# AGROECOLOGY: INNOVATING FOR SUSTAINABLE AGRICULTURE & FOOD SYSTEMS

Who Benefits? 2018

**A BACKGROUND PAPER FOR DECISION MAKERS** Part of the 'Who Benefits?' series





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AGROECOLOGY: INNOVATING FOR SUSTAINABLE AGRICULTURE AND FOOD SYSTEMS

# friends of the earth international NOVEMBER | 2018

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Men sowing seeds. © La Via Campesina



Man with basket of fish. © La Vía Campesina

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# WHY IS INNOVATION AN IMPERATIVE?

There is an international consensus about the unprecedented and pressing challenges that the world is facing in the 21st century, such as hunger and how to feed a growing population, eroding livelihoods of smallscale urban and rural food producers and workers, diet-related diseases, natural resource depletion, environmental degradation and climate change (FAO, 2017). It is also recognized worldwide that these intimately connected consequences of our current agriculture and food systems, and in particular of the dominant agri-business and high-input industrial model of agriculture, are affecting the health of the environment and humans (Gauker, 2010; FAO, 2015c), particularly vulnerable populations. As a consequence, they jeopardize the capacity of millions of small-scale food providers and their communities to produce and access sufficient, diversified and healthy food in a sustainable environment, thus posing serious threats to achieving the human right to adequate food and nutrition as well as to their livelihoods. Indeed, as pointed out by the United Nations Food and Agriculture Organization (FAO) in The State of Food Security and Nutrition in the World 2018, for the third year in a row, there has been a rise in world hunger, and without increased efforts, the world will fall far short of achieving the Sustainable Development Goal (SDG) target of eradicating hunger by 2030.

It has become clear that our world cannot afford a 'business-as-usual' approach any longer (IAASTD, 2009); crises cannot be solved by small incremental changes that do not dismantle the structures that caused them. In line with the 2030 Agenda for Sustainable Development, the FAO and its Director General call for a paradigm shift in agricultural and food systems. "The focus on increasing yields promoted by the Green Revolution is [...] not sustainable [and] there is an urgent need to promote transformative change in how food is grown, produced, processed, transported, distributed and consumed" (FAO, 2018a). INNOVATION HAS TO CUT ACROSS ALL THESE DIMENSIONS AND SHOULD NOT BE ONLY ABOUT TECHNOLOGY, BUT ALSO HAVE A HOLISTIC AND MULTIDISCIPLINARY PERSPECTIVE THAT INCLUDES SOCIAL, ECONOMIC, CULTURAL, ENVIRONMENTAL AND POLICY PROCESSES, AND SEEK A POSITIVE IMPACT ON THE LIVES OF SMALL-SCALE FOOD PROVIDERS, WORKERS AND THEIR COMMUNITIES.

In that sense, agroecology, within the paradigm of food sovereignty, is gaining widespread recognition and is increasingly being promoted by States and international institutions as the indispensable approach to transform agriculture and food systems and address the challenges we face.

In this context, the discourse on innovation as the way out of the global food, environmental and climate crises is gaining strength in various spaces of global governance, in particular of food and agriculture. For instance, the FAO organized two Symposia on Agroecology in 2014 and 2018 and a series of regional meetings in 2015 and 2016. FAO also organized an international symposium on The role of agricultural biotechnologies in sustainable food systems and nutrition in 2016 at its headquarters in Rome, and regional meetings on Agricultural Biotechnologies in Sustainable Food Systems and Nutrition in 2017, in Asia-Pacific (Malaysia) and Sub-Saharan Africa (Ethiopia). Innovation has also been a key element of each item addressed during the session of FAO's Committee on Agriculture (COAG) in October 2018. Finally, the High Level Panel of Experts on Food Security and Nutrition (HLPE) of the UN Committee on World Food Security (CFS) is currently writing a report on Agroecological approaches and other innovations for sustainable agriculture and food systems that enhance food security and nutrition, to be published in 2019.1 In 2015 some States setup a Group of Friends of Agroecology to promote agroecology for food security and nutrition.<sup>2</sup> The latest milestone is the *International Symposium on Agricultural Innovation for Family Farmers: Unlocking the potential of agricultural innovation to achieve the Sustainable Development Goals.* Held in FAO headquarters, in November 2018, it is based on the assumption that "innovation is the central driving force which will transform food systems, lift family farmers out of poverty and help the world to achieve food security and sustainable agriculture and the SDGs" (FAO, 2018e).

At an event dealing with Agricultural Innovation for Family Farmers, in the upcoming Decade of Family Farming (2019-2028)<sup>3</sup> and beyond UN spaces, at national and regional levels, focus should be based on the needs, guidance and full participation of family farmers and other small-scale food providers. In that sense, this background paper aims to i) generate dialogue at FAO and CFS processes where innovation is being discussed; and ii) provide guidance and recommendations for governmental and intergovernmental institutions on what and whose type of innovation should be promoted to eradicate hunger and achieve sustainable agriculture and food systems.

In order to fuel a common reflection and fulfill these objectives we provide a political and conceptual analysis on the meaning, implications and actors of innovation needed to reshape food systems. We detail the principles and practices of agroecology as a strategy to innovate towards sustainable food systems, including evidence showing that the solutions to today's monumental food and agriculture challenges are within our grasp and have been developed and tested for millennia. We also debunk myths about so-called innovation approaches towards sustainable agriculture promoted by agribusinesses, the biotechnology industry and other actors intended to keep society on the path of business as usual. Finally, we discuss policy priorities for advancing appropriate innovative approaches and providing an enabling environment for the agroecological transition at local, national, regional and global scales.

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<sup>1</sup> See, for instance, on agroecology: http://www.fao.org/about/meetings/second-international-agroecology-symposium/about-the-symposium/en/; on biotechnologies: http://www.fao.org/about/meetings/agribiotechs-symposium/en/. See the COAG 2018 list of documents and final report at: http://www.fao.org/about/meetings/coag/coag-26/list-of-documents/en/. HLPE's draft

http://www.fao.org/about/meetings/agnitotechs-symposium/en/. See the COAC 2018 list of documents and final report at: http://www.fao.org/about/meetings/coag/coag-26/list-of-documents/en/. HLPE's draft report is available at: http://www.fao.org/fileadmin/user\_upload/hlpe/hlpe\_documents/PT\_Agroecology-Innovation/Docs/HLPE-Agro-ecological\_Approaches-and-Other\_Innovations\_Draft-V0-4\_October\_2018.pdf 2 This group now has more than thirty members (including France, Brazil, Hungary, Italy, China, Japan, Senegal, Iran and many others). See: https://waw.fao.org/news/story/es/item/1099567/icode/. 3 See: http://www.fao.org/news/story/es/item/1099567/icode/.

# WHAT INNOVATIONS ARE NEEDED TO ERADICATE HUNGER & ACHIEVE SUSTAINABLE AGRICULTURE & FOOD SYSTEMS?



Woman harvesting potatoes © La Via Campesina

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# WHICH VISION OF INNOVATION?

As the discourse on innovation covers both agroecology and biotechnology among the 'approaches for sustainable agriculture', it is critical to acknowledge that there are radically divergent visions for addressing the global crises and for defining and implementing innovative processes and products, by and for whom. As mentioned in COAG (2018), "innovation is not a goal per se [and] some forms of innovation may contribute to environmental degradation, be disruptive of livelihoods or exacerbate inequalities. It is important to understand which kinds of innovation need to be encouraged, where and for whom. [The Common Vision on Sustainable Food and Agriculture] call for innovation that benefits smallholders by improving resilience, raising incomes and reducing risks, including by creating new market opportunities and encouraging diversification, or by reducing natural resource depletion and degradation". The technologies, innovations and practices chosen today will shape the future of food systems and peoples' livelihoods across the world. It is thus crucial for decision-makers, food producers and other actors to ask themselves the right questions to guide their choices.

# KEY DIMENSIONS FOR SUSTAINABLE INNOVATIONS

Sustainability is often defined too narrowly, neglecting its vital social and economic elements, for example, livelihoods, equity, social justice and economic viability. In that sense, innovating should not be only about offering a technology or a toolbox from which to select a few elements, or focusing solely on productivity. For an innovation to reshape agriculture and food systems<sup>4</sup> and contribute to their sustainability, it has to be developed based on a holistic and multidisciplinary approach for a systemic change. Furthermore, innovating to transform these systems is not only about introducing new, breakthrough or disruptive innovations, and new needs, markets and application spaces. It also entails the adaptation or evolution, and the substantial improvement and/or expansion, of already existing techniques and practices.

<sup>4</sup> This includes an understanding of the various elements comprising food systems (environment, people, inputs, processes, infrastructure, institutions, etc.) and the full spectrum from pre-production and production to processing, packaging, transport, distribution, marketing, preparation, consumption, and waste management. This framework also incorporates the inputs and outputs associated with each of these activities, including socioeconomic and environmental outcomes. Based on HLPE (2014).

# WHAT INNOVATIONS ARE NEEDED TO ERADICATE HUNGER & ACHIEVE SUSTAINABLE AGRICULTURE & FOOD SYSTEMS?

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Assessing innovations in agriculture and food systems is challenging, and requires the development of a framework and set of indicators, and/or scenario analysis, to measure the characteristics of an innovation and its impacts on the sustainability of these systems, and help inform strategic choices and actions. In this section we identify a non-exhaustive set of 13 interconnected core evaluation criteria to serve as an objective and comprehensive framework with which to better assess and select an innovation. For an innovation to be considered socially, culturally, environmentally, politically and economically acceptable, it has to take into account and fulfill at least most, if not all, these criteria. A minimum requirement should be fixed, as *cherry-picking criteria does not allow for fair, reliable and conclusive evaluation*.

# Social, economic and institutional dimensions

**Participatory governance.** i) accountability, transparency, predictability, information and the rule of law; ii) citizen participation in decision-making, management practices of natural resources in an equitable and sustainable manner, and monitoring and evaluation processes; iii) inclusion of bottom-up approaches and processes, in particular for creation of knowledge; iv) prominent role given to the most vulnerable and marginalized, including small-scale producers, workers, indigenous peoples, urban poor, women and youth.

**Social and economic justice.** i) strengthen economic inclusion and social cohesion; ii) improve livelihoods and actively reduce inequalities; iii) in particular, encourage and consolidate relationships and solidarity among rural and urban areas and generations; iv) support social and public models of ownership that benefit all, encourage collaborative and open source intellectual rights held in common; v) foster solidarity economy and the connection between producers and consumers through equitable and sustainable markets; preserve and promote cultural heritage.

**Eradication of hunger.** i) ensure sufficient future food supplies and equal access to meet the needs of the world's population; ii) bolster food self-sufficiency.

**Health, nutrition and safety.** i) consumption of diverse, nutritious, safe foods for healthy, diversified, culturally appropriate and sustainable diets; ii) transparent information on health risks and benefits associated with the different types of food and consumption patterns; iii) decrease in non-communicable dietrelated diseases; iv) recognition of traditional medicines.

**Small-scale food producers' and workers' benefits.** i) creation of new decent employment opportunities, especially in rural areas; dignified and safe work; ii) dignified living conditions; improvement and respect for workers' rights; iii) fair income; iv) access to natural resources, infrastructure, markets and information; v) effective participation in decision-making; vi) positive effects for their communities; vii) recognition and preservation of their knowledge; viii) youth employment; ix) limit or reverse rural exodus.

**Gender justice and diversity.** i) recognition and valorization of women's productive and reproductive work; ii) equal rights and access to resources; iii) effective participation in decision-making and support for women's leadership; iv) eradication of all forms of violence and oppression against women; v) respect for sexual and reproductive health rights.

# **Environmental dimensions**

**Effectiveness.** i) minimize food loss and waste; ii) minimize the transport involved in food production and distribution and the associated environmental impacts though localized or re-localized food systems.

**Energy justice.** i) consider the systems and types of energy production, distribution and consumption to create, deploy and operate the innovation; ii) minimize the social and environmental impacts of energy; iii) recycle potential outputs for other purposes; iv) ensure fair and sufficient access to sustainably produced energy for the most vulnerable and marginalized; v) ensure community or social ownership of energy.

**Environmental justice.** i) consider the short and long-term impacts on the environment (soils, water, air, land, forests and other natural resources) of the use of an innovation, over and after its lifespan; ii) ability to preserve biodiversity and water; iii) inclusion of labor aspects of innovation in food production and issues of migrant farm workers.

**Climate justice.** i) address root causes of climate change based on agriculture models; ii) adaptation to climate change; iii) strengthen resilience against future shocks and support to communities; iv) reinforce autonomy for reconstruction after shocks; iv) mitigation through the reduction of greenhouse gas emissions from current agriculture and food systems models.

# Aspects of the implementation process

**Availability and affordability.** i) allow access to all individuals and institutions across scales and geographies; ii) take into consideration and lower the financial and non-financial resources needed to create, promote and distribute, as well as to replicate, purchase, participate in, or use the innovation; iii) avoid unreasonable financial burden on the users.

**Usability and time sustainability.** i) simplicity, ease and length of time for adoption, use and replication; ii) amount of training or transmission of information required for the end-users to effectively utilize the innovation; iii) effectiveness at accomplishing its intended task in the short- and long-term, and ability for user to sustain the innovation without external support; iv) correspondence to the needs, circumstances and culture of small-scale food producers and their communities.

**Scalability.** ability to achieve widespread adoption across scales and geographies, with positive impact.



# WHY AGROECOLOGY IS THE INNOVATIVE APPROACH TO BE SUPPORTED



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Grandfather and grandson on the farm. © La Via Campesina

# AGROECOLOGY: A SCIENCE, A SET OF PRACTICES AND A SOCIAL MOVEMENT

Based on the impetus, advocacy and mobilization of small-scale food providers' organizations and their allies, in recent years there has been an increased interest and consensus on agroecology<sup>6</sup> as the essential alternative to the mainstream models, and an innovative response to the challenges we face, such as climate change, soil erosion, water scarcity and loss of biodiversity (FAO, 2016). However the concept of agroecology, identified as a scientific discipline since the 1920s, is not a new invention. As outlined in the Nyéléni Declaration of 2015,7 agroecology is regarded as a way of producing food, a way of life, a science, and a movement for change. It draws on social, economic, political and biological/ecological dimensions and integrates these with ancestral and customary knowledge and practices of peasants, indigenous peoples and other small-scale food providers. It is based on principles that may be similar across the diversity of peoples' territories, but are practised in many different ways, with each sector contributing based upon its local reality and culture, while always respecting nature and common, shared values (Altieri and Toledo, 2011; Rosset et al., 2011; SOCLA, 2015).

Small-scale food providers, especially peasants<sup>5</sup> and family farmers, are the primary innovators in agriculture, and have been for thousands of years. They are the main designers of agroecological farming systems, including agroforestry and integration of livestock with crops and trees, as well as the main plant breeders in the world.

What research institutions and the private sector contribute is minuscule in comparison. Especially when we consider agroecological systems and locally-adapted crop varieties and livestock breeds. It is these farmer-led and farmer-conducted innovation processes that need to be supported, as well as Campesino a Campesino (*farmer-to-farmer*) processes to stimulate farmer innovation and sharing of results.

- 5 The term peasant, in this context, also includes other small-scale food producers in the sectors of fisheries, livestock, and pastoralism.
- 6 There is a need to be clear about the meaning of words such as ecological, biological, organic, agro-ecological, which are understood quite differently in different regions and cultures. Signilable to definition of series of series under surgery region.
- Similarly, the definition of scale of production varies by region.
  7 In 2015, delegates representing diverse organizations and international movements of small-scale food producers and consumers gathered in Nyéléni Center in Sélingué, Mali, to come to a common understanding of agroecology as a key element in the construction of Food Sovereignty, and to develop joint strategies to promote Agroecology.

# WHY AGROECOLOGY IS THE INNOVATIVE APPROACH TO BE SUPPORTED CONTINUED

While agroecology draws upon and emphasizes the ancestral production systems developed over millennia by small-scale food producers, it is a living concept that continues to evolve as it is adapted to diverse and unique realities. It provides a coherent framework that conceptualizes these practices and their effects (and their mutual reinforcement), and a holistic understanding of our place in natural cycles and how food systems must adapt to and restore the biocultural systems on which they depend. It includes a long-term vision and goes beyond agricultural production to encompass and transform the whole food system. It calls for paradigm shifts on multiple fronts, including in research, consumption and policy-making, in order to achieve sustainable agriculture and food systems for rural and urban communities. Across the world, agroecology guarantees the diversity of food and food cultures adapted to their social and natural environments.

At the field, farm and landscape level, a wide variety of agroecological practices based on diversification of systems and products are considered to be the most strategic to ensure the survival of present and future generations. They are based on a range of principles such as (Nyéléni 2015; Nicholls and al., 2016; and others), for peasants, family farmers and other small-scale food producers: diversifying crop varieties, local seeds and livestock breeds; integrating crops (protein, cereals, pulses, fruits, and vegetables), trees, livestock, fish; manure application and composting; enhancing biological interaction throughout the system; minimizing the use of and dependency on non-renewable external resources and inputs (e.g. for nutrients and pest management) and dependency on energy from fossil fuel; rainwater harvesting; community ecosystem monitoring; solar food drying and storage; agroforestry. For traditional, artisanal or smallscale fisheries: community-based management to conserve and regenerate fish populations, fishing grounds, coral reefs, mangrove swamps and other fish habitats. For traditional migratory and crossborder pastoralism: conservation of grazing territories and utilization for meat, milk, fiber, fuel and others. For forest dwellers: living by the diversity of non timber forest products and preserving biodiversity. For indigenous peoples: access to natural resources in their territories, in particular for hunting and gathering.

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**Consult** the infographic in annex

Woman exchanging diverse corn varieties. © Biby Rojas Flores / La Via Campesina



# EVIDENCE OF THE MULTIPLE BENEFITS OF AGROECOLOGICAL INNOVATIONS

"Agroecology [offers] multiple benefits, including for increasing food security and resilience, boosting livelihoods and local economies, diversifying food production and diets, promoting health and nutrition, safeguarding natural resources, biodiversity and ecosystem functions, improving soil fertility and soil health, adapting to and mitigating climate change, and preserving local cultures and traditional knowledge systems" (FAO 2nd International Symposium on Agroecology, 2018. Chair's Summary).

As numerous books, reports and papers document (Rosset, Nicholls, Altieri, Holt-Gimenez, LVC, FoEI; and others), four decades of scientific evidence show that agroecology technologies, innovations and practices are the most effective agricultural response to the environmental challenges that threaten our future. This has resulted in the growing acceptance by various international institutions and decision-makers, from national to international level, of agroecology as a way out of the agriculture and food systems crisis. For instance, according to FAO, growing scientific evidence and local experiences demonstrate how agroecology facilitates and contributes to the transition to food and agricultural systems that are environmentally sustainable, economically fair, viable and socially equitable, and directly contributes to multiple SDGs: the eradication of poverty (1) and hunger (2), achieving gender equality (5), increasing water-use efficiency (6), promoting decent jobs (8), reducing inequalities (10), ensuring sustainable consumption and production (12), building climate resilience (13) and halting the loss of biodiversity (15) (FAO, 2018a). It should be noted, however, that the SDGs are not sufficient and, more specifically, that their indicators are unfit to guide or capture remedial measures. They do not in fact constitute a transformative agenda for restructuring the global economy and systemic changes, and meeting the basic needs of all people within the means of our planet. The positive rhetoric associated to them can be fatally flawed and misleading (STWR, 2015; IEG, 2018; UNEP, 2015).

The following paragraphs summarize the multiple benefits of agroecology technologies, innovations and practices, demonstrating that they are technically feasible, affordable, politically, socially and culturally acceptable, locally-adapted and environmentally sound, thus meeting the key innovation assessment criteria defined in the previous chapter.

# Social, economic and institutional dimensions

**Providing stable yields and tackling hunger.** To meet the demand from a projected world population of almost 10 billion people in 2050, it is estimated that agricultural production will need to increase by 50% compared to 2013 (FAO, 2017). Nonetheless, facts are clear: while the world already produces enough food to feed the global population now and in four decades' time, 815 million people suffer from hunger around the world. Hunger is caused primarily by poverty, lack of democracy, exclusion of vulnerable groups, unequal or physical obstacles (e.g. in situations of conflict or displaced populations) to access food, natural resources and infrastructure, and not by insufficient food production and scarcity (de Schutter,

2009; Holt-Giménez *et al.*, 2012; CSM, 2018; LVC, 2018). In addition, about one-third of food produced for human consumption globally – approximately 1.3 billion tonnes per year, or a quarter of calories produced – is either lost or wasted (HLPE, 2014).

There are convincing data from a long series of studies showing that, over time, agroecological systems achieve more stable levels of total yield per unit area - while maintaining or lowering the costs of production - and even outperform high productivity systems. Whereas the yields of individual crops in agroecological fields are not necessarily higher than those obtained through input-intensive farming, the total agricultural output is larger because farmers rely on a diversified pool of crops and livestock. If sufficiently supported, agroecology can double agricultural productivity in entire regions within 10 years (de Schutter, 2010). A landmark study by Pretty et al. (2002), involving 9 million farmers on around 3% of all of the farmed land in 52 countries in Asia, Africa and Latin America, examined the extent to which farmers had improved food production in recent years with low-cost, locally-available and environmentally-sensitive practices and technologies. Among other things, they found yield increases of 50-100% for rain-fed crops such as maize and that the increases were typically bigger at lower yields, indicating greater benefits for the most impoverished farmers. A reexamination of the data in 2011, documenting benefits for 10.39 million farmers and their families employing different agroecological practices, showed an average crop yield increase of 113%, in addition to environmental benefits such as carbon sequestration, reduction in pesticide use and soil restoration.

Nevertheless, when assessing the productivity of farming systems, we must go beyond a narrow focus on yield. If we take the entire system into account, research shows that agroecological approaches consistently outperform conventional agriculture on a broad set of social and environmental sustainability criteria.

**Linking food to territories.** The term 'territorial markets' serves to underscore the reality that most food in the world is produced, processed, traded or distributed and consumed within a given territory, i.e. within local, national and/or regional food systems. These markets, which channel 80% of the food consumed in the world, are largely ignored by public statistics and policies, and provide a range of social, cultural and nutritional functions in addition to economic ones (CSM, 2016).

Key features of such initiatives include: transparency and fairness across food systems; fair prices and remuneration;<sup>8</sup> shorter distribution processes; improved physical access to food in rural, peri-urban and urban areas; an appreciation of the value of local, fresh, diverse and seasonal foods; realization of consumers' rights to control their food and nutrition; the reduction of intermediaries between producers, processors or distributors, and consumers; participatory guarantee systems; public procurement programs that guarantee market access for small-scale producers and local and healthy food for the population;<sup>9</sup> and the reduction of costs, losses and waste (in particular by improving food storage and preservation capacities, and through the direct coordination among producers and consumers).<sup>10</sup> By improving social and working conditions, increasing labor opportunities, securing incomes for small-scale producers, and stimulating and diversifying local economies, these markets strengthen the socioeconomic viability of agroecology and retain and redistribute wealth within territories.

*Experience demonstrates that smallholders and territorial markets are in many respects better equipped to deal with global challenges than global commodity markets. This is largely due to the multi<i>functionality of territorial markets involving smallholder agriculture and diversified farming systems.* Multiple marketing channels for selling and accessing food, with the possibility of relying on homegrown food or short circuits when this is the best option, mean that producers in territorial markets are less vulnerable to price swings in international markets and the breakdown of long, centralized agrofood chains, as happened during the 2007–2008 food crisis (CSM, 2016). Finally, these markets also contribute to reducing greenhouse gas emissions associated with energy use (e.g. for transport and refrigeration) and thus to reducing the effects of climate change.

Nutrition, health and sustainable livelihoods. Agroecology and territorial markets have the potential to ensure diversified and healthy diets, rooted in traditional food cultures, and access to affordable, nutritious, high-quality, fresh foodstuffs for rural and urban populations at all income levels. These products contain no pesticide residue nor genetically modified (GM) ingredients, are lower in unhealthy fats, ultra-processed foods, soft drinks, sugars and sweeteners, and higher in fiber and high-value nutrients than those provided by the industrial sector. Polycultures and mixed croplivestock farming systems, including fishponds, help to ensure that key nutrients are available throughout the year and provide proteins during hunger gaps. By tackling gender inequalities, agroecology also helps to address disparities in nutrition based on gender. Proactive approaches integrating the health and nutrition aspects of agroecology and of traditional medicines, as well as public awareness campaigns on healthy consumption patterns, are being carried out by agroecology's supporters. They are crucial to engender positive effects on public health (notably the significant decrease of non-communicable diet-related diseases) and undernutrition.<sup>11</sup>

Another significant health benefit of diversified agroecological systems comes from their production model, as they avoid exposure to pesticides and other harmful chemicals used in conventional agriculture, and drastically reduce contamination of water, soil, and air. This ensures healthy working conditions for agricultural workers and safe and uncontaminated foods for all, with positive impacts on the environment and human health, including reproductive health.

<sup>8</sup> By eliminating intermediaries, agroecological producers can receive a greater share of the price that consumers pay for food; producers can charge less and reach the large sector of the population that cannot otherwise pay for expensive food. Cooperatives help producers gain autonomy and self-sufficiency. Adding value on the farm is a way to enable the perpetual improvement of farm, pasture, forest or waterway.

<sup>9</sup> Public procurement programs for hospitals, schools, universities, care homes, prisons, public sector and government canteens (based on procurement protocols adapted to the realities of agreerodicial production).

agroecological production).
 Waste is also reduced through direct communication and awareness raising on the importance of reducing food waste; less use of packaging; an appropriate range of pack or portion sizes that meet the needs of different households; reallocation of food for animal feed, recycling food for energy through anaerobic digestion, and recovery for compost.

<sup>through anaerobic digestion, and recovery for compost.
We live in a world dominated by poorly nutritious (empty calories) or plainly unhealthy food choices making a balanced, diverse and nutritious diet unaffordable, unattainable or inconvenient for the average citizen across the world. Poor diets are now the number one driver of disease globally, linked to six of nine lead causes of disease. Diets are also the second leading factor for early death after smoking and have an impact on at least 12 of the SDGs. See: GLOPAN Policy brief N.10; Global Burden of Disease, 2016.</sup> 

# WHY AGROECOLOGY IS THE INNOVATIVE APPROACH TO BE SUPPORTED CONTINUED

Preservation and sharing of cultural diversity and knowledge. For millennia, traditional agroecological systems have been developed based on principles of cooperation, integration and dialogue among communities and with nature. The majority of the world's food is produced or harvested at relatively small scales by communities, based on local collective, diverse and dynamic knowledge and practices, using locally-based technologies and available resources. Indigenous peoples, peasants, pastoralists, artisanal fisherfolk, forest dwellers and others are custodians of thousands of years of research, creation, improvement and exchange of knowledge and skills to produce food, clothing, medicines, seeds, livestock, etc. Their knowledge is based on observation and on experimental learning. This includes detailed local knowledge of productive resources and the surrounding environment (soil conditions, plants, rainfall patterns, etc.); over time and bottom-up assessment of technologies, innovations and practices according to their suitability to local systems and circumstances. For indigenous peoples, the protection of traditional knowledge is carried out in accordance with their worldviews, values, needs and traditional legal systems. This has made an extraordinary biodiversity-based agriculture possible while ensuring the survival of society and respecting the environment and ecosystems.

Diverse local knowledge processes, traditions, food, language, spirituality and technologies are fundamental in transforming food systems, as well as the peoples who keep their material, natural and cultural heritage alive through daily life. In that sense, culturally relevant, decentralized, horizontal and peer-to-peer, bottom-up and participatory processes of learning and knowledge creation (peasant-to-peasant, fisher-to-fisher, pastoralist-to-pastoralist, consumer-and-producer, etc.) have been strengthened within small-scale producers' movements and other constituencies. Most of these processes take place in the training centers and schools of the organizations – which can be local, national or international in scope – and territories.

Examples of training centers on agroecology are La Vía Campesina-CLOC's Institutes of Agroecology of Latin America (IALA), Peasant University (UNICAM-SURI) and schools of agroecology, in which rural youth from peasant organizations, as well as peri-urban and urban youth in many cases, are participating in Argentina, Chile, Brazil, Paraguay, Nicaragua, Colombia and Venezuela. In particular, they promote intergenerational practices, with exchange and transmission of knowledge and technology between elders and youth and across different traditions, including new ideas that inspire young people to engage and carry forward their permanent regeneration. The Campesino a Campesino movement for sustainable agriculture started in Central America in the early 1970s and is now widely recognized as one of the best ways to develop and promote agroecology. It is based on a dynamic methodology in which farmers not only share information and techniques, they also share abstract agroecological concepts, knowledge and wisdom, using models, demonstrations, games, songs, poems and stories. They not only share what to do, but also how and why their methods work. In order to learn together and to teach each other agroecology, farmers form teams and carry out small-scale experimentation, and then share their results at workshops and on-farm visits. One emblematic case is the Campesino a Campesino agroecology movement adopted by the National Association of Small Farmers, ANAP, in Cuba, which played a key role in helping Cuba survive the crisis caused by the collapse of the socialist bloc in Europe and the tightening of the US trade embargo. Agroecology significantly contributed to boosting peasants' food production without scarce and expensive imported agricultural chemicals by first substituting more ecological inputs for the no longer available imports, and then by making a transition to more agroecologically integrated and diverse farming systems. These practices resulted in additional benefits including resilience to climate change. (Holt Giménez, 2006; Machin Sosa et al., 2013).

**Transparency and access to information.** A core aspect for strengthening the actions of raising awareness and building the agroecology movement is the broader reconnection of the general public, in particular young people, with the process of food production, in other words with the realities of the food they eat and its true cost and connections with realities at local level and global issues. *Transforming "the ways in which knowledge is gathered and transmitted, understandings are forged, and priorities are set" is a condition of reforming food systems practices (IPES-Food, 2017).* Communication and dissemination of information, both by social movement communicators and trained journalists, play an important role in allowing agroecological practices and those most affected by food systems and global challenges to gain higher power, visibility and influence.



Latin American School of Agroecology, Via Campesina, Brazil. © Biby Rojas Flores / La Via Campesina

FIGNTY

02

The central role of rural women. Historically, rural women have had a key role in the care economy and household responsibilities through their reproductive work. This includes not only the physical, psychological and emotional care of others, especially children and elderly people, but also the provision and preparation of food, and fetching water and fuelwood. Their productive work is also fundamental, as traditionally women have been a driving force for the stewardship, conservation and development of rural areas, both in cultural and economic terms. They work in kitchen gardens, on plots of land with other family members or as agricultural laborers, and in preparing, processing, distributing and marketing food. Their experiences and contributions to food production are not only based on the fact that they produce 80% of foodstuffs in the poorest countries, but also on their knowhow and agroecological technologies, innovations and practices. They have played a historic role in gathering and sowing seeds, producing vegetables and medicinal plants, rearing animals, preserving important knowledge about crops (how to look after, prepare and use them) and in safeguarding biodiversity and genetic resources. Women's knowledge, as well as the variety of the seeds they conserve, is enriched by exchange. Additionally, women are key holders of and carbon storage. knowledge around food production and preparation even after migrating into cities. Nonetheless, women and girls across the world, in both rural and urban areas, often continue to occupy an invisible domestic and social sphere, and face many constraints and inequities based on gender. In the last section of this document we

In Tajikistan, Zan va Zamin (Women and Earth) is a grassroots organization founded in 1999 by a small group of women activists that focuses on tenure securitization and land access; the conservation of biodiversity and preservation of traditional knowledge, and the creation of farmer associations and cooperatives. To date, it has helped more than 1,200 women gain legal title over their land. It runs community nurseries and encourages women and elders in their role as custodians and transmitters of agricultural heritage. It helped to create more than 30 seed banks to give farmers access to seed varieties. Its twelve field schools produce at least 1,000 tons of vegetables annually, while community orchards supply saplings and maintain more than 10,000 fruit trees. It also provided solar vegetable dryers, solar-powered greenhouses, and energyefficient ovens to local communities. Their important work helps to create more resilient ecosystems, fewer food shortages, increased food sovereignty and better local incomes.<sup>12</sup>

provide recommendations in order to address these issues.

Peasant seeds exchange. © La Vía Campesin

# **Environmental dimensions**

Restoring ecosystems, soil health and preserving biodiversity. A challenge is not only to change policy and societal support in favor of ecologically sustainable production, but also to keep alive the values and the resources needed for this production system, as well as the economic and ecological resilience of farming structures so that they can be taken up and used by the next generations. Evidence shows that agroecological management of land, soils, water and biodiversity carried out collectively by small-scale food providers and their communities are succeeding in preserving and rehabilitating rural environments, fish stocks, landscapes and food traditions. The ecological strategies inherent in agroecology help to restore and regulate key elements of ecosystems, including: water quality and regulation of water flow; nutrient cycling; biological nitrogen fixation; natural regulation of pests; pollination; biodiversity conservation; protection against soil salinization, erosion, and flooding; agricultural biomass for energy; animal feed; foodstuffs. They also enhance the retention and effectiveness of soil nutrients and intensify soil microbial activity, which, in turn, restores soil quality and increases soil fertility for agricultural use

Preservation and renewal of genetic resources. The dynamic management of agricultural biodiversity within territories (i.e., in situ) is a cornerstone of agroecology, in order to preserve and renew these natural resources, including plant and animal genetic resources. For thousands of years the production of foodstuffs for human consumption has been based on the use of native seeds saved and exchanged by indigenous peoples, peasants and other small-scale food providers and seed guardians. Using their own knowledge, capacities and skills, they domesticated wild species, adapting, improving and reproducing them in their own territories and in territories with distinct ecosystems (e.g., through inter-tribal and cross-border seed exchanges), climatic conditions and environments to satisfy their food needs and those of others. The majority of native and creole genetic materials still remain in the hands of small-scale food providers.



# WHY AGROECOLOGY IS THE INNOVATIVE APPROACH TO BE SUPPORTED CONTINUED

There is a myriad of ecologically-based agricultural styles developed by at least 75% of the 2 billion peasants, family farmers, indigenous peoples and other small-scale food producers, largely women, on 500 million small farms, which account for about 80% of the world's food production. Most of the food consumed today in the world is derived from 2.1 million peasant-bred plant varieties of 7,000 domesticated plant species, and mostly produced without agrochemicals. 80-90% of peasants' seeds are saved, shared or locally traded (FAO, 2014; ETC Group, 2017). Other data show that small farmers are preserving landraces of important food crops including 75% of the global seed diversity of staple food crops such as maize, rice, wheat and potatoes (Penn State University, 2015). While the advance of industrial agriculture has led to an accelerated process of loss of diversity of edible plant species and animal breeds for consumption, the diversity of innovative approaches based on these seed systems are central to sustainable agriculture and food systems, as they are connected to cultural and culinary traditions, health and wellness, resilient agroecological landscapes, and sustainable local economies. In Uruguay, the Red Nacional de Semillas Nativas y Criollas (National Network of Native and Creole Seeds), together with farmer families, is implementing a project to conserve creole seeds (pumpkin, sweet potato, maize and beans) for culinary use, animal feed, soil improvement, etc. This makes it possible to rescue local knowledge of seed care, increase the number of available seeds – many of which were considered to have disappeared – and facilitate distribution among farmers. It also contributes to validating *in situ* conservation techniques, associated with an agroecological management of the productive space, favoring biodiversity, the resilience of agroecosystems and the autonomy and food security of these families.



Have a look at Vía Campesina's "Adopt a Seed" action in the framework of its Global Campaign for Seeds, a heritage of Peoples in the Service of Humanity. See: https://viacampesina.org/en/16-october-lavia-campesina-relaunches-global-campaignfor-seeds-a-heritage-of-peoples-in-the-servic e-of-humanity/

# WORLD'S FOOD PRODUCTION: WHY IS INNOVATION BY SMALL-SCALE PRODUCERS VITAL?



02

Harnessing food systems to stop climate change. Agroecological mitigation and adaptation actions do not focus only on the production of crops, fish, and livestock, but also on pre-production (e.g., biofertilizers, seeds, feed, farm implements, irrigation systems, information, and research and development) and post-production (storage, packaging, transportation, manufacturing, and short circuits retail) activities, as they also contribute significantly to climate change. Special attention is also given to reducing food loss (pre-consumer) and waste (consumer level), and disposal management (post-consumer) throughout the food system, as recommended in Niles et al. (2017). Substantial evidence (GRAIN, 2017; Afrika Kontakt and La Vía Campesina, 2018; Oxfam, 2014) already shows that agroecology's holistic approach is a primary solution to contribute to global efforts to mitigate climate change and to foster resilient food systems able to adapt in a changing environment. In particular, carbon sequestration in healthy soils, together with carbon sequestration in vegetation and reduced dependency on fossil fuel through sustainable use of locally available resources, are leading to a reduction in greenhouse gas emissions and to the improvement of the adaptive capacity and resilience of agricultural production to climate change.

Resilience to conflicts and environmental disasters. Conflicts, wars, occupations, natural and human-made disasters, financial crises and institutionalized material discrimination are increasing in their frequency, scope and impact, affecting a growing number of peoples throughout the world. Evidence is particularly strong on the ability of agroecology to cope with and mitigate the impacts of disasters. Through traditional methods such as intercropping, soils protection, development and preservation of locally-adapted seeds and higher agricultural biodiversity on fields, agroecological systems have consistently proven more resilient than conventional farming to extreme weather events due to climate change. Several cases in the last two decades have been reported from Central America (Nicaragua, Honduras and Guatemala), Mexico (Chiapas) and Cuba in which farmers using more diversified farming systems suffered significantly less damage after extreme climatic events than those with monocultures. For instance, a study using a participatory research approach found that, on average, agroecological plots on sustainable farms had more topsoil, higher field moisture, more vegetation, less erosion and lower economic losses than control plots on conventional farms after Hurricane Mitch in Nicaragua in 1998 (Altieri and Koohafkan, 2008; Holt-Gimenez, 2001). Case studies in Bolivia, Kenya and China also found that local crop diversity has been key in enabling farmers to adapt to worsening pests, drought and increased climate variability (Swiderska *et al.*, 2011).



Transition to agroecology is possible, all around the world. **Have a look** at IPES FOOD (2018). *Breaking away from industrial food and farming systems: Seven case studies of agroecological transition*. Available at: http://www.ipes-food.org/new-report-sevencase-studies-of-agroecological-transition.

# MAINSTREAMING AGROECOLOGY: DRIVERS FOR SCALING UP AND SCALING OUT

Agroecology as a transformative movement has gained momentum in many countries worldwide. As asserted by Mier et al. (2018), "bringing agroecology to scale is situated within the pressing need to transform agri-food systems". They define the 'massification", scaling, "amplification," or "territorialization" of agroecology as a process that leads ever-greater numbers of families to practice agroecology over ever-larger territories and which engages more people in the processing, distribution, and consumption of agroecologically produced food. Scaling agroecology combines vertical (scaling up) processes, which are mostly institutional in nature, and horizontal (scaling out) processes, which comprise geographical and social spread to more people and communities and are often associated with grassroots movements. Scaling means that a greater fraction of the population, both urban and rural, can produce and access healthy, nutritious, diverse food at local/territorial level that is environmentally compatible and culturally appropriate.

Peasant movements carried out an analysis that allows them to identify eight key drivers of the process of taking agroecology to scale: (1) recognition of a crisis, which motivates the search for alternatives, (2) social organization, (3) constructivist learning processes, (4) effective agroecological practices, (5) mobilizing discourses, (6) external allies, (7) favorable markets, and (8) favorable policies. This initial analysis shows that organization and social fabric are the growth media on which agroecology advances, with the help of other drivers. A more detailed understanding is needed of how these multiple dimensions interact, reinforce, and generate positive feedback with each other, as well as on the policies they require, to make agroecology's territorial expansion possible.

In India, Zero Budget Natural Farming (ZBNF), a grassroots peasant agroecology movement in Karnataka, has achieved massive scale, in part because of effective farming practices and by ending reliance on purchased inputs and loans for farming. And also because ZBNF has positioned itself as a solution to extreme indebtedness and suicides among Indian farmers thanks to its social movement dynamic – motivating members through discourse, mobilizing resources from allies, self-organized educational activities, charismatic and local leadership, and generating a spirit of volunteerism among its members (Mier *et al.*, 2016; Khadse *et al.*, 2018). This example, like that of the *Campesino a Campesino* movement in Cuba, show that peasant movements bring an advantage to the scaling up of agroecology.

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# WHY AGROECOLOGY IS THE INNOVATIVE APPROACH TO BE SUPPORTED CONTINUED

# **AGROECOLOGICAL TECHNIQUES INNOVATIONS & PRACTICES**

AT THE FIELD, FARM AND LANDSCAPE LEVEL, A WIDE VARIETY OF AGROECOLOGICAL PRACTICES BASED ON DIVERSIFICATION OF SYSTEMS AND PRODUCTS ARE CONSIDERED TO BE THE MOST STRATEGIC TO ENSURE THE SURVIVAL OF PRESENT AND FUTURE GENERATIONS.

#### PEASANTS, FAMILY FARMERS & OTHER SMALL-SCALE FOOD PRODUCERS:

- > DIVERSIFICATION & PRESERVATION OF CROP VARIETIES, LOCAL SEEDS & LIVESTOCK BREEDS
- INTEGRATION OF CROPS, TREES, LIVESTOCK, FISH;
- AGROFORESTRY;
- SOLAR FOOD DRYING & STORAGE;
   MINIMIZING THE USE & DEPENDENCY ON NON-RENEWABLE EXTERNAL RESOURCES;
- MANURE APPLICATION & COMPOSTING;
- COMMUNITY ECOSYSTEM MONITORING;

# <₽

# TRADITIONAL, ARTISANAL OR SMALL-SCALE FISHERIES:

COMMUNITY-BASED MANAGEMENT TO CONSERVE & REGENERATE FISH POPULATIONS, FISHING GROUNDS, CORAL REEFS, MANGROVE SWAMPS & OTHER FISH HABITATS;

## TRADITIONA CROSS-BOR > CONSERVATION

>

#### TRADITIONAL MIGRATORY & CROSS-BORDER PASTORALISM:

CONSERVATION OF GRAZING TERRITORIES & UTILIZATION FOR MEAT, MILK, FIBER, FUEL & OTHERS;



# FOREST DWELLERS:

LIVING BY THE DIVERSITY OF NON TIMBER FOREST PRODUCTS.

## INDIGENOUS PEOPLES:

ACCESS TO NATURAL RESOURCES IN THEIR TERRITORIES, IN PARTICULAR FOR HUNTING & GATHERING.

# WORKERS:

> RURAL & URBAN.

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# INNOVATIONS THAT DEEPEN THE AGRIFOOD CRISIS

03



Woman on Peasant food market, Brazil. © La Via Campesina

The growing international recognition of agroecology has led to multiple reinterpretations of the concept by different actors and interest groups, as part of their vision of the future of food that either seeks to conform to the dominant industrial food and farming system, or to radically transform it. In this section we illustrate how the former entails the risk that the term 'agroecology' is misused in order to pursue specific interests not necessarily coherent with its principles and its original purposes. We also expose the vested interests behind various other so-called innovative approaches for sustainable agriculture and food systems, that will actually keep society on the path of business and impacts as usual.

## DIVERGENT INTERPRETATIONS AND USES OF AGROECOLOGY

Agroecology, as seen and practiced by small-scale food producers and their communities, is often embedded within a sociopolitical context and in agrarian movements against corporate, industrial agriculture and neoliberal trade policies, especially in Latin America, Asia and Africa (Holt-Giménez and Altieri, 2016). In addition, industrial agriculture is facing certain systemic limits, and there is a growing awareness and rejection worldwide of transnational corporations' control over food, their practices and negative impacts. But in the arena of the agroecological debate, some academics, big NGOs and philanthropists, and institutions intimately tied to the interests of transnational agribusiness have reacted to this situation through apolitical narratives and by promoting 'climate-smart agriculture', sustainable intensification, and others. Presented as 'triple-win' options to achieve economic benefits, food security and climate change adaptation and mitigation, these are lucrative false solutions that seek to incorporate certain agroecological practices into the dominant agribusiness model, while maintaining the structural characteristics and dependencies that have led to the current global crises (Nyéléni, 2015).

03

These models seize certain agroecological practices and combine them with patented seeds, transgenic plants and animals, monoculture for international trade and, most importantly, the same vision of private accumulation of the fruits of our planet and of workers. First, seeing agroecology only as a toolbox, from which some practices can be selectively incorporated and combined with more mainstream technologies of large-scale, high-external-input industrial farming is unlikely to reduce these farms' environmental impacts significantly. Second, this co-optation of agroecological practices does not challenge underlying relations of power in prevailing agriculture and food systems and the ways in which large-scale, industrial monocultures undermine the existence of the smallholders who farm agroecologically and the viability of ecosystems. There is also an intent to co-opt agroecology by stating that it is an option that can be practiced along with other methods such as biotechnologies, transgenic crops, micro-dosing of fertilizers and herbicides, and integrated pest management which have little to do with the complex management of biological interactions evoked by agroecological principles. In this way the term agroecology would be rendered meaningless, like 'sustainable agriculture', a concept divorced from the reality of small-scale food producers and the politics of food, the environment and climate (Altieri, 2012). Agroecology and industrial agriculture are not interchangeable concepts nor practices and cannot coexist. They represent two fundamentally different visions of development and well-being.

In the following sections we discuss some of the false solutions presented as an innovative way out of the agricultural and food system crisis. The objective of this publication is not to review and evaluate exhaustively and thoroughly all existing technologies and practices defined as innovate approaches; we chose to limit our discussion to a short analysis of three such approaches,<sup>13</sup> and provide elements to evaluate them based on the criteria defined in the first chapter. As we will see, their creation and implementation processes are tailored by and for agribusiness corporations and the biotechnology industry. Furthermore, they entail a series of risks and impacts, especially on small-scale food providers, workers, and the environment. This led us to conclude that they do not respond to a minimum requirement that would ensure their sustainability.

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Recommended publications by ETC Group to read more:

- >> Between BlackRock and a Hard Place. Is the Industrial Food Chain Unravelling... or Rewinding? Available at: http://www.etcgroup.org/content/between-blackrock-and-hard-place
- Forcing the Farm. How Gene Drive Organisms Could Entrench Industrial Agriculture and Threaten Food Sovereignty. Available at: http://www.etcgroup.org/content/forcing-farm
- >> Blocking the Chain. Industrial food chain concentration, Big Data platforms and food sovereignty solutions. Available at: http://www.etcgroup.org/content/blocking-chain

The sudden increase of mega-mergers in the agri-food sectors and consolidation of corporate concentration throughout the entire industrial food chain (seeds, agrochemichals, fertilizers, livestock genetics, animal pharmaceuticals and farm machinery) is celebrated by some actors for creating a dynamic innovation climate. Nevertheless, while R&D spending in the sector is high (\$7 billion in 2013), the scope remains narrow. Industry focuses on crops and technologies with the highest commercial returns; for instance, 40% of private breeding research goes to one crop, maize. Furthermore, a common trend is for large firms to buy emerging 'healthy' or 'sustainable' brands to fill their innovation gaps in this sector, while at the same time stifling innovation and compromising the commitment to sustainability of these smaller firms.

Source: IPES-FOOD (2017). *Too big to feed.* Available at: http://www.ipes-food.org/images/Reports/Concentration\_FullReport.pdf;

# CLIMATE-SMART AGRICULTURE

The FAO began talking about 'climate-smart agriculture' (CSA) in 2009 as a way to bring agriculture - and its role in mitigation, adaptation and food security – into the climate negotiations.<sup>14</sup> The Global Alliance for Climate-Smart Agriculture (GACSA),<sup>15</sup> launched in 2014, includes national governments, agribusiness lobby groups (the majority representing the fertilizer industry),<sup>16</sup> the world's largest network of public agricultural scientists - the Consultative Group on International Agricultural Research (CGIAR) – universities and NGOs. The 2017 report Too big to feed by the International Panel of Experts on Sustainable Food Systems (IPES-FOOD) shows that agrichemical corporations and their lobby groups are strongly represented in the major alliances and initiatives promoting CSA today. For example, CSA is one of eight main priority areas of the World Business Council for Sustainable Development's Low Carbon Technology Partnerships Initiative (LCTPi), which involves major corporations in the food and agriculture-related sectors. This program is co-chaired by Monsanto and includes Yara, DuPont, Dow, Olam, Walmart, Tyson Foods, PepsiCo, Diageo, Starbucks, Kellogg's, Jain Irrigation, ITC, Uniphos, Coca-Cola and Unilever.

Many other approaches could be analyzed, such as: precision agriculture (based on digital transition and robotics); biofortification; biocontrol; the use of GM mosquitos to fight malaria in Africa; eagriculture and job creation for rural youth centered on Green Economy and digital technologies.
 See FAO news release, "Promoting Climate-Smart Agriculture", on the launch of its report, *Food*

See FAO news release, "Promoting Climate-Smart Agriculture", on the launch of its report, Food Security and Agricultural Mitigation in Developing Countries: Options for Capturing Synergies (2009): www.fao.org/news/stony/en/item/36894/icode/. Two FAO conferences dedicated to Climate-Smart agriculture, organized with the World Bank and a small group of governments, followed in 2010 & 2012.
 http://www.fao.org/gacsa/en/. List of members: http://www.fao.org/gacsa/members-list/en/.

http://www.adouggaca.eu/eu/exector members intep://www.adouggaca.eu/en/ee/exector members/ist/en/ee/exector members of the Alliance represent the fertilizer industry (GRAIN, 2015; CIDSE, 2015). "The Big Six (BASF, Bayer, Dow, DuPont, Monsanto, Syngenta) are the engines of industrial agriculture. With collective revenues of over 565 billion in agrochemicals, seeds and biotech traits, these companies already control three-quarters of the global agrochemical market and 63% of the commercial seed market" (ETC Group, 2016).

# INNOVATIONS THAT DEEPEN THE AGRIFOOD CRISIS CONTINUED

These actors embrace and promote tools of synthetic biology ('SynBio') as the latest, greatest game-changing technology for adapting plants and microorganisms to increase crop yields and combat climate change. This term refers to the use of computerassisted, biological engineering to design and construct new synthetic life forms, living parts, devices and systems that do not exist in nature. It also refers to the intentional redesign of existing biological organisms using these same techniques. The report Outsmarting Nature: Synthetic Biology and 'Climate Smart' Agriculture by ETC Group & Heinrich Böll Stiftung (2015) highlights techniques such as enhancing photosynthesis, genetically engineered rice plants, drought-resistant seeds, engineering nitrogen fixation for self-fertilizing crops, gene drives<sup>17</sup> and reversing pesticide resistance. These examples illustrate how CSA seek to reinforce business-as-usual, for example through the genetic manipulation of wild populations of weeds and insects to reverse resistance or make them more susceptible to chemical pesticides. It is a dangerous, distorted and unacceptable objective that has nothing to do with truly sustainable solutions to address climate change. It is a classic technological fix that seeks to address a problem created by biotech's failed technology (herbicide tolerant crops), and a new way of *commodifying and appropriating nature.* If realized, it will entrench chemical-intensive industrial and corporate farming and reinforce peasants' dependence on toxic agrochemicals and other industrial inputs. And it is also not clear what the medium- and long-term impacts may be in relation to health and the environment.

# Furthermore, *while claiming to use agroecological approaches (e.g. agroforestry), CSA does not exclude practices and technologies that can undermine, or are incompatible with them.* Among others, it promotes and embraces an eclectic mix of herbicide-tolerant crops, toxic insecticides and fungicides, GM seeds, livestock and fish, proprietary technologies and patents on seeds, as well as energy-intensive livestock factory farming, large-scale industrial monocultures and biofuel plantations, and carbon-offset schemes (Pimbert, 2018).

In 2015 more than 350 civil society organizations from around the world urged global decision-makers to oppose GACSA, charging that the initiative opens the door for agribusiness greenwashing while undermining agroecological solutions to climate change. Their open-letter<sup>18</sup> expresses their concerns on: the lack of solid criteria or definitions for what CSA is or is not; carbon offset schemes in agriculture as one more driver of land dispossession of smallholder farmers, particularly in the Global South; the unfair burden of mitigation on those who are most vulnerable to, but have least contributed to, the climate crisis; the lack of social or environmental safeguards and check-ups to ensure that those who call themselves 'climate-smart' are actually acting climate smart; and the failure to prioritize farmers' voices, knowledge and rights as key to facing and mitigating climate challenges.

**Recommended** website for more information on synthetic biology assessment and governance:

>> Building International Capacity on Synthetic Biology Assessment and Governance (BICSBAG) Project http://www.synbiogovernance.org/

# SUSTAINABLE INTENSIFICATION

While the term 'sustainable intensification' has been in existence for two decades, its use has only recently become mainstream and has also been incorporated into CSA. It was originally conceived as an approach based on three fundamental assumptions about food security and agricultural production in the 21st century: 1) the world needs to produce significantly more food in the coming decades to feed a growing population; 2) the arable land base cannot be expanded significantly; and 3) agricultural production must become more sustainable and resource efficient in order to preserve the natural capital on which agriculture relies. Considered together, these three assumptions imply that agricultural production on existing arable land must intensify in order to meet higher demand, but in a manner which does not damage the environment (FoEI, 2012; Cook et al., 2015). Nevertheless, the first assumption ignores the evidence, already stressed by the FAO and many others, of the importance of measures to redistribute food and reduce waste rather than increase production, and the latter is linked to the strongly criticized 'Green Economy' approach.<sup>19</sup>

## **Business as usual**

The way the term sustainable intensification is currently being used by agribusinesses and some research organizations and highlevel funders is now coming under severe criticism from small-scale food producers and various civil society organizations, because of the risks it entails. They denounce the fact that, as it is grounded in the concept that "no techniques or technologies should be left out",<sup>20</sup> its promoters are using it to justify a repackaging of intensive, high-input models and the use of proprietary technologies, such as regulated and unregulated biotechnologies (e.g. GM crops with altered photosynthetic properties), as the means to achieve it. In general, sustainable intensification lacks a holistic and multidimensional approach. For instance, when focusing on crop production, it fails to address the farming system as a whole, including livestock and fisheries, which is a necessity for achieving food sovereignty.

## Recommended reading:

The report, published already 6 years ago to warn on Sustainable intensification's implications, by Friends of the Earth International (2012): A Wolf in Sheep's Clothing? An analysis of the 'sustainable intensification' of agriculture. Available at: https://www.foei.org/wpcontent/uploads/2013/12/Wolf-in-Sheeps-Clothing-for-web.pdf.

<sup>17</sup> Gene drives are a controversial new technology that uses CRISPR-Cas9 to spread a specific genetic trait through an entire species or population – in some cases with the purpose of driving species to extinction. Current gene drives experiments have been conducted on insects, rodents and plants. If the inserted genetic trait results in only male offspring, as is being attempted for rodents and mosquitoes, a full wild population or even a species could go extinct. As far as is known, gene drives have never been released into the environment anywhere in the world. For more information, see: http://www.etgroup.org/content/reckless-driving-gene-drives-and-end-nature; http://www.etgroup.org/content/cop-13-gene-drives-faq.
18 https://www.iatp.org/sites/default/files/2015\_09\_17\_GACSA%20statement%20FINAL.pdf

 <sup>18</sup> https://www.iatp.org/sites/default/files/2015\_09\_17\_GACSA%20statement%20FINAL.pdf
 19 "A 'Green Economy' is defined as an economy that reduces impact on the environment. Many advocates promote pricing mechanisms for valuing nature as a key way to factor in environmental costs into the economy that are otherwise externalised and ignored. While this may sound a good idea in theory, in practice this ends up extending corporate control into new areas from forestry to biodiversity and even the air (carbon trading), often denying access and undermining the control of marginalised communities". See more on the webpage of the Transnational Institute: https://www.tni.org/en/collection/green-economy.

https://www.tni.org/en/collection/green-economy.
 See: Royal Society, Reaping the Benefits: Science and the sustainable intensification of global agriculture, Policy document 11/09. (Royal Society: London, 2009).

03

## Capturing funding and policy support

While agroecology is proposed as a means to increase productivity, very little money actually goes to developing and scaling out its practices. Inn practice it is the biotechnology part of sustainable intensification that is getting much of the increase in funding: since the advent of this strategy, the CGIAR – whose top five donors are now the Bill & Melinda Gates Foundation, the USA, UK and Netherlands Governments and the World Bank - has an annual research portfolio of just over US\$900 million. Most of its budget goes to developing improved varieties of maize, rice and wheat, a significant part of which uses GM technology. Nevertheless, the CGIAR admits it has not collected much evidence about whether GM technology improves yields, nor reduces poverty or the effect on the environment.<sup>21</sup> In addition, sustainable intensification also promotes liberalized trade and the incorporation of small-scale producers into export-oriented markets. It is, however, highly questionable to what extent they can benefit from these systems; in many instances global value chains have acted, rather than as an instrument of development, as a new source of inequality, subjecting small-scale producers to a high degree of debt and precariousness (CSM, 2016). Finally, many GM crops are already resistant to old toxic herbicides, meaning that the problem of herbicide-tolerant weeds only seems likely to get worse, while at the same time increasing chemical use in farming (Mortensen et al, 2012).

Biotech companies have been working on a new generation of technologies to change genetic material in plants or animals, and it has long been debated whether they need to match the EU's rules on genetic modification. In July 2018, the European Court of Justice said that organisms obtained by *mutagenesis*, otherwise known as 'new breeding techniques' "come, in principle, within the scope of the GMO Directive and are subject to the obligations laid down by that directive." This ruling, which will see the foods face special safety checks and labeling restrictions, is a major victory for small-scale producers and environmentalists at the expense of the biotech industry, and needs to be implemented in reality.<sup>22</sup>

- 21 See: https://www.cgiar.org. In particular, CGIAR Financial Report 2016:
- https://cgspace.cgiar.org/bitstream/handle/10947/4666/2016-CGIAR-Financial-Report.pdf?sequence=1; and CGIAR Strategy AND Results Framework 2016-2030: https://cgspace.cgiar.org/handle/10947/3865
   https://www.thepartiamentmagazine.eu/articles/news/ecj-rules-news/becading-techniques-are-gmos; & https://gain.fas.usda.gov/Recent%20GAIN%20Publications/EU%20Court%20Extends%20GMO%20 Directive%20to%20New%20Plant%20Breeding%20Techniques\_Brussels%20USEU\_Belgium%20EU-28 7-27-2018.ndf.
- 23 The new package promises to transform food systems with "transforming technologies", such as, among others: nutrigenetics for personalized nutrition; Big Data and advanced analytics for insurances; traceability through Blockchain; precision agriculture to "optimize the use of agricultural inputs and water" based on big data; genetic editing (e.g. CRISPR technology); and microbiome technologies to increase crop resilience.
- technologies to increase crop resilience.
   Under the impetus of the World Tade Organization, the World Bank and the IMF, and through free trade agreements and laws protecting seed and breeders' rights, such as the International Union for the Protection of New Varieties of Plants (UPOV) standards, the seed system controlled by large companies only allows the circulation of its own seeds, criminalizing the saving, exchange, donation and sale of local farmer seeds in various countries. Three companies, Monsanto-Bayer, Syngenta-ChemcDina and Dupont-Dow, control more than 50% of the world's commercial seeds increasingly genetically modified seeds to resist herbicides and produce insecticides. See: https://viacampesina.org/en/16-october-la-via-campesina-relaunches-global-campaign-for-seeds-a heritage-of-peoples-in-the-service-of-humanity/. On seed laws that criminalize farmers, see: https://www.grain.org/article/entries/5175-seed-laws-that-criminalise-farmers-poster-map-tables-and-additional-country-cases.

# DIGITALIZATION

Digitalization is an increasing trend that, together with dematerialization and financialization, is profoundly reshaping food systems, for instance by shifting power to new actors who are often increasingly distant from food production and altering the conception of the food market and food consumption habits within urban centers and beyond. The actors that promoted the Green Revolution now recognize its failure but claim to have found the way out: the "Fourth Industrial Revolution (4IR), characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres" (Filardi and Prato, 2018).<sup>23</sup>

Digitalization occurs when the production of food is increasingly informatized and commodified. It starts with agricultural inputs, such as seeds, which are transformed into digitalized objects. This can be seen in the case of DivSeek, a data gathering project that intends to sequence genetic information from seeds in order to patent it, leading to its commodification. At the same time, the physical exchange of real seeds by peasants is illegal in some countries.<sup>24</sup> And as e-commerce and online delivery become more widespread, traditional territorial markets are undermined.

These technologies will have new impacts on the human right to adequate food and nutrition and on food sovereignty. Not only do digitalization processes contribute to the dispossession of peasants' knowledge and access to resources, by widening the gap between producers and consumers, they also facilitate the concentration of economic and political power into the hands of a new set of remote actors that master information and financial means. In addition, operating within the immaterial world, the actors promoting these technologies tend to escape the boundaries of the physical and territorial notions of the nation state and bypass democratic accountability.

**Source** of this section and **recommended** reading:

Right to Food and Nutrition Watch. When Food Becomes Immaterial: Confronting the Digital Age. Available at: https://www.fian.org/en/news/article/when\_food\_becomes\_immat erial\_confronting\_the\_digital\_age/





# THE WAY FORWARD: RECOMMENDATIONS FOR PUBLIC POLICIES ON THE INNOVATIONS TO SUPPORT

# 04



Agroecological family farm in El Salvador. © FoEl / Jason Taylor

In the previous sections we presented and contrasted agroecological innovative approaches promoted by and for small-scale food providers and their allies, and other 'innovative' approaches proposed by supporters of high-input industrial farming models. For that, we proposed an analysis of their main principles and effects, in a way that they can be evaluated based on the list of criteria established in the first section. As a result, agroecology proves to be the best approach for actually innovating and achieving the sustainability of agriculture and food systems. Nevertheless, until now, few resources and little policy support have been directed to agroecology despite its potential to address the multiple challenges facing agriculture. The barriers to scaling up and scaling out agroecology need to be addressed, while an enabling policy environment is needed to shift the world onto a sustainable and resilient path (De Schutter, 2010). Governments have a crucial responsibility in the face of the multifaceted crisis facing the planet. There is a growing chorus of voices from small-scale food providers and consumers' movements, academia and civil society, proposing agroecology as a crucial solution that deserves institutional support. The investment of public funds and the inclusive design of supportive public policies must take into account a conception of the agroecological transition at different scales and rooted in the social, ecological, cultural, economic and political aspects.



Small-scale farmer Felicita Aguilar from El Salvador. © FoEI

04

# SHIFTING PARADIGM FOR SUSTAINABLE FOOD & AGRICULTURE SYSTEMS: FOOD SOVEREIGNTY

Since it was first mentioned in UN discussions by La Vía Campesina at the 1996 FAO World Food Summit, the transformative power of food sovereignty has gained much attention and strength at all levels, together with the recognition of smallholder agroecological production as a crucial alternative model to feed the world, fight rural poverty and combat climate change at the same time. This acknowledgment has spread from territories to international institutions for global governance of food and agriculture, including former and current special rapporteurs on the right to food (Ziegler, 2004 and 2008; de Schutter; Elver, 2014, HLPE, 2013; IAASTD. 2008; COAG, 2010). The concept of food sovereignty has been enshrined in the constitutions of some countries around the world. More than 30 countries have already developed public policies and programs that support agroecology through integrated and context-specific approaches, in particular by promoting inter-ministerial mechanisms, the involvement of family farmers and other food system actors, and territorial approaches.<sup>25</sup>

Food sovereignty entails the right of all peoples, nations and states to define their own food, agriculture, livestock and fisheries systems, and to develop policies on how food is produced, distributed and consumed (Atitlán, 2002; Nyéléni, 2007). It is above all a political call for action – backed by more than 300 million small-scale food producers and agri-food workers, as well as consumers, environmentalists and human rights groups – towards a major paradigm shift in how we view, manage and innovate our agriculture and food systems. Its framework provides a holistic perspective and concrete tools and measures to be put into practice for systemic change across our diverse, complex and dynamic food systems. As food sovereignty sees food, agriculture, ecosystems and cultures as intrinsically linked, and covers a spectrum of socioeconomic reordering that touches upon lifestyles, development paradigms and geopolitics, its relevance extends far beyond food to the very future of societies and survival of the planet. It encompasses all the elements needed to address the root causes and implement alternatives to respond to the problems in our daily lives and to the detrimental impacts of current mainstream global agriculture and food schemes. It also takes into account the convergence of different aspects such as climate, agriculture, food production, health and nutrition.



Consult the table:

 "Mainstreaming agroecology: Challenges and policy proposals" in annex for a summary of the barriers and recommendations Food sovereignty puts those who produce, distribute and consume food on a small scale agriculture and food systems – in both rural and urban areas, and poor and wealthy countries – at the center of food systems and policies. It is grounded in processes of empowerment and generation of critical knowledge, supporting the collective and popular construction of alternatives that reinforce: i) peasant economies, and the interconnected elements of their agriculture and food systems; ii) agroecology; and iii) equitable and sustainable agriculture and food systems that guarantee the respect, protection and fulfillment of the right to affordable, nutritious, healthy and culturally appropriate food for all.

The following sections provide a reflection and a series of recommendations to orient the steps and the definition of public policies, legal frameworks and programs that should be carried out by governments and policy-makers, with the support of intergovernmental organizations, particularly FAO, to overcome global challenges and mainstream agroecology as the most desirable innovative approach to achieving food sovereignty.

## ADDRESSING THE BARRIERS TO THE WIDER ADOPTION AND DIFFUSION OF AGROECOLOGICAL PRACTICES

This section provides a non-exhaustive and summarized list of diverse practical, ideological, economic and political constraints and challenges that are slowing or blocking the mainstreaming of agroecology at different levels - while other barriers are also mentioned throughout this publication. The various recommendations provided in this section and the following aim to address these barriers in order to unlock the transformative power of agroecology and advance towards the achievement of food sovereignty.

# Lack of information on agroecology and perception of it as uncompetitive

Through the narrative which states that we need to produce more food to feed the world by intensifying production, the belief, promoted under the Green Revolution that industrialized and mechanized agriculture is more competitive is still advanced by agroindustrial groups and biotechnology industries. In addition, partly due to inadequate research and extension support, there is a lack of mainstream information and adapted capacity-building on agroecological practices - notably on the economic viability of converting, an issue considered central by various state and nonstate actors. Moreover, large agri-business and food companies show no interest in agroecological practices as its inputs and technologies cannot be easily standardized and patented, thus inhibiting research on agroecology's elements and benefits. Finally, while family farmers are key to food security worldwide, they have also been considered by many as an obstacle to development and have been deprived of government support (FAO, 2014).

their constitution.

<sup>25</sup> Ecuador, Senegal, Mali, Bolivia, Nepal, Venezuela and Egypt have recognized food sovereignty in

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# Biased international agricultural, trade and investment policies

Current international trade and investment policies are biased towards the interests of the agro-food industry's large holdings, which are most capable of operating in global markets, thus going against those of peasant, family farm-based and other small-scale food producers' agroecology. These constraints include the rapid liberalization of agriculture and globalization of food chains (favored by the 1995 World Trade Organization Agreement), the strong influence of concentrated agri-business corporations throughout the entire industrial food chain. As well as the privatization and commodification of nature, and the spreading of standardized agriculture, in particular based on the use of industrial seeds and GMOs. Moreover, the fact that the prices of agricultural products under current agrifood systems are distorted by heavy subsidies – both direct (such as farm and input subsides) and indirect (the health and environmental consequences of unsustainable practices that are paid for by taxpayers) – also contributes to agroecology often being regarded as less competitive than 'conventional' practices. On the other hand, the multiple benefits of agroecology are not taken into account by these public policies.



Recommended reading:

>> Friends of the Earth International (2016). "Getting into a bind": how the trade and investment regime blocks the development of agroecology and access to land. Available at: https://www.foei.org/wp-content/uploads/2016/10/Camisa-Once-Varas-INGLES-Q.pdf

# Insecure land tenure and lack of access to natural resources

The overall over-consumption of products, but also the rising consumption of products with large land footprints such as meat and dairy, demand for agrofuels and the products of extractive industries, especially by industrialized countries, as well as processes of speculation and financialization, are drivers of land grabbing. This growing threat is resulting in smallholders being forced off their land, deforestation, rising food prices, and exacerbating climate change, biodiversity loss and social inequalities. By depriving smallholders of their means of subsistence and generating adverse conditions for all, this type of investment counters the practice and spread of agroecology.

#### **Recommendations for policy proposals**

- >> Assess and monitor new technologies and private sector technology transfer and their impact on food sovereignty.
- >> Mainstream peasant, family farm-based and other smallscale food producers' agroecology into regional and national agricultural policies and programs.

# PARTICIPATORY GOVERNANCE AND MULTI-SCALE ACTION FOR JUSTICE

## Protect and strengthen small-scale food producers and agri-food workers

It is estimated that small-scale food providers not only feed 70% of humanity, they also supply about 70% of overall food production, with less than a quarter of the resources used to get all of the world's food to the table. They use less than 25% of agricultural land, approximately 10% of agriculture's fossil energy and no more than 20% of agriculture's total water demand (ETC Group, 2017).<sup>26</sup> Yet, 80% of the world's poorest households, food insecure and malnourished, live in rural areas; many of them are small producers, farmers, livestock keepers, landless people and agricultural laborers, of which 70% are women (FAO, 2015b). Addressing the real causes of hunger thus does not hinge simply on producing more food under unequal conditions, but rather on creating more democratic and fairer political and economic systems that expand access to resources. Food sovereignty challenges unjust power and inequality in society and promotes policies and practices that make peasants, fisherfolk, pastoralists, indigenous peoples, workers, consumers and citizens the primary decision-makers about food systems (FoEI, 2016).

- >> Avoid, prevent, protect against and/or remedy violence, discrimination, marginalization and indecent labor conditions inflicted on small-scale producers and workers by corporations, landowners, governments and individuals.
- >> Ensure equitable access to essential services including education, justice, health, credit, clean water and sanitation.
- >> Prioritize and boost public investment in peasant and family farming innovation and adaptation, according to their particular needs, cultures and traditions.

<sup>26</sup> ETC's 70% estimate was controversial in 2009 when they first made it but now is widely accepted by UN officials, academia and even industry. The UN Environment Programme, the International Fund for Agricultural Development, FAO and the UN Special Rapporteur on the Right to Food all estimate that small farmers produce up to 80% of the food in the non-industrialised countries (Kanayo F. Nwanze; UNEP; FAO).



FIGNTY

# Create an enabling environment and ensure inclusive governance

Agroecology requires supportive governance structures, strategies, laws, rules, norms and governance mechanisms that frame an enabling environment for agroecology and agricultural innovation for family farmers, and that correct 'disabling' environments and imbalanced structures of power in current food systems. It is paramount that a human rights-based approach is integrated into all public policies and implementing instruments – in particular regarding agrifood systems and climate action – so that they do not become a threat to food sovereignty and peoples' rights.

Government-led efforts should call for the participation of other actors, such as international organizations, regional agencies, civil society organizations and research institutions. In particular, they should recognize the role of family farmers and other small-scale food providers as agents of agroecology and food sovereignty. Policies meant to catalyze innovation will need to go beyond technology transfer, and be inclusive and tailored to local contexts. Family farmers are "vital to the solution of the hunger problem"; "they need to be protagonists of innovation as only this way can they take ownership of the process and ensure that the solutions offered respond to their needs" (FAO, 2014). In the case of the creation of multi-actor platforms, these should take into account the real and serious differences of legitimacy, interest, vision and rights of different types of actors. In order to encourage a real dialogue between rights holders and duty bearers, they should: address power imbalances among food system actors; make a clear distinction between public and private interests; define roles and responsibilities (governments as duty bearers, people and their organizations as rights-holders, others - such as business - as third parties); give priority to the effective participation of representatives of most affected and marginalized rights holders rather than to the most powerful, the corporate actors; and put in place effective mechanisms for monitoring the application of public policies and for holding governments accountable (CSM, 2016a).

## **Recommendations for policy proposals**

- >> Ensure policy coherence across sectors (food, health, agriculture, water, energy, environment, biodiversity, food safety, research, extension, international trade, etc.) and a human rights-based approach.
- Setablish mechanisms for the effective participation of civil society organizations as rights-holders and main protagonists for innovation – especially small-scale producers, urban food insecure and other marginalized groups – in the design, implementation and oversight of policies that affect them.

# Peoples rights, secured territories and access to the commons

For generations, peasant farming, pastoralism, artisanal fishing, forest dwelling and indigenous communities have relied on local, communal resources for their livelihoods and to produce food for themselves and others. They have collectively conserved the richness and diversity of these resources by controlling access to them for the practice of agroecologically sustainable and biodiverse agriculture, livestock production, pastoralism and artisanal fishing. In that sense, access to and control over natural resources, in particular based on collective rights, by small-scale producers in rural and peri-urban areas, and in both inland and coastal regions, is a cornerstone of innovation for food sovereignty and reconfiguration of food systems. Furthermore, "in no case may a people be deprived of its own means of subsistence".<sup>27</sup> Peoples and communities are entitled to secure, develop, control, and reconstruct their customary social structures and to manage and nurture their lands and territories, recognizing their holistic nature. These include fishing grounds, forests, water bodies, seeds, livestock breeds, aquatic organisms, pastoral lands and migratory routes, and biodiversity. This forms part of long-term strategies for guaranteeing food and high-quality nutrition for all, preserving the environment and ensuring dignified livelihoods of producers while eliminating the need to migrate for survival.

National policy measures should promote the use of collective land for culturally appropriate food production and the empowerment of indigenous peoples, peasant farmers, fishers, pastoralists, forest dwellers and other local food providers so that they are able to produce for themselves, their local communities and wider society.

Various international declarations, frameworks and legal instruments already exist or are being negotiated that are fundamental to reinforcing food sovereignty, the fight against climate change and the conservation of biodiversity.

- The FAO Right to Food Guidelines adopted in 2004 remain an indispensable tool to realize the most violated human right in the world and ensure a world free from hunger and malnutrition (CSM, 2018).
- The UN Declaration on the Rights of Indigenous Peoples adopted in 2007 sets out the individual and collective rights of indigenous peoples, as well as their rights to culture, identity, language, employment, health, education and other issues.
- The FAO Guidelines for Securing Sustainable Small-Scale
   Fisheries and the CFS Guidelines on the responsible governance of tenure of land, fisheries and forests, endorsed respectively in 2012 and 2015, serve as a reference and set out principles and internationally accepted standards for securing tenure rights and equitable access to land, fisheries and forests as a means of eradicating hunger and poverty and preserving the environment.

<sup>27</sup> International Covenant on Civil and Political Rights (1966), Article 1.2.

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- The interrelation between agroecology and peasants' rights enshrined in the International Treaty on Plant Genetic Resources (ITPGRFA), adopted in 2001, should be given specific attention.
- The UN Binding Treaty on Businesses and Human Rights establishes legally binding obligations to regulate the activities of and stop human rights abuses by transnational corporations and other business enterprises. It is currently undergoing a negotiation process at the UN Human Rights Council (UNHRC) in Geneva.<sup>28</sup>
- The UN declaration on the rights of peasants and other people working in rural areas, adopted by member nations of the UNHRC in September 2018 and only a step away from being adopted at the UN General Assembly in New York, provides a global framework for national legislation and policies to defend and protect the rights of peasants to land, seeds, biodiversity and territorial markets.<sup>29</sup>

## **Recommendations for policy proposals**

- >> Ensure small-scale food producers'- especially indigenous peoples, migrants, refugees and internally displaced persons, people with disabilities, women, young people, children and older persons - collective rights, control over and access to the commons. Carry out integral land reforms, through a variety of legislative systems that fully recognize the laws, traditions, customs, tenure systems, and institutions of peoples in their respective territories.
- >> Oppose land-grabbing, large-scale industrial production, speculative investments, commodity markets financialization and extractive industries (oil, coal, gas and mining).
- >> Stop forced evictions and human rights violations and guarantee the protection of the defenders of territories and peoples' rights, including environmental and human rights.
- >> Develop land-use planning policies that progressively introduce regulations to limit the loss of agricultural land to urbanization, particularly in peri-urban areas, and improve transport and communication infrastructures linking rural and metropolitan areas.
- >> Implement existing international instruments that reinforce food sovereignty, the fight against climate change and the conservation of biodiversity and vote in favor of those currently submitted for adoption.

# Gender justice and women's rights

A commitment to gender justice has been embedded in food sovereignty from its earliest articulations, and women have been at the heart of this political proposal since its inception. While food sovereignty values the predominant productive and reproductive work of women, especially in rural areas (which is unpaid, undervalued and hidden in patriarchal, capitalist societies), it also recognizes that it is not enough to advance women's rights within the food systems as a central component to achieve their transformation. The increasing convergence of struggles for food sovereignty and feminisms, and the building of alliances between women from the countryside and the cities are fundamental. They are resulting in concrete proposals to advance towards equal rights for women and the ending of all forms of violence and oppression against them. This involves advancements in securing equal distribution of power, tasks, decision-making and remuneration, as well as subverting the patriarchal forces dominating the world and repairing gender relations within families, communities, and movements. According to FAO (2011), if women had the same access to resources (land, credits, education, etc.) as male farmers, they could raise the yields on their farms by 20-30% and lift 100-150 million people out of hunger, reducing the number of undernourished people globally by 12-17%.

- >> Ensure women's access to and control over land, territories, water and seeds; safe and dignified working conditions; control of income; access to training and information; and direct access to markets. Implement the UN Committee on the Elimination of Discrimination Against Women (CEDAW) General Recommendation 34 (2016) on the rights of women living in rural areas.
- >> Ensure women's autonomy, their right to make their own decisions and participate fully and equally in all decision-making bodies; promote and strengthen women's leadership.

<sup>28</sup> To read the draft, see:

https://www.ohchr.org/Documents/HRBodies/HRCouncil/WGTransCorp/Session3/DraftLBI.pdf. Latest news on the negotiation process: https://www.somo.nl/reflections-on-the-first-round-ofnegotiations-for-a-united-nations-treaty-on-business-and-human-rights/. 9 Latest news on the negotiation process: https://viacampesina.org/en/un-human-rights-council-

<sup>29</sup> Latest news on the negotiation process: https://viacampesina.org/en/un-human-rights-councilpasses-a-resolution-adopting-the-peasant-rights-declaration-in-geneva/. To read the draft and for further information, see: https://www.ohchtorg/EN/HRBodies/HRC/RuralAreas/Pages/5thSession.aspx.

# 04

# Rights of youth and future generations

The steps towards food sovereignty seek not only to defend the interests of the next generations, but also to include and empower them through a territorial and social dynamic that creates opportunities for rural youth, as both the present and the future of sustainable agriculture and food systems. Improving rural livelihoods and development, in particular ensuring fair access to land and natural resources, social protection, education, markets and decent employment opportunities, is crucial to allow rural youth to remain in their territories and take over food production. The food sovereignty movement also aims at building rural-urban linkages that provide new sources of education, empowerment, and income generation to urban youth, as well as opportunities for young people who have migrated to or are born in the cities to return to the countryside, following "re-peasantization" processes.<sup>30</sup> Agroecology provides a radical space for young people to contribute to ongoing social and ecological transformation. As they apply new innovations, they bring life back into rural areas. It also allows them to play an active role in society, local political life and small-scale producers' organizations.

#### **Recommendations for policy proposals**

- >> Ensure generational relay in rural areas, and rural-urban linkages: support young people in accessing land and in taking over or establishing new farms; improve physical and social infrastructure, in particular access to information and communications technology.
- >> Ensure effective youth participation in open and transparent decision-making processes at all levels, in particular on the risk assessment and all stages of the development process of new technologies.

# CO-CREATION AND DISSEMINATION OF KNOWLEDGE

The expansion of agroecology requires the filling of major gaps in scientific and evidence-based data of the performances of agroecological systems and their social and environmental costs and benefits, as well as on the constraints they face. This would constitute a basis for decisions and informed action on support tools for policy-makers on the pathways towards more sustainable agriculture and food systems, how to support them, and how these might be replicated across regions, contexts and scales. Further developing peasants', indigenous peoples', fishers' and pastoralists'

31 Ensuring that innovations and outcomes of research remain in the public and collective domains according to Article 9 in the International Treaty on Plant Genetic Resources for Food and Agriculture.

'ways of knowing' through dialogue among them (*diálogo de saberes*) and with other researchers based in academic institutions or civil society organizations is key to preserving and strengthening local knowledge, as well as to scaling agroecology outward and upward to achieve its transformative potential.

Agroecology is intensive in observations, thinking and knowledge, rather than capital intensive. Transition towards agroecology requires an open innovation strategy based on ancestral knowledge and practices from diverse sectors, and their integration within a multidisciplinary and participatory approach that reconnects agricultural, ecological and social sciences. Participatory action research is fundamental in order to document and learn from the wealth of concrete experiences in all regions,<sup>31</sup> strengthen them through exchange and solidarity and connect them to national and international policies and standard-setting. It fosters the capacity of food producers and their communities to experiment, evaluate and disseminate innovations and facilitates the bridging of different knowledge systems and horizontally spread contextspecific and socially-accepted agroecological innovations, leading to systemic solutions toward truly healthy, sustainable agriculture and food systems. Decentralizing the governance of research permits meaningful and active participation of citizens and smallscale producers as experts in their own fields to set upstream strategic research priorities and allocate funds as well as to become involved in the co-production of knowledge and risk assessment.

Finally, bridging the digital divide and strengthening the diverse means of communication of social movements that are most accessible to all the communities, such as websites, web and community radio stations, journals, collaborative mapping and creative use of social media, in appropriate languages, are essential to communication and dissemination strategies.

- >> Strengthen existing local knowledge, farmer-led research and capacity-building with a focus on the co-creation of knowledge and participative research; integrate agroecology in national research systems and in the curricula of higher education institutions, at the level of teaching programs in both formal and informal training centers by and for small-scale producers. Support Campesino a Campesino (farmer-to-farmer) processes to stimulate farmer innovation and sharing of results.
- >> Build and strengthen the evidence base for agroecology and its multiple benefits to achieve food sovereignty and sustainable agriculture and food systems, through data collection and dissemination, to enable decision making. In particular, create networks and/or innovation platforms that foster farmer-to-farmer knowledge and experience sharing.

 <sup>30</sup> The interrelated process of people 'returning' to rural and land-based activities, through inheriting land, purchasing privately owned land or accessing land through planned and unplanned (e.g. occupying) land reform programs; this return to the land goes hand in hand with the (re)construction of a social-material infrastructure that allows rural producers to farm and construct livelihoods that are more self-dependent. (van den Berg *et al.*, 2016; based on: van der Ploeg, 2008).
 31 Ensuring that innovations and outcomes of research remain in the public and collective domains

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# LINKING FOOD SYSTEMS TO TERRITORIES, FOSTER SOLIDARITY ECONOMY

Food sovereignty and environmental sustainability are underpinned by agroecological production of food. But this is only viable through the development of territorial food systems bolstered through supportive policies and regulation. As recommended in CFS *Connecting Smallholders to Markets*, quantitative and qualitative information on territorial markets is necessary to further illustrate their strength, diversity, and universality. This would encourage laws, trade policies and practices that support small-scale food providers (CFS 2016, Recommendation 1; CSM 2016b) so that they are able to produce for themselves, their local communities and wider society. It would also strengthen community control over food production and distribution, and promote territorial food economies while addressing the challenge of feeding both rural and urban areas.

Food is not simply another commodity to be traded or speculated on for profit; innovation by peasants, family farmers and other small-scale food producers recognizes food primarily as a universal and indispensable human need and sustenance for the community. Food sovereignty requires a concerted effort to reconfigure markets based upon ethics of responsible and socially aware production and consumption rooted in territorial synergies and direct relationships and solidarity between food providers and consumers based on shared risks and benefits, as in the case of community-supported agriculture.<sup>32</sup>



Corn. © Biby Rojas Flores / La Via Campesina

- >> Fill the quantitative and qualitative 'data gap' on territorial markets to ensure effective follow-up of CFS Recommendations on Connecting Smallholders to Markets and sound public policies.
- >> Reduce and stop international trade and the inclusion of food in trade agreements and investment protection, while prioritizing production for domestic consumption and food self-sufficiency; development and protection of territorial markets, especially those in non-industrialized countries, through stricter regulations and anti-trust enforcement to prevent unfair competition (e.g. commodity dumping and influxes of low-cost and heavily processed foods).
- >> Create and strengthen territorial formal and informal markets, agroecological cooperatives, in particular women's cooperatives for processing and marketing products, consumer forums and exchange and barter mechanisms (such as exchange of labor, products and skills and seed fairs).
- >> Implement public procurement policies that favor agroecological and local food production; support participatory guarantee and other accessible certification systems as a tool for small producers to capture higher prices on markets and assure consumers of the integrity and value of locally produced foods.
- >> Incentivize and inform on healthy, diversified, nutritious, local and regional food systems; support the development, endorsement and follow-up of CFS Voluntary Guidelines on Food Systems and Nutrition (FAO, 2018a).

<sup>32</sup> According to recent statistics, community-supported agriculture (where consumers commit to and work jointly with a farm or farmer for a season) alone provides food to about 1-1.5 million consumers worldwide, including half a million EU citizens. On average, 15% of EU farms sell more than half of their production directly to consumers. The benefits of such short-scale distribution are becoming increasingly clear. EU citizens agree – four out of five say that strengthening the farmer's role in the food chain is important.

# PRESERVATION OF THE ENVIRONMENT AND BIODIVERSITY, AND FIGHTING CLIMATE CHANGE

There is extensive literature showing that high-input conventional agriculture has an extremely heavy environmental and climate footprint. According to FAO (2015c), environmental damage from conventional agriculture costs the world \$3 trillion each year, including \$1.8 trillion from livestock production. At the same time, it acknowledges that agroecological methods greatly diminish environmental costs while improving farmer incomes.

The latest Special Report on Global Warming of 1.5°C by the Intergovernmental Panel on Climate Change (IPCC, 2018) warns us that we have only 12 years to make the necessary changes for global warming to be kept to a maximum of 1.5°C, beyond which even half a degree will significantly worsen the risks of drought, floods, extreme heat and poverty for hundreds of millions of people. It also exhorts us to implement urgent and unprecedented changes to reach the target, which the report says are affordable and feasible. At the same time, IPCC reports and international summits indicate a growing consensus that food and agriculture are significant contributors to, and heavily impacted by, climate change,<sup>33</sup> while also offering a range of opportunities for mitigating greenhouse emissions. As already discussed, schemes like climatesmart agriculture and sustainable intensification are false solutions and dangerous distractions. Climate mitigation is urgently needed; we are in danger of breaching tipping points if we do not stop emitting greenhouse gases and move to low-carbon systems that are owned and controlled by people instead of corporations and elites.

Agroecological practices that maintain biodiversity, as well as building awareness, learning from each other's experiences and solidarity and collaboration among movements are essential strategies when peoples' livelihoods are undermined in natural and human-made disasters. Efforts that contribute to the capacity of peoples and communities to survive and thrive under adverse conditions, and to relief, recovery and rebuilding efforts in the aftermath of disasters and conflicts, are crucial, avoiding them to rely only on multilateral institutions. In particular, through local and regional food systems, with community-controlled reserves in place, the capacity of communities to respond to crisis more quickly and effectively can be strengthened.

#### **Recommendations for policy proposals**

- >> Shift policies, subsidies and production away from destructive industrial farming, biofuels and livestock feed into agroecological techniques, innovations and practices and the transition towards agroecology, including peri-urban and urban food production.
- >> Promote farmer-led, bottom-up, local innovation systems and practices to enhance the fundamental role of agroecology in biodiversity conservation.
- >> Protect peasants' seed systems from the privatization of resources through intellectual property rights; guarantee their collective right to save, select, breed and exchange their seeds. This is crucial in order to maintain their traditional active seed selection and plant-breeding practices, thus continuing to generate myriads of crop and animal breeds.
- >> Protect, invest in and expand small-scale agroecological farming which is essential to reduce carbon emissions from agriculture while ensuring a safe, culturally appropriate, nutritious and sustainable food supply.
- >> Shift policies away from carbon offset schemes towards real smallholder agroecological practices, which support communities to adapt to the impacts of climate change and to mitigate to reduce the scale of the crisis, as well as strengthening their resiliency against future shocks.
- >> Prioritize self-determination, local autonomy and peopleto-people aid. In instances when food aid is needed, it should be managed in such a way as to support rather than undermine domestic agriculture and local food economies, following principles of food sovereignty.



Tribal women working together to thrash rice in India. © Abhijit Dey, www.abhijitdey.in

33 Food systems, largely through agriculture, have now become the second largest emitter of greenhouse gases, accounting for a quarter of these emissions (IPCC, 2014), and a key driver of climate change and natural resources depletion (GNR, 2017).

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Above: Agroecological farming, Indonesia. © Martin Drago / FoEl

Left: Peasant seed market. © Biby Rojas Flores / La Via Campesina



Above: Sorting out beans in Ouidah, Benin. © Peeterv

Right: VII Latin American Congress of Agroecology- SOCLA. © Biby Rojas Flores / La Vía Campesina

Far Right: Peasant rice, Indonesia © Martin Drago / FoEI















Above Left: Norberta Ambrocio is very active within the community, promoting sustainable systems that support women who farm cattle in El Salvador. © Jason Taylor / FoEl

Above: Selling local vegetables at a roadside market in Jaisalmer, Rajasthan, India. © Tania Dunster / Onehemisphere

Left: Organization in the territory. **© La Via Campesina** 

Far left: Protestors with seeds at the United Nations climate negotiations in Durban. © Luka Tomac

Left: Mass soybean harvesting at a farm in Campo Verde, Mato Grosso, Brazil. © Alf Ribeiro







# AGROECOLOGY: INNOVATING FOR SUSTAINABLE AGRICULTURE AND FOOD SYSTEMS

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