



Smallholder farming and the transition to agroecology

The need to transform agricultural and food systems

A VSF has been promoting agroecology in Africa, Asia and Latin America for years to boost the agricultural productivity of vulnerable smallholders, promote food and nutritional security and improve resilience to climate variability while preserving natural resources. Our commitment stemmed from the observation, in many different contexts, of an agricultural crisis linked in particular to population pressure from humans and animals, which is causing people to gradually abandon traditional methods for managing fertility based on practices such as letting land lie fallow and combining crop and livestock farming. A number of methods focusing on intensification have been encouraged over the past forty years, inspired in large part by the green revolution. They are still based on the artificialization of the environment and simplification of systems through the use of external synthetic inputs. They are expensive and cause environmental, economic and social damage (including public-health risks), which is preventing their reproduction and sustainability.

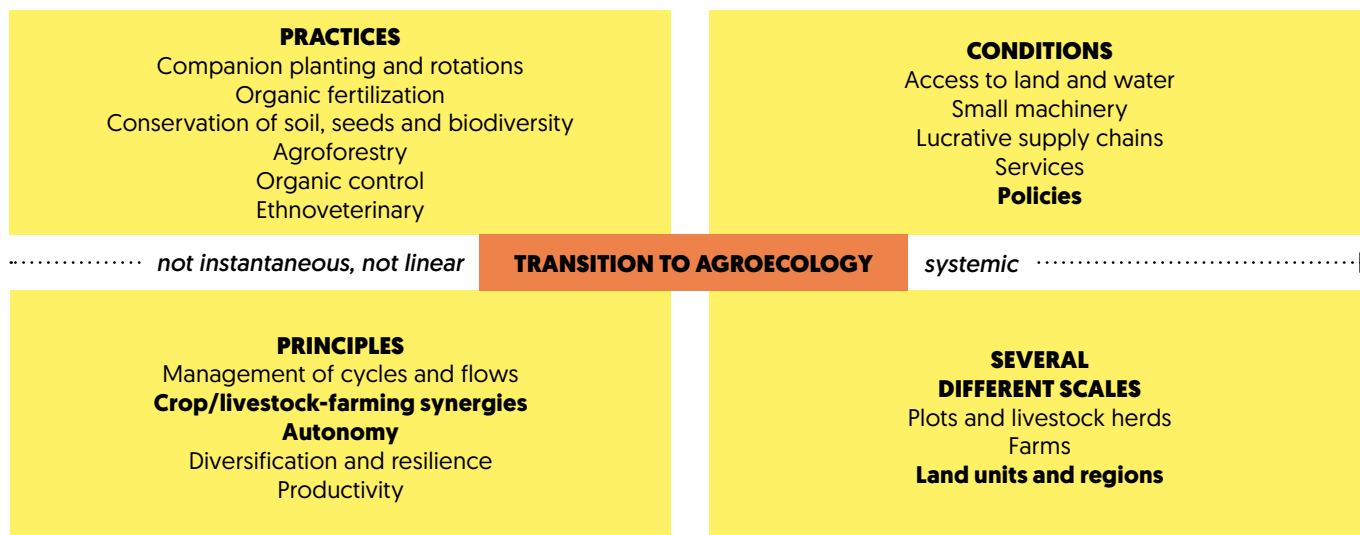
In many regions around the world, smallholder families are facing a growing number of problems concerning land degradation, lower soil fertility and a reduction in domestic biodiversity [crops and animals] and wild biodiversity, all of

which are exacerbated by global warming. Degradation to ecosystems and natural resources makes those families more vulnerable to climate variability and extremes, which often lead to insecurity and sometimes to food crises. In the case of West Africa, despite the agricultural-development policies launched by many governments in the wake of the food-price crisis [2007–2008], efforts have been focused mainly on intensifying production through input subsidies (fertilizers, improved seeds), whereas a more systemic approach including support for family farms in the sustainable management of natural resources and land seems to be vital to guaranteeing their food and nutritional security⁽¹⁾ over the long term.

Still marginal just a few decades ago, **agroecology is gradually gaining ground through the many experiments and initiatives launched first and foremost by civil society to encourage people to produce, sell and consume differently.** In its broadest sense of food-systems ecology, the interest and importance of agroecology is now largely recognized within the scientific community and by international UN entities such as FAO, IFAD and CFS (Committee on World Food Security). CFS has tasked its high level panel of experts⁽²⁾ with drawing up a report in 2019 on agroecology and other innovations in favor of food and nutritional security. The report's findings and conclusions will be discussed at the next committee meeting in Rome in October 2019.

⁽¹⁾ The FAO report "Africa: Regional Overview of Food Security and Nutrition, 2018" reveals that hunger in Africa is continuing to rise, with 20% of the African population undernourished in 2017. The report points out that insecurity and food crises are often linked to climate variability and extremes, in addition to the increasing number of conflicts.

⁽²⁾ <http://www.fao.org/cfs/cfs-hlpe/en/>



1. A technical, social and political vision of the transition to agroecology

The term “agroecology”, which has been appearing in the literature since 1928, has been defined a number of different ways. **At global level, the predominant definition is the one given by scientists in North and South America** (Altiéri, Gliessman, Caporal, Francis, etc.). For them, agroecology combines two scientific disciplines : agricultural science and ecology. It is both a science and a collection of practices. As a science, agroecology is “the application of ecological science to the study, design and management of sustainable agroecosystems” and covers, in its widest sense, the ecology of food systems. As a collection of crop and livestock-farming practices, agroecology looks for ways to improve systems by imitating natural processes, thus creating interactions and beneficial biological synergies between the different components of the agroecosystem. It provides the most favorable conditions for vegetal and animal production, thanks to efficient recycling of resources (particularly organic matter), more biotic interactions in the soil and sustainable management of soil fertility.

There are many approaches today that claim to be connected with agroecology : from sustainable farming and conservation agriculture, to integrated farming and the “doubly green” revolution. But some of them tend to generate confusion and sometimes mask conceptions that are too limited and not ambitious enough with respect to **the priority of profoundly transforming food systems.**

For AVSF, the transition to agroecology is first and foremost based on the principle of making maximum use of processes and natural regulation for vegetal production and livestock farming rather than becoming dependent on external synthetic inputs, by looking to create beneficial biological synergies between the different components of the agroecosystem, to encourage the recycling of organic matter and nutrients and **to use resources more efficiently** (water, nutrients). Ultimately, the transition to agroecology strives to boost farm productivity, in terms of both land and work, and make farms more autonomous and resilient to climate and economic shocks and health risks.

In concrete terms, the transition to agroecology involves promoting and integrating **a collection of practices that are based on ancestral smallholder experiences** and know-how and that are improved through scientific and technical advances and innovations that are tested and validated with smallholders and smallholder organizations. Topics may include: companion planting and crop rotation (including reintegration of legumes); more advanced practices combining crop and livestock-farming systems (organic fertilization, composting, etc.); conservation of water, soil and forest; biological control of pests; maintenance and management of agricultural biodiversity; agroforestry; mass selection and promotion of smallholder seeds; and ethnoveterinary practices. The transition to agroecology also involves developing synergies between crop and livestock farming and promoting much-needed diversification within production systems to avoid “hyper-specialization”, which is dangerous for ecosystems and for producers when it comes to managing risks such as market fluctuations and climate shocks.

The complex and systemic process of transitioning to agroecology is neither instantaneous nor linear. Hence the importance of the word “transition” : the idea is not to impose a single model or “turnkey” technological solution, but rather to adapt, on each farm and in each region, different combinations of practices depending on the conditions of the local environment and ecosystems, and on the agrarian systems already in place. When it comes to addressing the need to boost productivity, promote food security and reduce poverty among smallholder families in many different regions, the transition to agroecology does not rule out the use of certain practices inspired by the green revolution. Even through the objective is to limit, or even completely eliminate, the use of synthetic inputs, the transition to agroecology may allow for the use of mineral fertilizers in addition to organic fertilizers to restore the fertility of depleted soils. It

^[3] As a farming system that promotes minimum soil disturbance, permanent soil cover (cover crops, agroforestry, etc.) and species diversification (FAO definition : <http://www.fao.org/conservation-agriculture/en/>), conservation agriculture could be seen as an application of agroecology. But if direct seeding (emblematic technique of conservation agriculture) involves regular use of herbicides when preparing the soil, then it deviates from the principles of agroecology, given the negative effects that the active substances available today (glyphosate, in particular) have on flora, fauna, microorganisms in the soil and human health.

may also allow for the use of certain chemical inputs, but only approved products that are already in use and that are not too dangerous for health, and only in cases where reliable alternative practices that are accessible to farmers do not yet exist. Against that backdrop, certified organic farming is an integral part of agroecology, which seeks to minimize the use of external synthetic inputs and to help smallholders become more autonomous while benefitting from dedicated markets. It is one possible path in the transition to agroecology, provided that steps are taken to go further with regard to the principles of agroecology, such as diversifying and developing synergies between crop and livestock farming, promoting local supply chains and developing local markets wherever possible, etc.

The transition to agroecology also involves **creating the right conditions for developing agroecology, at different scales** : farms, regions, supply chains upstream and downstream of production. **Helping producers secure access to land and water** is the first of those conditions. The idea is also to create the right conditions to help smallholders gain access to **services upstream of production** : loans, seeds, organic inputs, small machinery, infrastructure, local veterinary services, etc. Downstream, the idea is to help smallholder organizations process and sell their crops and animal products, make use of relevant certification systems and receive information about markets so that they can promote their production on **transparent and lucrative supply chains**, and on local and international markets. Whether through internationally recognized certifications or less expensive participatory guarantee systems, the idea is to develop short supply chains, strengthen local markets, develop agreements between smallholder organizations and large urban retailers or processing companies with fair and transparent contracts, or put those organizations in contact with diversified, premium export markets thanks, for example, to supply chains for organic and fair-trade products.

Supporting the transition to agroecology therefore involves **harmonization and much needed changes to public policy**, particularly at local and national level, to ensure favorable conditions for smallholder families so that they can achieve that transition and facilitate regulation between all actors involved, both public and private: from securing access to land and changing the procedures and content of technical advice for producers, to land planning, reorganizing supply chains and protecting certain markets. Lastly, **the transition to agroecology involves profoundly transforming food systems as a whole**, which cannot occur without **thinking collectively about the regions with the different stakeholders** : smallholder organizations, local authorities, government representatives and public services, other economic actors and companies, consumers.

2.

Taking action at different levels to promote the transition to agroecology

Helping actors in a certain area transition to agroecology involves **identifying and testing practices** while taking into account the constraints observed and expressed by smallholders in their crop and livestock-farming systems. To do so, AVSF strengthens initiatives to support and teach producers : for instance, through field-schools for participatory experimentation, which allow smallholders to work together on a shared plot in order to assess their practices and test agroecology techniques to develop solutions that are tailored to the local environment. They also spark interaction and innovation in villages.



Those initiatives to promote interaction and the sharing of technical skills are accompanied by complementary initiatives at different levels to help integrate those practices into production systems and ensure the sustainability of those transitions by transforming food systems:

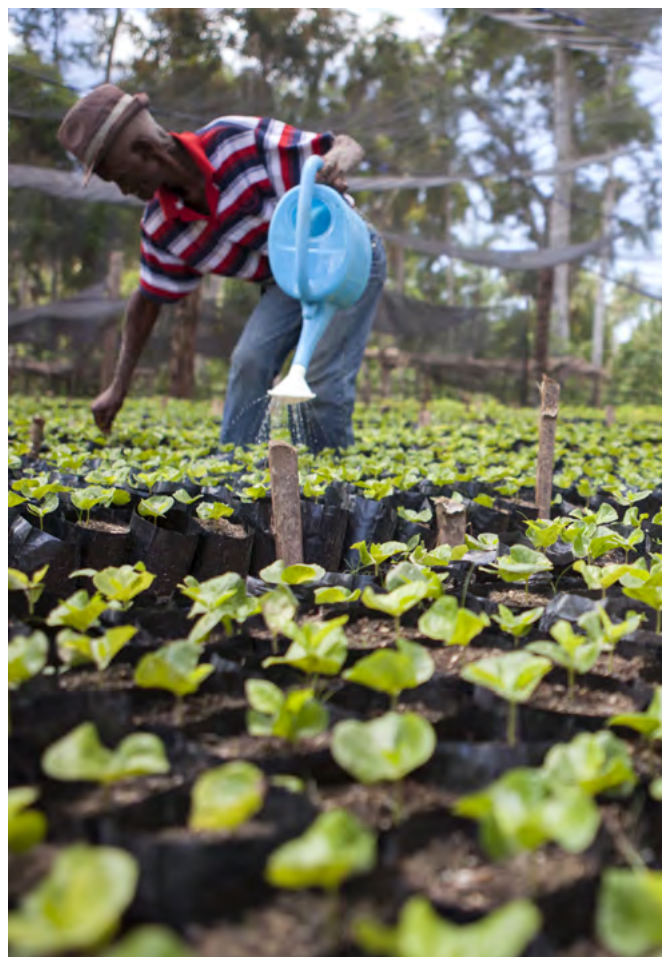
→ **Promoting dialogue between users in village and town areas for sustainable, collective and peaceful management of natural resources** : this may involve breaking down cultivated or pastoral village land into zones using participatory mapping to identify different types of land, prioritize issues and mobilize communities (elected representatives, authorities, livestock farmers, crop farmers, economic operators, etc.) for the development of those spaces : using land for cultivation, pasture or as a reserved area; deciding on investments; redefining rights and obligations for the collective management of shared resources; bringing actors together in the different supply chains.

→ **Facilitating dialogue between local authorities, smallholder organizations and all public and private actors involved to design a plan for land use**, decide on investments for the most indispensable infrastructure, promote the development of local services and companies and, lastly, reorganize markets and supply chains as well as the food system in its entirety.

→ **Facilitating access to small machinery, equipment and inputs for farms and smallholder organizations** : access to equipment (carts, plows, cassines, etc.), small infrastructure (manure pits, animal enclosures, etc.) or specific inputs (seeds and plants, biopesticides) facilitates or strengthens agroecology practices such as transporting and recycling organic matter, diversifying and pursuing companion planting, transporting material for stone barriers, seedlings for reforestation, etc.

→ **Supporting livestock-farming systems** : support for pastoralism and the management and promotion of natural pastures in areas that are often not suitable for agriculture, implementation of local veterinary services, recovery and maintenance of ethnoveterinary practices to make up for the limited access to conventional products (long distances, inadequate transport conditions and cold chain, cost, quality, etc.), support for small-scale livestock farming (cattle, small ruminants, poultry farming, donkeys) to facilitate the transition to agroecology (organic material and draft-animal power) and improve food and nutritional security and income for women and young people through non-strenuous activities.

→ **Developing supply chains to better promote agroecology products and strengthen the influence of smallholder organizations in markets, whether local markets** (strengthening of traditional markets, promotion of short circuits in urban areas, agreements with large urban retailers or local processing companies with fair and transparent contracts) or export markets (creating ties between smallholder organizations on premium markets that are differentiated thanks, for example, to supply chains for organic and fair-trade products).



3.

Proving the effectiveness of the transition to agroecology as a tool for persuasion

Promoting these transitions on a larger scale involves raising awareness and getting politicians and decision-makers to **recognize the effectiveness of agroecology in order to change public policies**, while also supporting producer organizations, their networks, citizen-led initiatives and communities that are committed to agroecology and the transformation of food systems.

AVSF created the working group on the transition to agroecology (GTAE) in 2017 with the NGOs Agrisud, CARI and GRET. GTAE has set itself the objective of measuring and sharing the results, effects and performance of agroecology through work carried out in conjunction with research in the South, particularly African and French (Cirad, IRD and AgroParisTech). Its work aims to help actors involved in development better assess the results and effects of their agroecology work, create methods for measuring the economic, social and environmental performance of agroecology, identify the right conditions for its development in order to have sound and objective arguments for discussions with financial backers and decision-makers in favor of supporting and promoting agroecology practices and systems.

Recommendations for public authorities to help promote the transition to agroecology

- **Allocate funding to the transition to agroecology and smallholder families** : the public and private funds allocated to agriculture need to be redirected to support the transition to agroecology within agricultural systems, and first and foremost smallholder families. Public policies above all need to provide them with better access to land, water and smallholder seeds, and help them acquire means of production, such as agricultural equipment and organic fertilizers, which are important drivers of the transition to agroecology. Climate funding for adaptation and biodiversity, for instance, needs to be higher and allocated to smallholder families : in 2016, that funding accounted for barely half of total climate funding, less than 3.6% of which was allocated to small producers.
- **Promote local food systems** by supporting local initiatives for economic development (strengthening producer organizations, cooperatives, etc.) and encouraging the implementation of new supply chains for organic inputs and the promotion of agroecology products by creating ties between smallholder organizations in diversified premium markets at local and regional level [for example, products certified by participatory guarantee systems, or organic and fair-trade products ; contractual agreements between smallholder organizations and companies based on fair and transparent contracts].
- **Create an economic environment that will facilitate the scaling-up of smallholder agroecology**, by limiting competition with low-cost imported products in local and national markets and by encouraging the integration of smallholder organizations into diversified premium international markets (certified, organic and fair-trade products).
- **Transform the governance of regions, supply chains and food systems** : the transition to agroecology goes hand-in-hand with empowering people, defending their rights and putting their knowledge to good use. It is part of an approach that focuses on rights, which public authorities need to promote and enforce: the right to food, declaration of the rights of smallholders, directives and recommendations of the United Nations Committee on World Food Security, etc. And organize or regulate relations and interactions between the many different actors involved in the governance of regions, supply chains and foods systems : producer organizations, small and medium-sized companies, very small companies, industries, communities, government services, consumers.
- **Regulate, supervise and monitor agriculture under contract in all local, regional and export supply chains** to make sure that the rights of the smallholders involved are respected and that commercial relations are balanced and fair.
- **Encourage the creation of a partnership-based research-action initiative (research, producer organizations, other development actors)** piloted by producers and producer organizations in order to take more account of practices, know-how and existing dynamics to help bring about the transition to agroecology.
- **Encourage the emergence of professional training, study programs and diplomas in agroecology** within existing agricultural and rural training systems (training center and support/advisory initiatives led by producer organizations, technical and professional training institute for agriculture, higher education in agriculture and veterinary studies.
- **Encourage the development of systems and platforms for sharing experiences as well as practical knowledge and documentation on agroecology**, not only between producers but also between all actors (research and education, consumers, private companies, communities, etc.) engaged in the transition to agroecology.
- **Encourage the development of digital systems providing access to information for producers** : practices, provision of organic inputs, information on certifications, information on markets and prices.

A few references

ALLIALLPA PROJECT

→ Agroecology and short circuits in Ecuador

Supporting 320 smallholder families from the Pillaro irrigation system in the transition to agroecology, processing and sale of products through short circuits, and helping improve systems for higher education and public policies.

IXIL PROJECT

→ Defending indigenous Ixil lands in Guatemala

Supporting community organization and training, and participation of over 800 young people for the economic development of the Ixil indigenous community's region.

AGROECOLOGY LENCAS HONDURAS PROJECT

→ Agroecological production for Lenca women and young people in Honduras

Strengthening the skills of 1,000 Lenca families (at least 400 young people and 400 women) in the production and sale of agroecology products, supporting the creation of entrepreneurial initiatives by young people and women for the sale of their products and influencing public policies at local and national level (in the Intibuca and La Paz departments).

"EGA EGGA" FERLO RESILIENCE PROJECT

→ Pastoralism and combatting desertification in northern Senegal

Restoring the pastoral ecosystem in the Ferlo lands and supporting adaptation to climate variability for 2,000 livestock-farming families : hydraulics and management of pastoral resources, early-alert system, creation of infrastructure, promotion of biogas and income-generating activities.

MECHANIZATION MALI PROJECT

→ Small-scale mechanization and agroecology in Mali

Strengthening CUMA unions (cooperatives for sharing agricultural equipment) in the South and implementing new CUMAs to provide 100 new families with access to an animal-drawn plow

PATAE WEST AFRICA PROJECT

→ Transition to agroecology in West Africa

Supporting the concrete initiatives of local producers and actors engaged in the transition to agroecology in Senegal, Mali, Burkina Faso, Ivory Coast and Togo, and supporting governments and communities to help identify and define public policies to drive that transition.

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Resources

→ **Reference document** « Agroécologie et agriculture durable : le positionnement d'AVSF », AVSF, 2011

→ **Document** « Répondre aux défis du XXI^e siècle avec l'agroécologie : pourquoi et comment ? », Coordination Sud, Gret-AVSF, 2013

→ **Report** « Les expériences innovantes d'AVSF : Agroécologie et circuits courts en Équateur », AVSF, 2013

→ **Report** « Les expériences innovantes d'AVSF : Du conseil en agroécologie à Madagascar », AVSF, 2013

→ **Report** « Les expériences innovantes d'AVSF : Des champs-école pour l'agroécologie au Togo », AVSF, 2016

→ **Methodological document** « Agroécologie : méthodes pour évaluer ses conditions de développement et ses effets », GTAE – AVSF, Agrisud, CARI, Gret, 2018

→ **Methodological document** « Agroécologie : capitalisation d'expériences en Afrique de l'Ouest : facteurs favorables et limitants au développement de pratiques agroécologiques ; évaluation des effets socio-économiques et agro-environnementaux », Levard L., Mathieu B., GTAE – AVSF, Gret, Agrisud, CARI, Gret, 2018 – CEDEAO- AFD

→ **Experience-sharing document** « Les victoires d'AVSF au service de l'agriculture paysanne et de l'agroécologie », AVSF 2018

→ **Experience-sharing document** : « Mémento pour l'évaluation de l'agroécologie, Méthodes pour évaluer ses effets et les conditions de son développement », L. Levard, M. Bertrand, P. Masse (Coordination), GTAE - AVSF, Gret, Agrisud, CARI, Gret -AgroParisTech- CIRAD-IRD, Mars 2019.

Agronomes et Vétérinaires Sans Frontières (AVSF) is a French non-profit organization that is dedicated to promoting international solidarity and that has been working for over 40 years with smallholder communities and organizations in developing countries on food-related issues. We offer them our professional skills in crop and livestock farming, and animal health : technical assistance, financial assistance, training, access to markets, etc. We carry out over 60 projects in 20 different countries in Central and South America, Asia and Africa, alongside smallholder communities for whom crop and livestock farming is a key component when it comes to ensuring food security and promoting economic and social development. AVSF is officially recognized in France for its public utility.

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