

THE 2018 FAMILY FARMS BAROMETER



By **supporting** family farms, there will be
enough to feed the world, and
fight **poverty while** respecting
planetary boundaries

“Feeding the world in 2050”
through **family farms**
7-12



Facing
Planetary boundaries
13-16

Which public policies
favour the transition
to agroecology?
17-23



This barometer is the result of the collaboration between the NGOs SOS Faim, Îles de Paix and Autre Terre.

Chief Editors: Pierre Coopman and François Grenade | in collaboration with: Agroecology in Action, Laurent Biot, Eloïse De Keyser, Patrice Debry, David Gabriel, Olivier Genard, François Graas, Annabelle Guegen, Marc Mees, Sébastien Mercado, Dominique Morel, Nancy Snauwaert, Patrick Veillard | **Infographics:** Studio Marmelade | **Translators:** D. Phillips, UNV Online Volunteering
Printing: Van Ruys Printing | Photos: © Îles de Paix, Shutterstock/ Fotokostic, SOS Faim.

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Managing Editor: Laurence Albert, rue du Marché, 37, 4500 Huy.

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With the support of the General Directorate for Development Cooperation



| INTRODUCTION |

Family farms are the most wide-spread form of agriculture throughout the world. Far from being outdated, they adapt and respond to changes in the environment. This Barometer, published by SOS Faim, Îles de Paix and Autre Terre, analyzes the current issues that shape and transform family farms. This publication evaluates how global trends help or hinder family farms.

Recognising the global importance of family farms

Most recent scientific studies (2014/2015) on family farms confirm that family farms were once considered as a source of problems, but today family farms are increasingly viewed as the way forward.

So it is largely about time to get out of the impasse... Out of a population of 7.6 billion, malnutrition affects 821 million people. Food scarcity affects 2 billion people. At least 2 billion people are overweight of which 650 million suffer from obesity.

Some experts believe that the results of scientific studies conducted in 2014 and 2015 (see the text box on page 5) are inconclusive given their broad definition of family farms. To be considered as family farms, they must be managed by an individual or a family who provide the labour force themselves. However, many large, or even very large farms are owned and operated by the families. For this reason, Uruguay, for example, defines as family farms those that are operating up to 500 hectares.

In 2014, the FAO (the United Nations Food and Agriculture Organization) also proposed a comparative analysis of the size of farms and the amount of land available to them. These two criteria, which do not capture all the complexities of family farms, are nevertheless much more objective to observe.

Out of a global population of 7.6 billion*

821 million persons
are malnourished

More than 2 billion
experience nutritional deficiencies

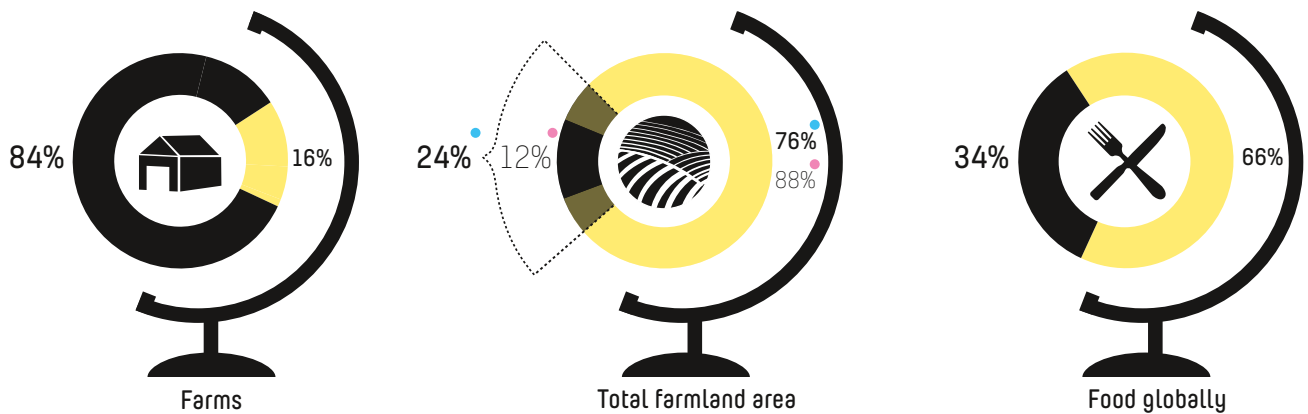
2 billion
are overweight,
of which 650 million suffer from obesity



* As nutritional deficiencies equally affect persons who can be malnourished or overweight, about one half of the human population is affected by problems of malnutrition.

Farms \leq 2 hectares are predominant (84%). They produce 34% of food globally*

- Farms \leq 2 hectares
- Farms of 2 + hectares



● According to FAO (2014) sources & data gathering methodologies
 ● How much of the world's food do smallholders produce? (2018)
 * 334 % according to a 2018 study

On a global scale, farms equal to or less than 2 hectares represent 84% of all farms but only represent 12% of the total farmland area. Farms larger than 2 hectares represent 16% of all farms and cover 88% of farmland... More specifically: only 1% of all farms make up for more than 50 hectares, however, albeit in limited numbers, they control 65% of farmland globally. And, let's emphasize, some of these farms are considered, as surprising as this may seem, to be family farms.

Productive farming

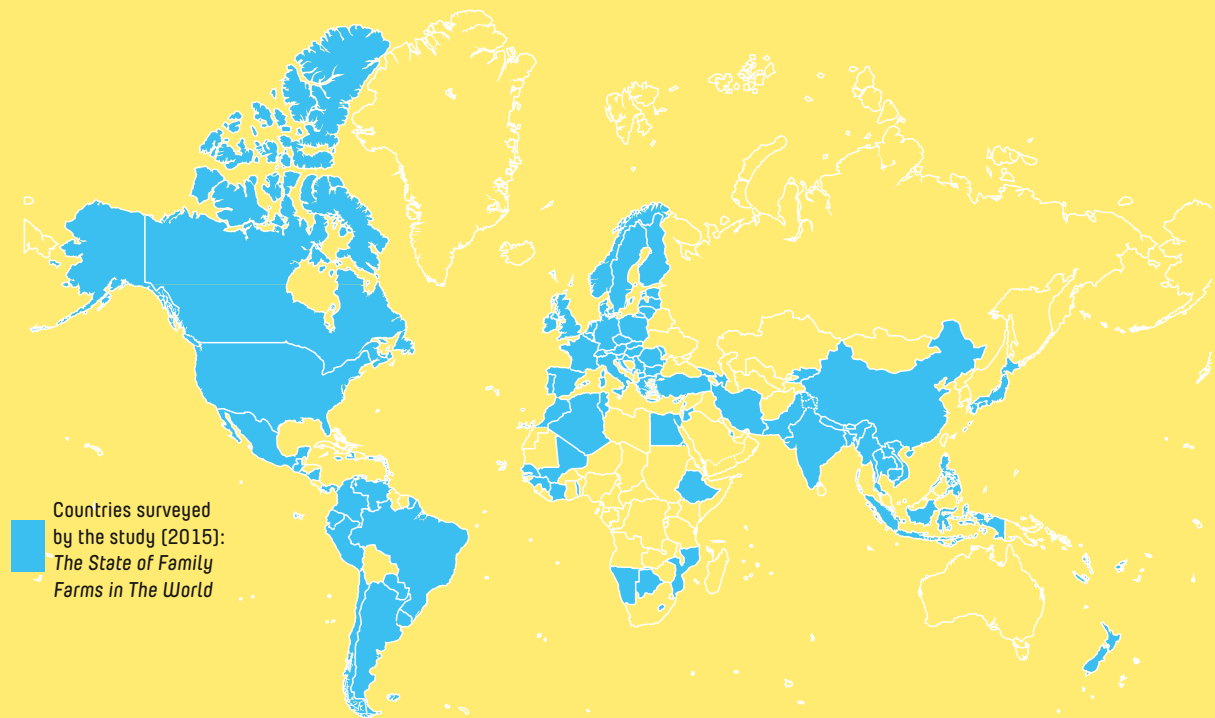
To end the impasse regarding the very broad definition of family farms in the 2014 and 2015 scientific studies, a study published in 2018 by the University of British Columbia, Canada, entitled: "How much of the world's" food do smallholders produce? focused its research more on the levels of production by harvest and by farm size. The study used farm census data from 55 countries or regions who provided them between 2001 and 2015.

According to estimates, farms of less than 2 hectares produced between 28 and 31% of total harvests worldwide and between 30 and 34% of the global food on 24% of the global farmland. Farms of less than 2 hectares in size allocated a major part of their production to food and had larger crop diversification. Farms greater than 1000 hectares had the largest ratios of loss after harvest.

The 2018 study, using another method oriented towards the link between production and farm size, confirmed that small scale family farms produce a larger quantity of food globally than the amount of land allocated to them. This is therefore productive farming. Further, in a world where hunger is more related to poverty than to production short-fall, small scale farms feed or attempt to feed 470 million families who depend on them. Paradoxically, two third of the persons who suffer from hunger are farmers. Their potential is therefore a reality of prime importance to achieve the Sustainable Development Goals (SDG) linked to the elimination of hunger and food security.

Complex and varied realities

In 105 countries, family farms represent
98% of existing farms



The variety of agricultural activities throughout the world proves to be a source of difficulty in determining accurately and quantitatively the realities and varieties of family farms. In order to compile statistics on family farms, the FAO often has to rely on data gathered by the States according to how it defines family farms. These definitions vary. For example, in Brazil, the concept of the size of a family farm operation is not the same as in Senegal. The notion of belonging to a family, a community or an identity as a farmer are all variable.

When in 2014 the FAO stated that there were 513 million family farms globally producing 80% of the world's food, it was an estimate based on data from 30 countries (out of 193 member-states of the United Nations) that the FAO determined was sufficiently reliable to infer major aggregates. In 2015, a second study entitled *The*

State of Family Farms In The World, conducted by a panel of international experts, expanded the collection of data to 105 countries and was able to analyze the methods of production of 85% of the world's food.

However, only 14 African countries provided reliable data. The 2015 estimates have nevertheless confirmed the importance of family farms: the total area of all family farms combined represent 98% of the farms and produce at least 53% of the world's food. This second study reckons that there are approximately 475 million family farms out of 483 million farms. This is less than the 2014 estimates which reported 513 million family farms out of a total of 570 million farms, but the overall importance of family farms and the need to promote them as a sustainable solution to feed the world is confirmed.

The question of financing. Scraps for family farms?

Although the capacities and importance of family farms are recognized, the question of their financing remains complex and still largely under-reported. It is already understood that reality is paradoxical: the wealthier the countries are, the more they tend to support their farmers. What kind of support is there, for instance, for family farms in countries deemed by the United Nations to be in the group called: "Lesser

LDCs is concentrated in the agricultural sector and continue to live below the poverty line, one could easily imagine the lack of support provided to family farms in these countries...

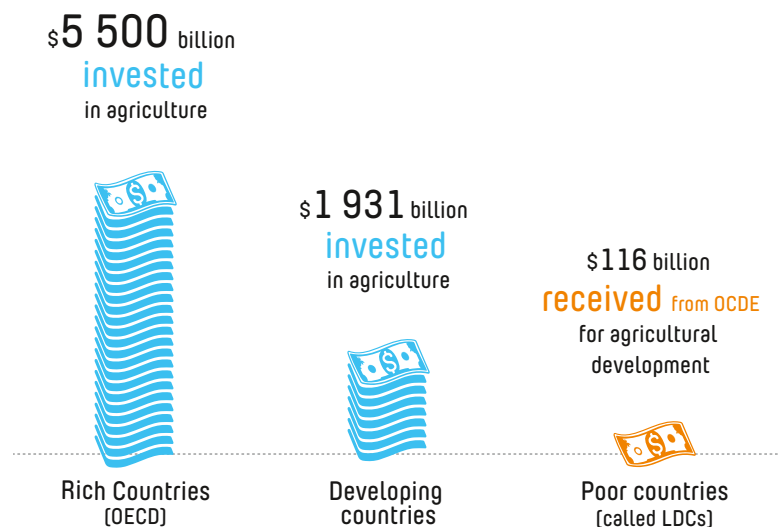
What remains for family producers? For the funding of some inputs? for reductions in interest rates for small investments? almost nothing compared to the extensive needs required to cope with the challenge of transforming family farms, as we will see in this new issue of the Barometer.

Evidence in this article dedicated to public policies seem to show that one can count on the fingers of

Investments in the agriculture sector over 20 [1997-2016]

Investing in agriculture is necessary

in all countries but very low in poor countries depends on aid



Developed Countries" (LDC), whose economies are deeply anchored in an agriculture which is performed on areas of less than 15 hectares? Their agricultural policies depend almost exclusively on funding from rich countries. By referring to statistics from OECD countries (an international organization that groups together the wealthier countries of the West) from 1997 to 2016, it is noted that the member states of the OECD granted \$116 billion US dollars to the agricultural sector of the LDCs, while during this same period of twenty years, they invested in their own agriculture up to 5,500 billion US dollars. Moreover, it is difficult if not impossible to determine how much of the 116 billion supported family farms. Recognizing that most of the labour force of the

one's hand the number of governments who currently favour the transition to agroecology.

It is not just about knowing how much to invest, the method regarding financing agriculture is also important. What can be done to steer agricultural production towards human consumption (see page 7)? How can we manage the environmental footprint left by agricultural activities (page 13)? How can we re-think food crop models and sustain family farms in their adaptation and transition towards sustainable production? ◆

Author: Pierre Coopman

| PRODUCE MORE? |

How to feed the world in 2050? This legitimate question has become the focus of reflection and public debate on food security. But is it possible to envisage the future of food and agriculture through another lens? Is increased production the fundamental challenge to the food system?

“Feeding the world in 2050”, through family farms

Those who have some degree of interest in world hunger, food systems, and in global agriculture across the world will focus their attention on the question: how to feed the world in 2050? How to ensure food security for a planet that will be home to 9.7 billion human beings? This question, as good as a mantra, is the common refrain of researchers, international institutions and policy makers. Although the question is legitimate, it only focuses our attention on part of the reality. The question automatically brings with it thoughts linked to the demographic explosion and subliminally calls for a production-driven response: the priority is to increase production and improve yields.

A loaded question

How to feed the world in 2050? This is a loaded question. Whereas the 1990s and the early 2000s were characterized by a weak interest in the agricultural sector in international decision making spaces, the food crisis of 2008 placed food security at the top of the agendas. This crisis originated with several factors that had little to do with the lack of food worldwide. The international response, however, was immediately focused on the need to increase production worldwide, and the debate was swiftly oriented towards the 2050 deadline. Since 2008, appeals have been launched to double produc-

tion worldwide. What are the reasons that led the debate to take this turn?

According to Eve Fouilleux, Nicolas Bricas and Arlène Alpha¹, this hegemonic productivist discourse demonstrates the power relations between institutions responsible for agriculture and food security. Various factors have created this hegemony: the predominance of agricultural and agronomic institutions (to the detriment of institutions responsible for health and nutritional issues, poverty reduction, or access to rights, for example); the power of private actors and their networks in global governance and their ability to influence the debate; and ultimately disparities of resources between different categories of actors which create differences in the weight attributed to their word.

Some actors adhere to this particular rhetoric. Therefore, the multinationals, and specifically those that are upstream of agricultural production (crops, fertilizer, phytosanitary products), have a purely productivist discourse: they focus on highlighting, in their communication, their mission to feed the world and on appearing as the solution to achieve food security in the future. They promote a purely technical approach, falling far short of putting the system into question. Subsequently, international initiatives responsible for food security (such as the New Alliance for Food Security and Nutrition,

Notes

- 1 Eve Fouilleux, Nicolas Bricas, Arlène Alpha (2017) “Feeding 9 billion people: global food security debates and the productionist trap” *Journal of European Public Policy*, 24:11, 1658-1677

initiated by the G8) and large foundations also place an emphasis on agricultural production. Behind these initiatives and foundations looms the shadow of financial interests of the agribusiness. And they therefore develop, unsurprisingly, a productivism approach, as well as capitalize on the enhanced role of the private sector in agricultural development. Finally, most Western agricultural unions equally use this productivist paradigm: producing more to feed the world is a strategy that they regularly advance to defend their interests.

The issue is not merely demographic

Should more food be produced? More recent studies suggest that the global demand for agricultural products will jump from 60 to 120%. According to David Tilman², demand should increase by 100% in calories and by 110% in proteins between 2005 and 2050. In a new study published in July 2018³, it is projected that a 119% caloric increase would be necessary in a "business as usual" scenario. The FAO has itself revised down these estimations in 2012⁴ and expects an increase by 60% between 2005/2007 and 2050.

The global demographic increase is naturally an important factor in these projections, since the population will be between 9 and 10 billion by 2050. But socioeconomic development - increased income - is also a critical factor. David Tilman identifies a link between revenue and agricultural demand: since 1960, global demand for agricultural products increased with the real income per person. With increased incomes, diets are transformed and become richer (in calories, in animal nutrition), and there is an intensified need for arable land. In conclusion, if population increase is a critical factor, it is only a part of the problem; dietary changes must also be taken into consideration.

Increasing production and protecting the environment; a solvable equation?

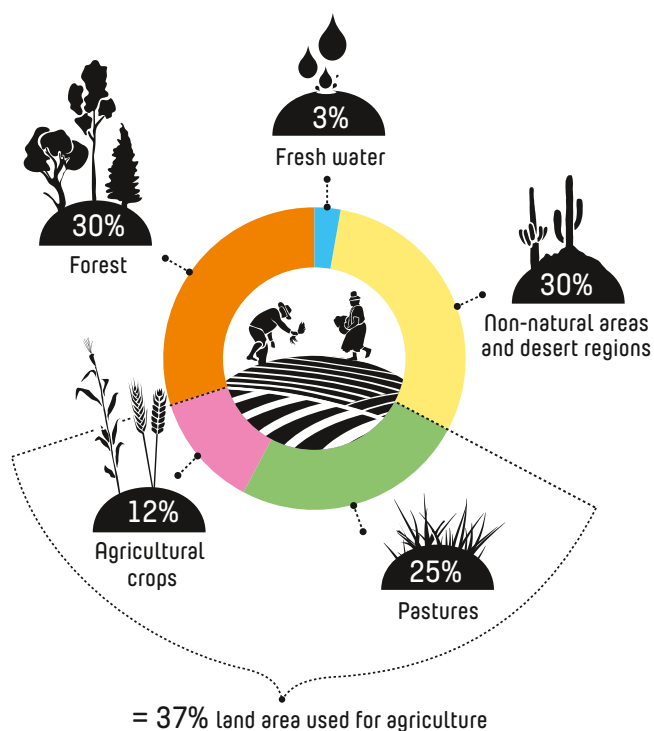
Projections clearly indicate an increase in demand; how can this be dealt with? Between 1963 and 2005, a significant increase in production was made possible by the extraordinary yield of major crops. This was, however,

insufficient to meet the demand, and arable land increased by 30%.

The increase of future yields is the subject of debates, but many agree on the fact that this increase will diminish. The increase in demand for food will therefore only be partially filled by increased yields. According to some studies, expanding agricultural land could therefore continue for the next 40 years at the same pace as the previous 40 years. Environmental constraints (deforestation, loss of biodiversity, carbon emissions) therefore require agricultural expansion to be kept to a minimum. The challenge will be to increase agricultural production without increasing land area, and at the same time, avoid social and environmental damage linked to agricultural intensification and the Green Revolution. Is it really possible to balance this equation?

Although **37%** of land area is used for agriculture, environmental constraints call for limits on global expansion

Division of the land area



Source : Sandrine Paillard et al., Agrimonde, 2010

Separating the issue of food security from the issue of food production

According to the FAO, 2,353 kcal per person per day is enough to satisfy dietary needs on a global scale. In reality, for the past 30 years, since 1981, the availability of food worldwide per person exceeds needs. There is therefore today more than is necessary to feed the 7.6 billion inhabitants of our planet. However, hunger is still a current issue. Malnutrition is also more than just undernourishment, which already affects 821 million persons – mostly male and female farmers. As such, hidden hunger, in other words, nutrition deficiencies, affects 2 million persons. Lastly, at least 2 million people consume too many food calories. Just as nutrition deficiencies affect persons who are malnourished or overweight, so is about half of the human population affected by problems of malnutrition.

In 1983, Amartya Sen demonstrated that food insecurity was more the result of poverty, lack of access to land and the means of production than food shortages. In 1993, the UN Secretary General Boutros Boutros-Ghali stated “*the world now produces sufficient food to feed itself. The problem is not just technical; it is a question of access to food, distribution and rights. Above all, it is one of political will.*”⁵ More than a problem of accessibility of food (therefore poverty), food security is still today a problem of availability (therefore one of production). Nowadays, projections on increased demand serve as a justification for the intensification of food production without questioning the systemic causes of food insecurity, among which poverty and inequalities loom prominently. Scientific research is equally predominantly geared towards increased crop productivity: therefore, only 6% of publications on food security in the last 25 years have dealt with gender, justice and equity.

Increased agricultural production does not therefore automatically correspond to improved food security. In fact, a recent study⁶ even seems to indicate the opposite through an analysis of 60 studies of the impacts of agricultural intensification on the environment and human beings, it appears that there is little evidence of positive outcomes. Rather, negative outcomes from a social and environmental point of view are widespread. The gains are often distributed unequally to the benefit of those better off and to the detriment of

the poorer. Another study published in 2015⁷ noted that during the period 1970 to 2012, an increase in agricultural production was not the main reason for the improved nutrition of infants: various structures, sanitation, access to water and the education of women have been as much or more important factors.

It is possible to ensure food security with current agricultural production

To be clear: the question of increased food production has been and remains an important strategy; it is the fact that it is focusing solely on production and the way it is envisioned that is contested here.

Questioning agricultural production practices

A question that is often put aside during reflections on food security and the year 2050 is the following: what is being done about agricultural production today?

Few studies have considered the break down of food calories globally according to its use. We have noted two of the said studies⁸ from which we could draw some insights: today, less than half of the calories produced by agriculture end up in human stomachs (see the infographic above).

Zooming in on animal farming

29.3% of calories feeding by the agricultural system is for animal feed. This is therefore a significant portion allocated to cultivated calories. The place animal farming holds is therefore central to our agricultural production system. As such, a study in 2011⁹ determined that 75% of agricultural lands is used for animal production (of which 40% is arable land), while the rest was for pasture.

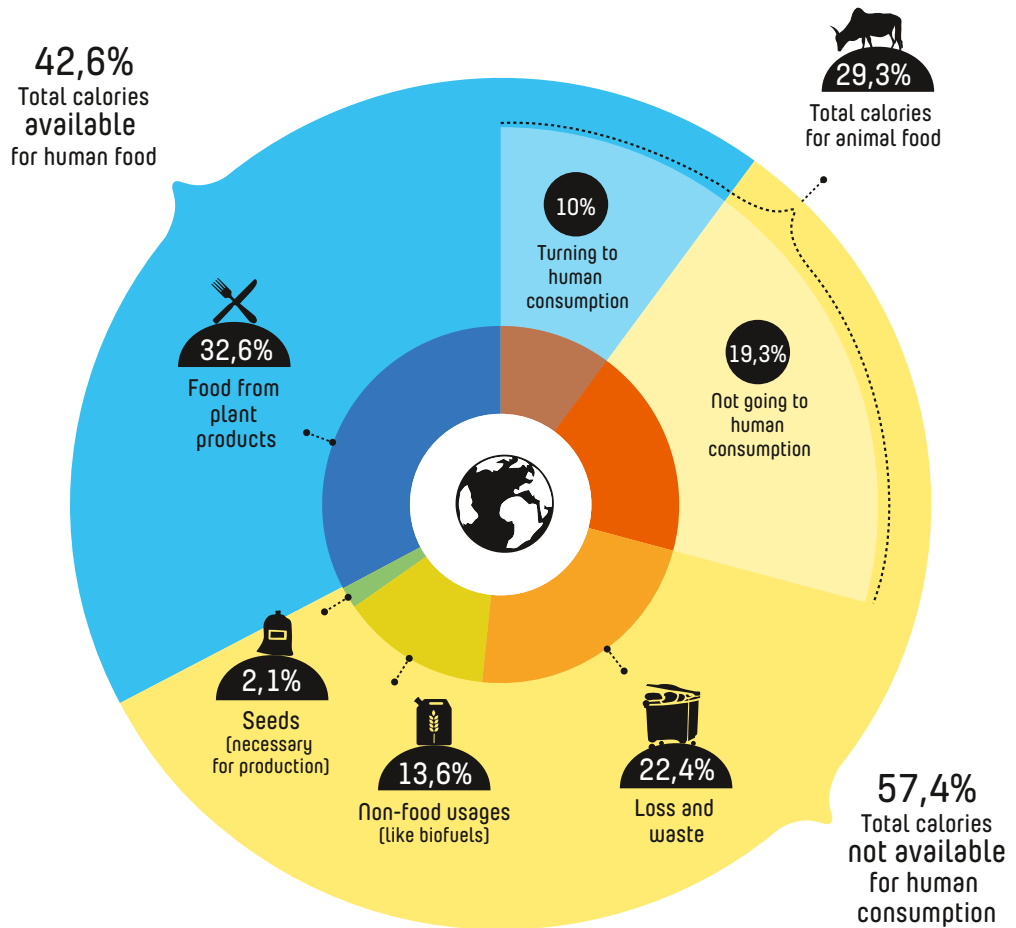
Notes

- 2 David Tilman, Christian Balzer, Jason Hill, Belinda L. Befort (2011), “Global food demand and the sustainable intensification of agriculture”, Proceedings of the National Academy of Sciences.
- 3 Berners-Lee M, Kennelly C, Watson R and Hewitt CN. (2018), “Current global food production is sufficient to meet human nutritional needs in 2050 provided there is radical societal adaptation”, Elem Sci Anth.
- 4 Alexandratos and Bruinsma (2012), World agriculture towards 2030/2050: The 2012 revision, FAO.
- 5 Boutros Boutros-Ghali, Conference on Overcoming Global Hunger, Washington DC, 30 novembre 1993.
- 6 Laura Vang Rasmussen et al., 2018, Social-ecological outcomes of agricultural intensification, Nature Sustainability.
- 7 Smith LC, Haddad L., 2015, “Reducing child under-nutrition: past drivers and priorities for the post-MDG era.” World Dev. 68:180–204
- 8 Emily S Cassidy et al., 2013, “Redefining agricultural yields: from tonnes to people nourished per hectare”, Environmental Research Letters. Berners-Lee M, Kennelly C, Watson R and Hewitt CN. (2018), “Current global food production is sufficient to meet human nutritional needs in 2050 provided there is radical societal adaptation”, Elem Sci Anth
- 9 Foley J. A. et al., 2011, Solutions for a cultivated planet, Nature.

57,4%

of calories produced are not available for human consumption

Worldwide distribution of calories from cultivated land



Source : Berners-Lee et al., 2018

It appears that the global rate of conversion of plant calories to animal calories is only from 11 to 12%. In other words, if 100 plant calories were given to an animal, only a maximum of 12 calories in dairy and meat products would be consumed. The caloric losses are tremendous for animals fed exclusively with food products: 88 to 89% of calories are lost. However, ruminant animals consume as many calories from pastures, which is very interesting, because these calories are not available to humans. Pas-

total and grassland systems have been inflating the contribution of animal production to human consumption: out of a total of 29.3% of agricultural calories attributed to animals, 10% of the calories return in human consumption in the form of meat, poultry and dairy products.

The aim is not to promote a vegetarian diet. Rather, it is to demonstrate the significance of animal farming in the use of agricultural calories. In order to increase the availability of

calories for human beings, a decrease in the consumption of animal products should be encouraged along with the prioritization of animal farming from grassland and pastoral systems.

Zooming in on biofuels, losses and waste

Among the various non-food uses that represent 13% of food calories in the study cited, first generation biofuels (namely from farming traditionally for food) occupy an increasingly prominent place. The use of biofuels has thus increased by more than 600% between 2000 and 2015, which has monopolized a growing share of agricultural calories, and this share is likely to increase in the future

This usage obviously competes with food use. Regarding losses and waste, the FAO finds that these correspond to a third of production volumes. In terms of calories, this is more like 22% of calories produced.

Questioning demand

The availability of food in the world can be considerably increased without increasing production. It is therefore theoretically quite possible to ensure human food security not only today, but also in 2050, with current levels of agricultural production. An additional four billion persons could also be fed calories from agriculture diverted from animals and biofuels.

In the projections to feed the world, evolutions in demands for agricultural products are taken for granted as if their evolution was independent from every other factor, which is highly questionable.

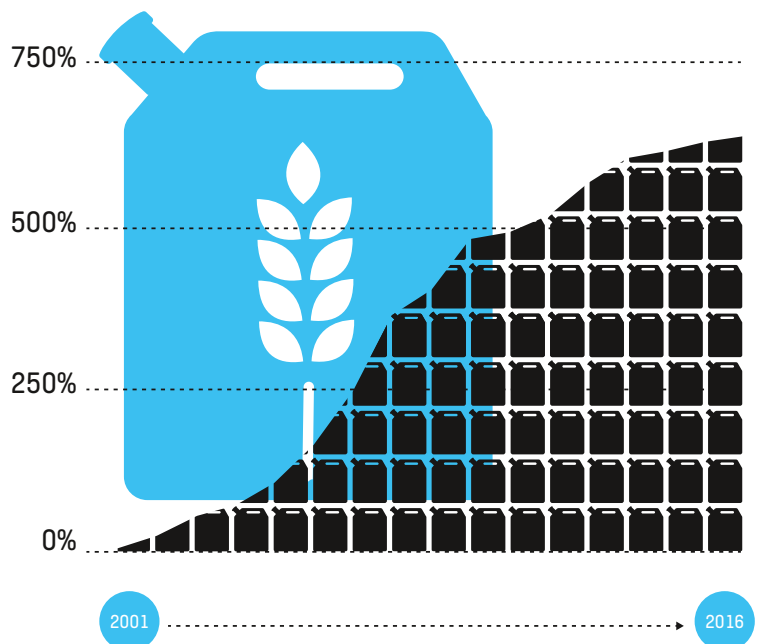
It is therefore essential to manage demand more than just simply trying to meet it. Food usage must be prioritized in relation to other usages, but market forces currently lead to an inefficient allocation of agricultural resources globally. Regulations and interventions are therefore necessary because change is less likely if it depends solely on the actions of independent individuals and on the good will of industries.

Paradigm shift

As could be seen, the productivist response is largely inadequate and provides a partial response to the issue of food security. Firstly, it omits part of the causes (poverty, inequalities) and presents a narrow view (food security is not just limited to a lack of calories; nutrition deficiencies and obesity are also a part of it). Secondly, it advocates for intensified agricultural production, which has greatly demonstrated its social and environmental limits.

The use of biofuels has increased by more than 600% in 15 years

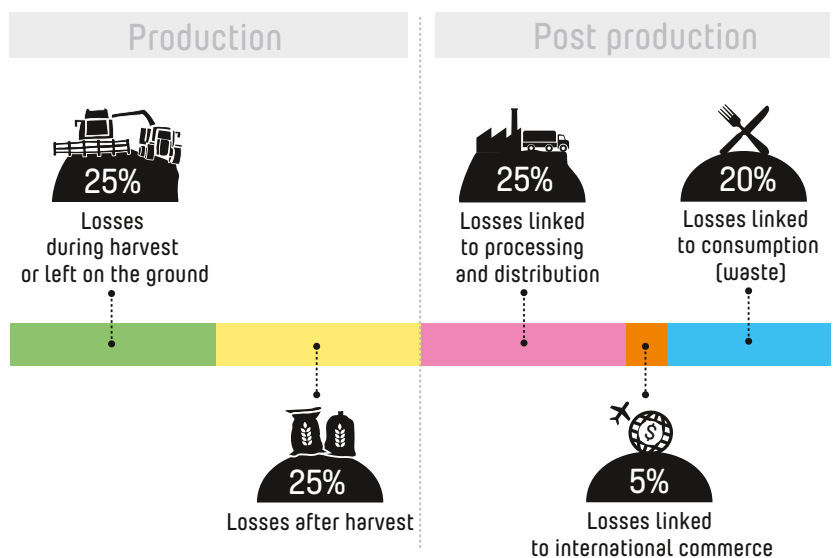
Production of biofuels worldwide



Source : US Energy Information Administration



Losses and waste of food on a global scale [kcal]



Source : Berners-Lee et al., 2018

Thirdly, the productivist response neglects the issue of the use of agricultural products, yet, as demonstrated, it is possible to dramatically increase the availability of food without increasing production, given that most of the calories produced do not end up in our plates.

Intensified agricultural production has clearly worked against small agricultural producers and family farms in the past, generally favouring large-scale producers, thereby increasing the inequalities and negatively impacting the environment. The fear of shortages allows for other negative consequences of the agriculture system to be viewed as the lesser evil, therefore the system from which it benefits remains unchallenged. It is now time to escape from the production-driven paradigm. "Business as usual" in agriculture has an environmental, a health, and a social price that is not sustainable in the long run. It is necessary to shift from the idea of just simply aiming to produce more food, to the idea of incorporating a comprehensive food system from farm to table, and measuring its varying impacts, not only for food security but also for ecosystems, public health and general social well-being.

Notes

¹⁰ Ricciardia V., Ramankuttya N., Mehrabia Z., Jarvisa L., Chooko-lingoa B. (2018), "How much of the world's food do smallholders produce?», Global Food Security 17.

Family farms to feed the world in 2050

Placing family farms at the center of the approach is fundamental, because they provide a vast amount of food globally, and provide income to 500 million families worldwide. Small scale family farms are generally in the majority, even though they are less supported by public policies, and are proven to produce a larger variety of food per hectare than large-scale farms. And a significant amount of their production is for human consumption.¹⁰

Developing agroecological approaches that minimize negative impacts on agricultural production is also necessary. These approaches are, moreover, specifically adapted to the realities of family farms.

Solutions exist and their efficiency has been proven, but the story is always in favour of production-driven agriculture, and the mantra "feed the world in 2050" supports it. More than anywhere else, it is in the field of ideas, on the figurative field that the battle which outcome will define tomorrow's food system will be fought. So, let's work on deconstructing this discourse and let's propose another! ♦

Article by François Grenade

The global agricultural sector and the agricultural food system are linked to a great part of greenhouse gas emissions, and agriculture is hindered by climate change. International climate negotiations are starting to pay attention to this issue. It is a great opportunity, but agriculture seen only from the climate perspective can create risks. A global vision of food systems and their various impacts is needed for the transition to an agriculture that is truly sustainable and which benefits farmers.

Facing Planetary boundaries

For a long time, during international negotiations forums on climate change, agriculture was rarely discussed. After a text on agriculture was rejected in 2009 in Copenhagen, limited progress was made in 2011 in Durban, and in 2015 in Paris. Major oppositions still existed between the priority given to mitigation – to the reduction of greenhouse gas emissions caused by industrialized countries and the priority given to adaptation – brought forward mainly by developing countries and poorer countries. An agreement, however, was reached during the COP23, the international conference on climate which took place in Bonn from the 6th to the 17th of November 2017. This agreement was created by a permanent working group on agriculture, the Koronivia Joint Work on Agriculture. This led to further concrete actions being taken to mitigate and adapt to climate change in the agricultural sector.

The growing interest in agriculture in global climate action is much needed and welcomed. The work could in fact lead to concrete actions to support the adaptation of family farms in Southern countries. The question of mitigation is also fundamental and requires immediate action. However, let's be careful not to reduce agriculture to an emitter/sequester of greenhouse gas, meanwhile forgetting other critical issues such as the environmental concern as a whole and the food security imperative. Although the

Preamble to the Paris agreement and the mandate of the Koronivia Joint Work on Agriculture emphasize that priority be given to food security, it remains to be seen whether this really will be respected.

Family farms and global warming

Family farms in the South have little contributed to the existing climate change; however, the decrease in yields linked to warming are and will be significant for these entities. This could be explained by their geographical situation, the type of agricultural practices (the majority is rain-fed agriculture which depends therefore on the quantity and regularity of rainfall), and by the fact that they often have few resources to mobilize in order to adapt. Family farms in the South are the primary victims of climate change. It is therefore vital that the international response attaches great importance to their adaptation.

On the other hand, diversified, integrated and combined cropping agricultural practices, which are often the exclusive domain of small scale farmers, experience less climate impacts and have greater resilience than large scale monocrop operations. A part of the response to climate change could well reside in their agricultural practices.

Good ideas in theory about climate

Certain responses to global warming could compromise food security for vulnerable populations. Indeed, the idea of carbon sequestration in soils, which has increasingly received attention, entails risks. Considering soils as carbon wells, may cause pressure on the soil, and thereby endanger rights to local community land as well as biodiversity. The sequestration solution, if developed on a large scale, can turn out to be unsustainable.

no sustainable development without a transformation of food systems

Thus, a recent study¹ concluded that *"in the face of severe compromises with society and the biosphere, [...] soil carbon sequestration is not a viable alternative to severe reductions of emissions."* If sequestration solutions could assist in these given solutions, then they should be carefully analysed with respect to different social and environmental impacts with particular attention paid to food security.

Similarly, a powerful agrochemical lobbying machine currently tries to promote a vision of agriculture based on non-labour which sequesters carbon in the soils while serving the interests of seed, fertiliser and pesticide industries. This model, based on monoculture, the use of GMOs, and the excessive use of herbicides, would have the advantage of stocking carbon in soils, but it continues to have alarming environmental and social impacts!

Environment is not limited to climate

The impacts of human activity on the environment go beyond mere climate changes; the impacts have been documented in the alarming IPBES reports published in March of last year².

These note a massive and generalized decline in fauna and flora globally, with significant dangerous return effects on the wellbeing of humans. A more global image of environmental challenges is therefore necessary in order not to rush for solutions that would only be linked to a resolution of the climate issue.

With respect to agriculture, a recent study³ considered the impact of cultural production on pressures put on the Planetary boundaries. The concept of Planetary boundaries identifies nine boundaries to be respected to guarantee secured living conditions for humanity. This study underscored that agricultural activity played a leading role: out of the nine boundaries, five have actually been crossed, and four of them are largely dominated by agriculture (see the infographic opposite)

Developing a global vision of food systems

Agricultural activity is therefore greatly responsible for the profound impact of humans on their environment. Consequently, solutions proposed for the climate must take into consideration the environmental issue in its entirety and avoid the dangers of thinking in silos which will only view the climate change issue; specifically, the imperative of sequestering carbon. Thoughts about the environmental, but also the economic, social, health and cultural impact of food systems are necessary for identifying solutions which will provide real answers to the issue of sustainable development. As highlighted in a recent study⁴ *"there will be no sustainable development without a profound transformation of food systems."* The climate crisis provides an opportunity to rethink the food system that is largely failing.

Agroecology as a promising way forward

When the entire system is considered and the totality of its impacts are taken into account, agroecology appears to be the most promising way forward⁵, ensuring positive external factors for the climate and environment as a whole, as well as significant social benefits specifically for family farm producers. With regard to the climate, developing agroecological systems as a means is an efficient adaptation tool that is appropriate and accessible to family farms in the South. The resilience of these systems have been stressed several

Notes

- 1 Boysen et al., 2017, The limits to global-warming mitigation by terrestrial carbon removal, *Earth's Future*, 5, 463–474.
- 2 Equivalent du GIEC – Groupe d'experts intergouvernemental sur l'évolution du climat – pour la biodiversité.
- 3 Campbell et al., 2017, "Agriculture production as a major driver of the Earth system exceedin
- 4 See the Communiqué from Cirad dated 8 August 2018, about the study: There can be no sustainable development without profound changes in food systems, www.cirad.fr
- 5 IAASTD, International Assessment of Agricultural Knowledge, Science and Technology for Development, 2009

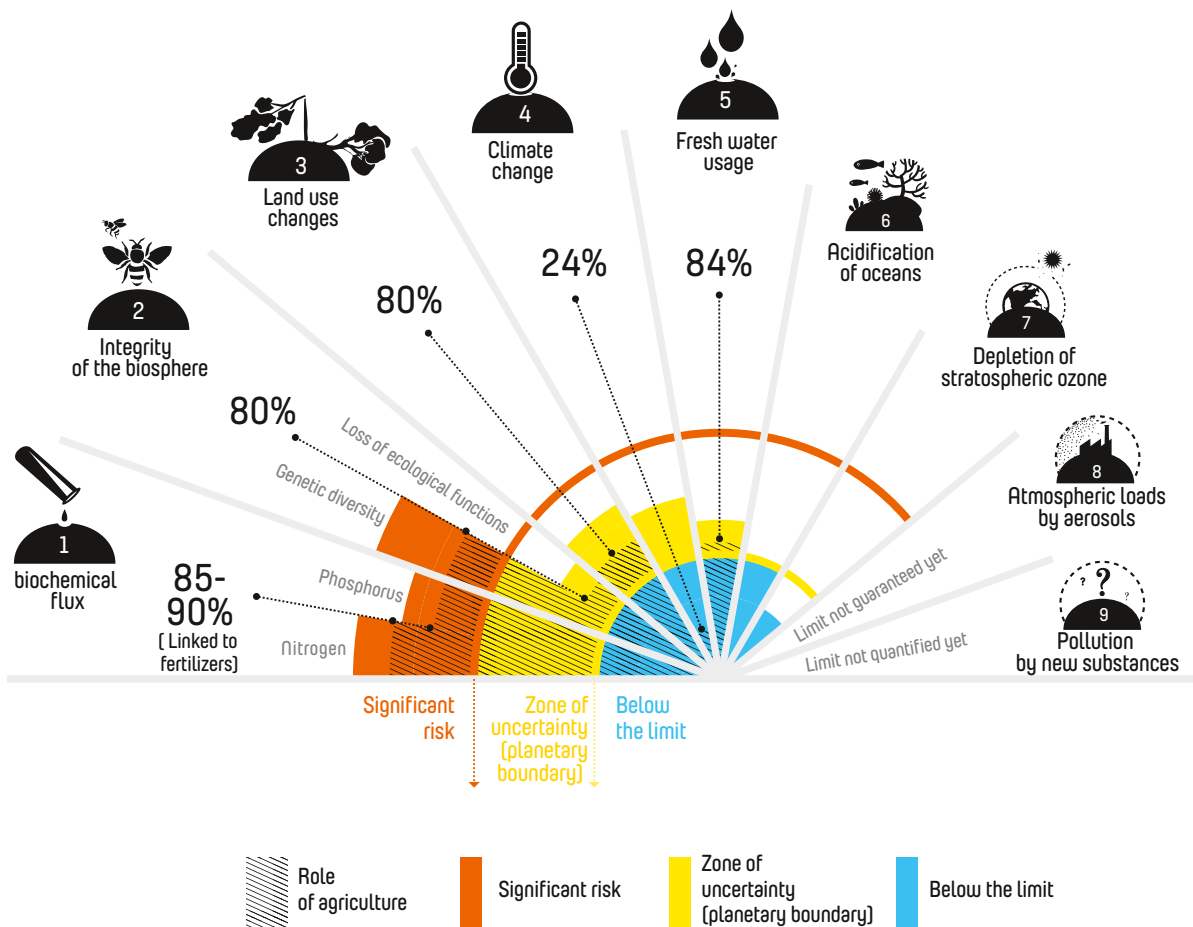


Five planetary boundaries already exceeded

Nine planetary boundaries have been identified. Five of them have already exceeded the limits, in which agriculture played a significant role.

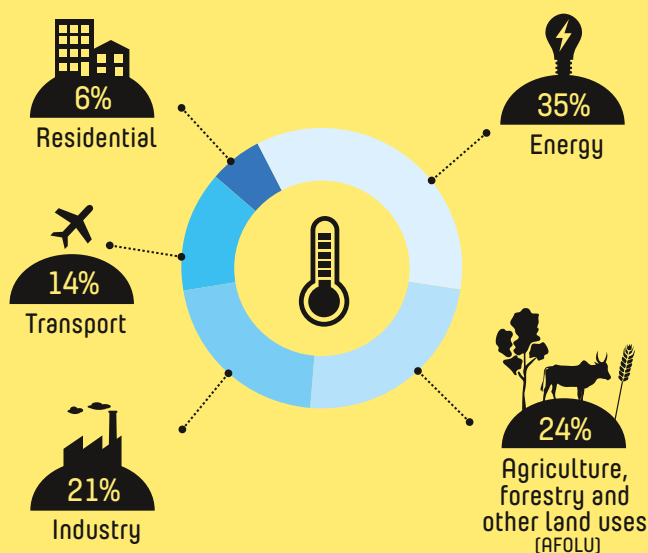
Agriculture accounts for **24%** in climate change {4}, but its role is much more important in other areas: **80%** on the integrity of the biosphere {2}, **80%** on the change of land use {3}, **84%** on use of fresh water {5} **85** and **90%** on biochemical cycles of nitrogen and phosphorus {1} for fertilizer production.

The other planetary boundaries are ocean acidification {6}, ozone depletion of the stratosphere {7}, aerosol loading in the atmosphere {8}, and the introduction of new entities {9}, that is, long term toxic substance emissions.



Source: Campbell et al. 2017

Agriculture, forestry and land use represent 24% of greenhouse gas emissions



Source: IPCC 2014

Agriculture, forestry and land use represent 24% of greenhouse gas emissions in 2010, which is divided equally between emissions directly from agriculture (methane, nitrogen oxide), and emissions linked to changes in land use (mainly caused by deforestation, which is itself linked to the expansion of farm land). We only take into consideration agricultural activities here, however, other activities of the food system also have an environmental and climate impact. The manufacturing of inputs such as fertilizers, the energy used in agricultural plants, processing, packaging, containing, transport, refrigeration, distribution, food preparation, also produce greenhouse gases. Therefore, in rich countries, processed food products can generate most of the greenhouse gas effect during processing and distribution. A study* conducted in the United States attributed, 40% of global emissions of the American food system to the processing and distribution steps.

The perspectives on future green house gas emissions may vary greatly depending on the models, but the different scenarios come together on one point: the growing significance of emissions linked to agriculture in the future. Likewise, global warming will greatly impact agricultural activity. If regional differences are important globally, agricultural activity will become more difficult and its benefits will diminish. Tropical regions, where there is a greater concentration of family farms and small agricultural producers are and will be disproportionately impacted.

Notes

* Edwards, J., Kleinschmit, J., Schoonover, H. (2009). *Identifying our climate "foodprint": Assessing and reducing the global warming impacts of food and agriculture in the U.S.*: Institute for Agriculture and Trade Policy.

times and are worth being widely promoted and sustained in the framework of agricultural adaptation to climate change. These systems also permit greenhouse gas emissions to be mitigated and carbon to be stocked in the soils.

Although the unsustainable impacts of the current system – and future impacts of alternatives – have been widely established, and although there is increasing awareness of the impasse in society in

general, in the scientific community and in civil society, it is incumbent upon public policies, and specifically international climate policies, to create a framework that favours the transition towards food systems that are socially fairer and more environmentally friendly. Despite timid steps forward, this battle is far from over. ♦

Editor : François Grenade

The FAO's director stated in 2014, during the 1st agroecological symposium, that it was necessary to place the agroecological perspective at the centre of the debate about agriculture and food in the future.

Is this indicative of a real transition of agricultural systems towards agroecology? Will existing public policies efficiently favour this transition? How about the situation today in Latin America, in West Africa or even in France?

Which public policies favour the transition to agroecology?

Notes

- 1 FAO 2018. Catalysing dialogue and cooperation to scale up agroecology: outcomes of the FAO regional seminars on agroecology.
- 2 Coopération internationale pour le Développement et la Solidarité (structure regroupant des ONG catholiques de développement européennes). <https://www.cidse.org/>.
- 3 International Panel of Experts on Sustainable Food Systems. <http://www.ipes-food.org/>.
- 4 IPES-Food. 2016. From uniformity to diversity: a paradigm shift from industrial agriculture to diversified agroecological systems.
- 5 Centre de coopération internationale en recherche agronomique pour le développement. 20/11/2017. Amérique latine. Quelles politiques publiques pour favoriser l'agroécologie?

The intentions have hardly evolved since the discourse of J. Graziano Da Silva in 2014. There has already been a 2nd symposium held from 3 to 5 April 2018.¹ According to François Delvaux, Advocacy Officer at Cidse², "FAO's language is quite progressive, and, in some respects, it is the fruit of civil society's labour. But there is a real problem of a gap between discourse and practice particularly regarding national policies." The authors of the IPES-Food³ will not contradict him, who advocate for "the necessity of creating coherent and multisectoral public policies" in order to "favour the development of alternative systems and overcome obstacles – numerous and structural – to the transition to agroecology."⁴ FAO's website lists a number of these global policies, but according to F. Delvaux, "very few are implemented."

What is really going on? Are we witnessing a phenomenon of institutionalization or a dilution

of the principles of agroecology when policies are implemented? Unfortunately, few studies exist that respond to these questions.

Latin America, the cradle of agroecology

Recent research by Cirad⁵ provides a picture of Latin America. Starting from 2017, this study compares the public policies favouring agroecology in eight countries: Argentina, Brazil, Chile, Costa Rica, Cuba, Mexico, Nicaragua and El Salvador. The region is perceived to be, as the title states, the cradle of agroecology, since its conceptualization by Miguel Altieri and Stephen Gliessman in the 1970s. In the context of political democratization, agroecology has progressively been incorporated and circulated by social movements (NGOs, small farmer organizations). With the objective to propose



a transformation of the food production and consumption systems, in opposition to the agrobusiness exporter model and its socio-environmental violence (expulsion of farmers, massive deforestation, spraying of pesticides on villages). Besides the pressure applied by social movements, various crises have often played a role in the emergence of public policies to favour agroecology in Latin America. Examples: the economic embargoes and collapse from USSR to Cuba, the financial crisis of Argentina in 2001 (which sharply increased the price of inputs, and therefore obliged farmers to seek alternatives) or yet the failure of conventional cotton cultivation in Nicaragua (coupled with the economic crisis and the damages from hurricane Mitch in 1998, which has isolated the region for a long time).

Brazil and Nicaragua

In this context, is Latin America the most advanced in public policies favouring agroecology? "It's impossible to say", replies Eric

Sabourin, Socio-anthropologist at Cirad and the principal author of the study, "both the disparities and inconsistencies are innumerable".

In fact, only two countries have specific policies: Brazil since 2012, and Nicaragua since 2011. In both cases, the law brings together agroecology and organic agriculture. Brazil's National Action Plan (Planapo), having at the time of its launch in October 2013 8.8 billion reais (2.9 billion euros) – a drop in the bucket compared to 136 billion reais (45.5 billion euros) along with low interest bank credit to agribusiness – integrates among other measures, knowledge management, access to resources, markets and food security. According to E. Sabourin, "one of the most interesting points of this policy is the program Ecoforte, which financially supports agroecological farmers networks so that they can exchange, experiment and share their practices (themselves and/or with the support of researchers and technologists). This is the kind of most crucial support which works best and which, in the end, is affordable⁶. The support to guaranteed participatory systems or self-certification is also worth noting. The advantage is there although it is a bit onerous, which allows for a certification for direct sale to be obtained (farms, local markets, farmers markets, etc.) without price increases."

There is no policy specifically linked to agroecology in other countries covered in this study, but some have plans, which are at the debate stage in parliament (e.g. Uruguay, El Salvador). "On the other hand, many sectoral policy instruments have led to indirect support for agroecology through, for example, agro-environmental measures. This was the case specifically in Mexico, where a law on sustainable rural development was voted in 2001. Or in Costa Rica, which has in place a sustainable agricultural plan since 2003 in line with a strong development of its ecotourism. This plan integrates, for example, subsidies, credits, ecosystem service payments which benefit agroecological producers directly. Agroecology is therefore publicly recognized."

Cuba is a special case because of the economic blockade. The island does not have an agroecological policy as such, but "its family farms are entirely agroecological. The training and research began there much earlier than anywhere else as well as the set up of support networks and technical advice by farmer and technician associations."

Progress and setbacks

The support for agroecology is also provided through food security policies established by social welfare ministries or by an array of mixed instruments clustering several ministries together. Preferential public purchases from family farms allows food to be provided to hospitals and schools. The cost of these products are increased therefore indirectly encouraging agroecology or organic farming. According to E. Sabourin, "the Fome Zero program of the Lula and Rousseff governments was a real pull factor for small agroecological farmers. The problem is that currently this program has been completely halted following the impeachment of Dilma Rousseff and the arrival of conservatives to power. And this scenario does not only play out in Brazil, but also in Nicaragua, where there was some funding available once the law was passed, but very soon the government implemented distinctions between agroecological and organic movements, which allowed the government not to pass statutory regulations. Political and economic power relationships are still very much against supporters of agroecology."

In such a context, what are the solutions for creating policies favouring agroecology in Latin America? For the researcher, it is necessary to "transcend the corporatism and form large coalitions between agroecology and organic agriculture, as well as between farmer organizations, agricultural research institutes, universities and technical support services, etc. Such alliances can be successful against agro-industrial lobbyists, particularly when progressive governments, willing to listen, are in power. This was the case, for example, with El Salvador, where a bill on agroecology was proposed in Parliament in 2016." Alliances with consumer organizations are a particularly interesting avenue to be explored. "There is an increasing demand by the upper classes in Latin American cities for healthy and ecological foods. The same for poorer populations: labourers and agricultural producers are often the acti-

vists committed to agroecology because they have suffered several health disasters linked to conventional agriculture. This is on another level of health scandal compared to Europe! In the end, all this translates into a potentially huge internal market for agroecological products."

Transcend the corporatism and form large coalitions between agroecology and organic agriculture, farmer organizations, research institutions and universities

West Africa: a fragmented agroecology

What about the situation in West Africa? Although there are no studies like that of Cirad for this region, a program was launched in 2017 by IPES-Food in order to make an inventory of the policies, activities and actors engaged in agroecology.⁷ And the initial conclusions, in terms of public policies in place, were both quick and harsh: "there were few policies favouring any real transition to agroecology in the region," as bluntly stated by Emile Frison, Member of a panel of experts from IPES-Food and head of the program. On a regional level, one can cite the African Union's Action Plan for ecological and organic agriculture. "This plan has the merit of existing," stated E. Frison. "It serves to recall the commitments made. But to date, it has not been translated into National legislation. Some measures have been determined to support organic agriculture, but these remain fragmented and partial. Many efforts, be it agronomic research or development projects are, in fact, focused on large sectors, based on a philosophy of using increased inputs. And often these projects do not consider issues such as

Notes

- 6 Similar programmes called "Campesino a Campesino" exist in Nicaragua, Costa Rica and Cuba.
- 7 IPES-Food. April 2018. Highlighted agroecological alternatives in West Africa. Midterm Report (working document).

Agroecology is the poor relation of financing in Africa



resilience in the face of climate change, nutritional security, or aspects of social equity."

How can we explain that the agroecology alternative in West Africa is so negligible in terms of funding and visibility? *"I think that certain decision-makers begin to realize the need for change. But for the majority, there is no real interest in committing to this path. The market inputs have a huge influence on national policies and lobby heavily to keep their interests in place. Under the influence of multinational seed producers for example, new legislations appear everywhere in Africa. These legislations consider it "illegal" to sell farmers' varieties, which represent 80% of the seeds used. This is*

a major obstacle to the development of agroecology, which needs genetically heterogeneous varieties. Land is another very significant barrier. The agroecological transition can lead to significant losses in yields in the first years, especially if the soils were previously impoverished by intensive agriculture. Therefore, farmers in transition who invest in soil quality undertake a high risk if they have no land security. This is therefore crucial in agroecology and more largely in sustainable agriculture. Subsidizing inputs are a major obstacle to overcome. Many African countries provide such subsidies; it should also be possible to reallocate them to farmers in the process of transitioning to agroecology."

Lack of means

The passing of the Agricultural Framework Law (LOA) in 2005 represented a major opportunity to support the development of sustainable agriculture. But a lack of information and publicity to base organizations, weak involvement by beneficiaries, and a lack of means at the local level have considerably weakened its operationalization. This type of missed opportunity is regrettable especially since the region possesses some assets with regard to transitioning to agroecology. E. Frison stated these assets include *"a large diversity of food production, a significant 'reservoir' of traditional knowledge as well as an even higher percentage of local food consumption."*

An example of a plan benefiting from these various advantages is a new program from the French Development Agency (AFD) that was launched in collaboration with the Economic Community of West African States (Cedeao), in five West African countries (Burkina Faso, Côte d'Ivoire, Mali, Senegal and Togo). With a budget of 8 million euros, this program *"will finance projects aimed at supporting the agroecological intensification of family farms as well as organizational management methods favourable to its adoption."*⁸

"This project is very interesting" stated E. Frison. "It creates interest in lenders and could significantly influence regional agricultural policies."

According to Maureen Jorand, of the Catholic Committee Against Hunger and for Development "the French Development Agency announces an objective to support agroecology, however different terms are used – agroecology then agroecological practices and now agroecological intensification." An inconsistency in terminology which, according to the responsible for Advocacy, is revealing of "the unclear policies on the matter". It is obvious that Agroecology is the forgotten part of the food security financing in Africa, although projects can be found on terminal refrigeration for example or routes referred to as 'all export'. Similarly, there seems to be an organizational thought behind the simultaneous announcement of support to agroecology and the release of the New Alliance for Food Security and Nutrition (Nasan). Nasan represents one type of reorientation of the private aid model (see public-private partnerships, support to multinationals, etc.) towards agroecology. But there does not seem to be a real will for a dialogue nor any political courage."

Europe, a French turning point towards agroecology?

France is worth considering from this perspective: historically a major agricultural producer in Europe, France has a strong ability to influence the Common Agricultural Policy (PAC), as well as numerous development projects in the South. Above all, in 2012, as an initiative of its Minister of Agriculture at the time, Stéphane Le Foll, France launched an agroecological strategy aimed at an "economic, environmental and social transformation" of its agriculture.

For Alexander Wezel, Director of the Department of Agroecology and Environment at the Institut supérieur d'agriculture Rhône-Alpes (Isara-Lyon), "France is an innovative country when it comes to agroecology. Although Minister Le Foll's project was not crystal-clear in its aims at its inception, the Grenelle Environmental Forum, then the Law on the future of Agriculture in 2013, clearly integrated elements to favour a transition to agroecology.

This is specifically translated into funding for the National Research Agency or for the National Institute for Agronomy Research (Inra). Since then, a kind of cultural shift in the great French agronomy research 'machine' has been noticed. Agroecology also appeared in several agricultural schools. The Grouping of Economic and Environment Interests (GIEE) finances farmers associations in order to experiment and

Interest "to insert agroecology in policies to fight against global warming

exchange on agroecological practices, they also obtain a form of recognition validating their production. It is not just about purchasing a seed sower directly for a farmer. It also supports a collective step towards transition. It is a really interesting way of truly translating law into the everyday lives of farmers through a bottom-up action, by way of reflection and innovation."

Limited buy-in

Nevertheless, the results of this policy seem to be quite mixed. Indeed, Le Foll's policy line remained clear and would have allowed for increased knowledge and recognition of agroecology in the world of French agriculture. But buy-in has been limited, and the message has not been promoted, for example the National Federation of Unions for Agricultural Producers (FN-SEA), a majority union, resolutely pro agroindustry is not convinced by the economic performance component of agroecology. Above all, according to Mathilde Théry, who is responsible for advocacy at the Foundation for Nature and Humans (FNH), "agroecology has been enshrined in the law but without any real budget attached. These are actually budgetary conflicts since the PAC continues to fund the most intensive practices." A. Wezel (Isara) also underscores the supranational challenges of the European agricultural policy, "where green-up is very scarce, the diversity or rotation

Notes

8 AFD. 2018. Support Project to Agro-ecological Transition in West Africa. Disclosure Letter.



Agroecology in Action

The movement called Agroecology in Action began in Belgium and covers a wide spectrum bringing together farmers and small-scale agricultural producers, associations and citizen organizations engaged in sustainable food, responsible and supportive food consumer groups, researchers, cooperatives, environmental advocates, PME with a social and solidarity-based economy, healthcare actors, actors fighting insecurity and for social justice, NGOs.

Agroecology in Action takes concrete measures to transition to agroecological food systems. It supports the dynamics and agroecological food projects in Belgium. The movement seeks to do the following:

- Transform the production methods towards agroecological production
- Promote methods of agroecological consumption based on territorial markets and short routes between producers and consumers
- Defend human rights, particularly the right to adequate food for all and decent working conditions for producers and workers in the food system
- Protect arable land, natural resources and common assets
- Promote social and political agroecological movements and food solidarity, as well as advocate for a democratic governance of food systems and integrated public policies

The members of Agroecology in Action are engaged in ongoing advocacy with Belgian and European policy makers.

Check out the movement: www.agroecologyinaction.be
Questions ? Suggestions ? Contact! info@agroecologyinaction.be

of measures required being lax. There should be an expansion of the areas of ecological interest, increased demand for diversification, and above all, reduced direct subsidies and an option for subsidies based on environmental performance. This is already being done in some regions of Germany, for example, where aid is linked to the quantity of nitrates measured in the soil."

Policies reduced in number and budget

Despite an increasing recognition of agroecology on a scientific level (and institutionally to a lesser extent), public policies favouring agroecology remain very limited both in number and the degree of implementation and budgets. In the existing policies, the measures that present the best efficiency/costs ratio, according to E. Sabourin, are those "offering technical assistance services by competent agricultural consultants trained in agroecology" or "the support to network development for sharing practices and for short supply channels."

The example of France is without a doubt the most symptomatic of these limits. Although the dynamic created by Minister Le Foll contributed to positive changes nationally (especially with regard to research and education) and internationally (see expert groups, symposiums, and FAO's general policy declaration), it is rapidly losing momentum. One has noticed, as M. M. Théry (FNH) has summarized, "a return to 'business as usual' and to the joint management of day-to-day business with the major agricultural unions." As in many other countries, two models seem to co-exist currently: on one hand, the production-driven system, along with timid steps in favour of agroecology.

Conclusion: head winds for agroecology?

Beyond questions of political change which ensure their sustainability, policies supporting agroecology face numerous head winds. Firstly, as identified by IPES-Food, the "dependence on the path (...), an intertwining of policy and commercial push factors," which allow industrial agriculture to "strengthen itself." As such, education and research, agricultural subsidies benefitting large-scale agricultural producers, the commercial prospects, etc., are overwhelmingly oriented towards – and fueled by – increasing industrialization. For those agricultural produc-

ers who have already invested in this model, it is particularly complicated to break away: the significant investments they have generally made can only be honoured by pursuing the logic of intensified industrialization.

In this context, agroecological policies must also be created to win the communication battle, particularly regarding questions about prices (consumers generally expect low prices), production volumes, (the narrative 'feed the world' by industrial farming) or externalities (need to demonstrate the contributions of agroecology to public health and to socio-economic equality). In this battle, it is of decisive importance, according to M. Jorand "to have a clear and common definition of agroecology farming." Otherwise, "the risk is that policies put in place will be used as an excuse by a range of actors, for example, by large scale projects to employ agricultural workers who are climate intelligent." An approach E. Sabourin does not deny, but according to him, "a context of regression, particularly in Latin America, has made it become a taboo to defend agroecology." In this sense, it may be of interest "to insert agroecology in policies to fight against global warming or build resilience in the face of crises."

At any rate, the experiences of agroecological movements lead socio-anthropologist from Cirad to say with respect to public policies, "it is necessary to go beyond the scope of a land parcel or a farm, and to plan the most appropriate measures at the level of territories, in terms of managing natural resources, landscape, knowledge networks, and organizing local commerce." Another conclusion drawn from his research, certainly generalized outside of Latin America, is the necessity of "uniting alternative production systems, at a minimum, between agroecology and organic agriculture" and to "better coordinate the implementation and monitoring of policies between the different ministries."

As IPES-Food concluded in its report, public policies put in place must be "incentive-based, coherent and mutually beneficial," in order to "replace the vicious circle of industrial agriculture with a virtuous one that favours agroecology." Policies such as these are essential for creating an environment favourable to a rapid transition and real change in scope of agroecology ♦

Editor: Patrick Veillard

