecology is the study of the ecology of terrestrial agricultural systems. It includes both the effects of agricultural practices such as pesticide use on non-domesticated species, and the effect of the ecological environment on crop and livestock yields.	Environmental aspects	Nature. 2018. Nature Subjects. Nature Journal	https://www.nature.com/subjects/agri-ecology	Research community
Gliessman (UCSC)	The science of applying ecological concepts and principles to the design and management of sustainable food systems. It has the explicit goal of transforming food systems towards sustainability, such that there is a balance between ecological soundness, economic viability and social justice.	Ecological concepts	Gliessman S.R. 2007. Agroecology: the ecology of sustainable food systems, CRC Press, Taylor & Francis, New York, USA, 384 p.	https://www.crcpress.com/Agroecology-The-Ecology-of-Sustainable-Food-Systems-Third-Edition/Gliessman/p/book/9781439895610	Research community
Tomich and al. (Various)	Agroecology is the integrative study of the ecology of the entire food system , encompassing ecological, economic and social dimensions . One boundary to span is the connection between agricultural sciences and ecology and allied environmental sciences (global changes) , which together provide the basis for understanding relationships between field level agroecological processes and broader environmental phenomena. Second boundary has divided much of the agricultural and social sciences . Within this larger definition of agroecology, society and its various aspects play fundamental roles, shaping agriculture within a complex food system.	Interdisciplinarity	Tomich, T. P., Brodt, S., Ferris, H., Galt, R., Horwath, W. R., Kebreab, E. and al. 2011. Agroecology: a review from a global-change perspective. Annual Review of Environment and Resources, 36, 193-222.	https://www.annualreviews.org/doi/abs/10.1146/annurev-environ-012110-121302	Research community

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Saj et al (CIRAD)	Develop agricultural practices to protect the environment and to promote the use of ecological theory to favor "eco-friendly" ways to produce agricultural commodities. The AE research agenda embrace social, economic and political sciences while partly spreading from the field to the food system . The AE paradigm progressively led to the inclusion of food security at the global level as an objective.	Food security, interdisciplinarity	Saj, S., Torquebiau, E., Hainzelin, E., Pages, J., Maraux, F. 2017. The way forward: an agroecological perspective for Climate-Smart Agriculture. Agriculture, Ecosystems & Environment, 250, 20-24.	https://www.sciencedirect.com/science/article/pii/S0167880917304048	Research community
Lund University	Agroecology is an alternative models for developing agriculture. The model is based on each farm being an integrated ecosystem , in which crops, plants and animals interact to create favourable conditions for cultivation. This alternative is knowledge-intensive , requiring farmers to have a lot of knowledge about the functioning of various components in the ecological system, as well as an ability to create synergies between plants, insects, crops and soil fertility. The model also rests on traditional farming methods . Agroecology is a real alternative to conventional agricultural production, and a model that safeguards both the climate and social development . However, it requires civil society to push for change from the bottom up in Uganda, and for markets worldwide to transition to supporting alternative ways of farming the land.	Knowledge intensive, synergies, bottom-up	Lund University. 2018. Agroecology: A better alternative in Sub-Saharan Africa. Science Daily, 4 May 2018.	www.sciencedaily.com/releases/2018/05/180504103753.htm	Research community

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Pimbert & Moeller	Agroecology as the mode of agricultural development which can “ raise [agricultural] production where it needs most to be raised (i.e., in poor, food deficit countries), while at the same time improving the livelihoods of smallholder farmers and preserving ecosystems ”. Agroecology is a science, a policy framework, a development methodology, a set of agricultural practices, and a social movement. As a science, agroecology is the application of ecological science to the study, design and management of sustainable agroecosystems. As a policy framework and a development methodology, it facilitates applying the scientific findings to projects “on the ground” . As a set of agricultural practices, agroecology enhances farming systems by imitating and replicating natural processes , with a view to creating beneficial biological interactions, complementarities, and synergies among the different constituent parts of the agroecosystem. As a social movement, agroecology promotes viable alternatives to the dominant agro-food regime .	Food security, livelihoods, alternatives to the dominant agro-food regime	Pimbert, M., & Moeller, N. 2018. Absent Agroecology Aid: On UK Agricultural Development Assistance Since 2010. Sustainability, 102 (505).	https://www.mdpi.com/2071-1050/10/2/505	Research community
GIRAF - FNRS	Agroecology is not defined exclusively by scientific disciplines, social movements, or practices. It is called upon to become a concept that federates these three dimensions. As an interdisciplinary scientific approach, agroecology has a critical role: It challenges the industrial food system as well as the dominant agricultural model based on the intensive use of inputs that are external to the agroecosystem. As a social movement, agroecology belongs to the vein of social criticism of the effects of the modernization of the world’s farming system and the exploration of another pathway based above all on the search for independent decision-making and the sparing use of resources.	Alternatives to industrial system, decentralization	GIRAF. 2018. Website. Belgian Interdisciplinary Agroecology Research Group. FNRS, Belgium.	http://www.agroecologie.be/principles/	Research community
THN - SOCLA	Agroecology is not a neutral science, it is tied to the concept of food sovereignty advanced by international peasants' movement. It aims to make farmers autonomous and self sufficient , i.e., to allow people to define their own models of development . For peasants and family farmers and their movements, agroecology helps build autonomy from unfavourable markets and policies, and helps them restore degraded soils and the productive capacity of their farms and communities.	Farmer-centred, food sovereignty, decentralization	THN and SOCLA. 2015. Agroecology: key concepts, principles and practices. Third World Network and SOCLA. Malaysia	https://foodfirst.org/wp-content/uploads/2015/11/Agroecology-training-manual-TWN-SOCLA.pdf	Research community