Agroecology Coalition

Agroecology- towards the transformation of food systems

Agroecology, based on a set of principles and elements, is a transformative pathway towards sustainable food systems.

Discover its foundations through theory and practical examples!

Click on the + icon to find out more.

13 Principles

By HLPE-CFS, 2019

Economic diversification

Soil health

Animal health

Biodiversity

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Synergy

Diversity

Resilience

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Fairness

Connectivity

Participation

Social values and diets

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Responsible governance

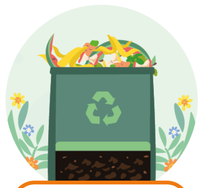
10 Elements

By FAO, 2018

Circular and solidarity economy

Efficiency

Human and social values



Recycling

What is Agroecology?

As you explore the infographic, you will come across the word «farmer» several times. This is often used to indicate other food producers (fisher-folks, herders...)

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Agroecology, based on a set of principles and ... Discover its foundations through theory

Recycling

Preferentially use local renewable resources and close as close as possible to resource cycles of nutrients and biomass

Observations:

- Almost one third of all food produced globally is lost or wasted at one stage or another in the food supply chain, representing economic losses estimated at USD 1,000 billion per year
- Under-utilization of organic matter and renewable resources from farm to fork

Examples:

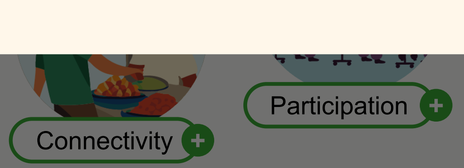
- Recycling of organic matter
- Wastewater and waste recycling
- Rainwater harvesting
- Reusable or recyclable packaging
- Development of small and medium-sized enterprises or cooperatives producing organic fertilizers

Case studies:

- Food Resilience through Agroecology, Nepal
- Boosting Agroecology in urban areas, the Agri-Urb project, Mozambique
- Agrobiodiversity on a plate- Consumption of Resilient Orphan Crops & Products for Healthier Diets, Niger, Chad, Tanzania and India

Related Element

Recycling: Helps reduce the economic and environmental costs of agricultural production.



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Input reduction

Reduce or eliminate dependency on purchased inputs and increase self-sufficiency

Observations:

- Increased soil, water and air pollution due to high use of nitrates, phosphate and synthetic pesticides
- High dependency of farmers on synthetic inputs, whose prices are very volatile, and which require certain resources (phosphorus, fossils fuels)
- Decline in soil, surface and aerial biodiversity (e.g., decline in seed-eating birds due to pesticides)

Examples:

- Preventative methods (e.g., nitrogen fixing plants, biological pest management, production of natural remedies)
- Stimulation of the natural fertility of soils and their water retention capacity (e.g., addition of organic matter, mulching, water harvesting, etc.)
- Optimization in seed use and conservation via community seed bank or seed saver networks
- Phase out or reduction of the use of plastic
- Reduction of the energy consumption and/or production of renewable energy for domestic use on farm
- Elimination or reduction of synthetic fertilizers, pesticides, veterinary drugs and imported feed (e.g., from outside the territory, highly processed, with additives).

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- The VITAL project – Farmers' organizations, research and businesses harness the sustainable effects of agroecology to scale up their operations, Ivory Coast
- Never Ending Food Permaculture, Malawi

Related Element

Efficiency: Innovative agroecological practices make it possible to produce more with fewer external resources.

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Soil health

Secure and enhance soil health and functioning for improved plant growth, particularly by managing organic matter and enhancing soil biological activity

Observations:

- Soil health and fertility decreased due to air and water pollution, nutrient overload, overgrazing, pesticide applications, soil erosion and desertification, impacting soil biodiversity (home for 25% of the world's species) and yields of up to 50 % in some parts of the world due to soil degradation and climate change
- Loss of soil capacity to absorb carbon, impacting agriculture's capacity to mitigate climate change
- Reduced water retention

Examples:

- Monitoring / assessment of soil health and biological activity to evaluate practices
- Multiple practices to enhance soil health including carbon sequestration (e.g., vermicomposting, permaculture, use of biostimulants and natural farming, integrated diversified farming, organic agriculture)
- Integration of animals for manure
- Land use management and prevention of soil erosion (e.g. terracing, zai pits, mulching techniques, permanent land cover, planting or preservation of hedges)
- Elimination of heavy, soil (structure) damaging machinery

Case studies:

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Related Element

Resilience: Improved resilience of people, communities and ecosystems is key to sustainable food and farming systems.

Diversity: Diversification is essential for the agroecological transition as it improves food security and nutrition while conserving, protecting and enhancing natural resources.

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Animal health

Ensure animal health and welfare

Observations:

- Increased resistance of humans and animals to antibiotics
- Increased risk of pandemics and zoonosis in large intensive animal rearing systems
- Increased awareness of animal welfare

Examples:

- Work with resilient, locally adapted and naturally healthful breeds and promote responsible research on these
- Align number of animals to carrying capacity of the land, water and shelters/barns
- Species-appropriate environment (e.g., free range, grass-fed ruminants, foraging fowl, outdoors ideally all year round)
- High standards of animal welfare (e.g., free from stress, hunger, thirst, castration or other medical interventions only when necessary (not routine), no separation of mother from young)
- Ethical killing, including in fishing, and no routine slaughter of baby male
- Integrated pollinator management
- Elimination or reduction of the use of synthetic feeds, hormones and medications to ensure healthy diets (e.g., increased use of organic feed and natural remedies)

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Biodiversity

Maintain and enhance diversity of species, functional diversity and genetic resources and thereby maintain overall agroecosystem biodiversity in time and space at field, farm and landscape scales

Observations:

- Biodiversity and agrobiodiversity have been significantly degraded impacting food insecurity in quantity and quality as well as climate change
- High vulnerability of monoculture systems to diseases, pest attacks and climate change
- Dramatic alteration of plant and animal genetic heritage and increased dependence of global food production on a very low diversity of products, contributing to the loss of nutritional value of food

Examples:

- Diverse nutrient-rich crops, species and varieties including of local, traditional, indigenous or ‘orphan’ crops, locally adapted breeds and varieties (e.g., animals, trees, crops, fish, pollinators, pest predators, wild companion plants)
- Conservation of forest fragments around farms, conversion of field edges into woodlands
- Multi-year crop rotation
- Multi-habitat approaches (e.g., land use diversity at landscape level)
- Biological soil fertility and health measures
- Measures to enhance local and natural pollinators

Case studies:

- Promoting on-farm diversification through watershed management, Kenya
- Efficient use of Naadi water for successful Kitchen gardening in a desert village, India
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Synergy

Enhance positive ecological interaction, synergy, integration and complementarity among the elements of agroecosystems (animals, crops, trees, soil and water)

Observations:

- Alteration of ecological interactions due to hyper specialisation of agrosystems and homogenization of landscapes
- Air, soil and water degradation

Examples:

- Agroecological redesign and diversification of farm elements increasing synergies
- Mix farming systems (e.g., intercropping, farm animals, agroforestry, sylvo-pastoralism)
- Connectivity between elements of the agroecosystem and the landscape
- Symbiotic and complementary role of plants and farming animals (e.g., rotational / regenerative grazing, manure-based composts and fertilizers)
- Integrated pest management by habitat management (e.g., planting flowers to attract bees)
- Integrated landscape planning and territorial approach leading to improved ecosystem services

Case studies:

- Agroecological production of potato cultivation as a strategy for adaptation to climate change, Colombia
- Resilience through biodiverse cropping and millet recipes driven by Indian women network, India
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Related Element

Synergies: Creating synergies improves essential functions within food systems as it contributes to production and multiple ecosystem services.

Connectivity

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Co-creation of knowledge

Enhance co-creation and horizontal sharing of knowledge including local and scientific innovation, especially through farmer-to-farmer exchange

Observations:

- Knowledge systems are still based on the transmission from advisors to producers of single solutions (standardized “technical packages”) instead of being extensive and inclusive
- Low capacity to produce new and innovative knowledge in the territories
- Loss of traditional knowledge by farmers and other food producers
- Acceleration of the loss of knowledge of indigenous peoples, even though they are the custodians of 80 % of the world’s remaining biodiversity

Examples:

- Platform for the horizontal creation and transfer of knowledge and good practices (e.g., farmer to farmer learning and exchanges including farmer field schools, farmers’ climate field schools, community of practices on agroecology)
- Farmer research and experimentation groups
- Recovery, valorization and dissemination of traditional and indigenous knowledge
- Co innovation between farmers and researchers / participatory research / transdisciplinary research (design, implementation, analysis, evaluation)
- Improved access to agroecological knowledge (e.g., capacity building/ strengthen agroecological extension, improvement and development of agroecology curriculum, consumer food and nutrition education)
- Engagement and participation of producers and consumers in local community and grassroots organizations

Case studies:

- The Agroecological Adaptation Laboratories (AeD-LABs) project, Nicaragua, Colombia, Ecuador
- Tarik Akhdar (Green Road) – Fair trade and Agroecology. A strong alliance for economic diversification and increased resilience of small producers, Lebanon
- Rights-based and Agroecological Initiatives for Sustainability and Equity in Peasant Communities (RAISE), South Asia and Africa
- Food Resilience through Agroecology Nepal
- Resilience through biodiverse cropping and millet recipes driven by Indian women network, India
- Organic Karnali, Nepal

Related Element

Co-creation and sharing of knowledge: Agricultural innovations are more likely to solve local problems if they are developed jointly and in a participatory manner.

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Economic diversification

Diversify on-farm incomes by ensuring that small-scale farmers have greater financial independence and value addition opportunities while enabling them to respond to demand from consumers

Observations:

- Increased tendency towards specialization weakens the economies of households and territories by increasing their dependence on a limited number of productions
- Reduction in the share of added value accruing to farmers to the benefit of downstream actors in the sector (processing, distribution)

Examples:

- Diversification of production (e.g., different vegetables, honey, wild / foraged foods and herbs, non-timber forest products, native local fish species)
- Safe, nutrient-preserving on-farm or cooperative-based storage agro-processing / transformation
- Farm-based or local input production for distribution (seed, seedlings, trees, bio fertilizers, biopesticides)
- Small enterprise development and support in agro-food value chains
- Supported short / regional / diversified value chains / circuits, local food system
- Supporting youth and women entrepreneurship
- Farm-based non-agricultural activities (e.g., crafts, agri-tourism, eco-tourism, services, cooking-classes, school visits)

Case studies:

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- Promoting on-farm diversification through watershed management, Kenya

Related Element

Resilience: Improved resilience of people, communities and ecosystems is key to sustainable food and farming systems.

Diversity: Diversification is essential for the agroecological transition as it improves food security and nutrition while conserving, protecting and enhancing natural resources.

Social values and diets

Build food systems based on the culture, identity, tradition, social and gender equity of local communities that provide healthy, diversified, seasonally and culturally appropriate diets

Observations:

- Standardization of diets and loss of traditional diets due to the deterioration of social relations, the disappearance of local cultures, the high-import of cereals and the consumption of agro-industrial products
- Prevalence of acute and chronic malnutrition as well as explosion of health problems (obesity, cardiovascular diseases, cancers, diabetes) linked to an overconsumption of energy-rich and processed food (rich in salt, sugar, fatty acids)

Examples:

- Promotion of the cultural identity and tradition
- Gender equity
- Youth and women empowerment
- Inclusion of Indigenous Peoples and Local Communities, Persons with Disabilities, and other marginalised groups
- Agriculture based on family farmers which have full access to resources and decision-making processes
- Promotion of diversified locally produced healthy diets through a diversified food production system and access to culturally and seasonally appropriate food

Case studies:

- Resilience through biodiverse cropping and millet recipes driven by Indian women network, India
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Related Elements

Culture and food traditions: By promoting healthy, diverse and culturally appropriate diets, agroecology contributes to food security and nutrition, while preserving the health of ecosystems.

Human and social values: Protecting and improving rural livelihoods, equity and social well-being is essential for sustainable food and farming systems.

Agroecology?

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Fairness

Support dignified and robust livelihoods for all actors engaged in food systems, especially small-scale food producers, based on fair trade, fair employment and fair treatment of intellectual property rights

Observations:

- Increased inequalities in terms of remuneration and influence between the different actors of the agri-food chains inherent to dominant agricultural and food systems
- Health and safety problems related to intensive working conditions in the agro-industry sector
- Increased dependency on purchased inputs and restriction on peasants seed and patenting of seeds leading to a risk of privatization of life forms

Examples:

- Fair trade and fair prices in local, regional and international markets
- Decent jobs and working conditions for all actors in agri-food system
- Social mechanisms to reduce vulnerability of producers and consumers
- Dignified livelihoods especially for smallholders
- Protection of traditional knowledge and promotion of fair intellectual property rights (e.g., Open-Source Seeds)
- Equitable and collective ownership models

Case studies:

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- Tarik Akhdar (Green Road) – Fair trade and Agroecology. A strong alliance for economic diversification and increased resilience of small producers, Lebanon

Related Elements

Circular and solidarity economy: Restores the link between producers and consumers, provides innovative solutions to live within the limits of our planet, while at the same time establishing the social foundations for inclusive and sustainable development.

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Connectivity

Ensure proximity and confidence between producers and consumers through promotion of fair and short distribution networks and by re-embedding food systems into local economies

Observations:

- Current global trade is characterized by a high concentration of sectors, long value chains and remoteness from decision-making bodies
- Unfair remuneration of producers due to their low bargaining power and influence in the agri-food chains
- Competition of local productions with highly subsidized imported products or with lower production costs

Examples:

- Re-establishment of connection between consumers and producer emphasizing connectivity and trust, less intermediaries
- Access to markets emphasizing short value chains and local food webs
- Education around seasonal and regional food products
- Re-establishment and reinforcement of the connection between communities and territories (including spiritual and ancestral connections)
- Public procurement schemes for agroecological produce especially favoring smallholder food producers
- Organization and support of local farmer markets, workers cooperatives, Community-supported agriculture and / or Participatory Guarantee Systems
- Community restaurants, soup kitchens

Case studies:

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Land and resource governance

Strengthen institutional arrangements to improve, including the recognition and support of family farmers, smallholders and peasant food producers as sustainable managers of natural and genetic resources

Observations:

- Surge in appropriations and concentration (grabbing) of land by big companies leading to expropriations of Indigenous Peoples and Local Communities and difficulties for smallholders' farmers, especially women and youth, to access land
- Grabbing of water reserves and natural resources due to the production of water-intensive crops (such as oil palm, sugarcane, cotton and rubber)

Examples:

- Protection of traditional knowledge
- Promotion of the right to food and food sovereignty
- Integrated seed governance emphasizing farmer managed seed systems
- Land tenure that respects traditional and customary land rights and ensure equitable and secure access to land for smallholders / family farmers and peasant food producers (e.g., social forestry, community-based forest management, protected area management by local communities)
- Control of inland and marine water resources by coastal / fishing communities and inclusion of their representatives in the governance of water resources
- Equitable ownership and access to natural resources recognizing the crucial role of smallholders and Indigenous Peoples and Local Communities as stewards of the environment
- Improvement of the enabling policy environment (e.g. public and private incentives)

Case studies:

- RAISE consortium, South Asia
- Promoting on-farm diversification through watershed management, Kenya
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Related Elements

Responsible governance:
Sustainable food and agriculture requires accountable and effective governance mechanisms at different levels (local, national and global).

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Participation

Encourage social organization and greater participation in decision-making by food producers and consumers to support decentralized governance and local adaptive management of agricultural and food systems

Observations:

- Lack of transparency and democracy in food and agriculture decision-making, international cooperation projects and territorial development, excluding peasants, indigenous peoples and local communities
- Centralization and vertical approaches that do not respect local peasant or indigenous farming and food systems

Examples:

- Inclusive and meaningful participation of women, youth, Indigenous Peoples and Local Communities and other marginalised groups in policy and decision
- Participatory, inclusive and equitable food system governance (including policy development, food councils)
- Multi-actor food system processes, communities of practice
- Deliberative and consultative democracy such as citizen's juries, or participatory monitoring or budgeting mechanisms
- Participatory, transdisciplinary research and co-innovation between food system actors and researchers
- Participatory land use planning, landscape design, biosphere conservation and restoration, catchment management
- Rights awareness and capacity to claim for rights holders and accountability for duty bearers
- Strengthened organizational capacity for participation, self-determination and autonomy / increasing agency (e.g., food sovereignty)

Case studies:

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