

Food and climate change : it is up to us, as consumers and producers, to change our food system¹

*“The future of nations depends on they way they eat”
(Anthelme Brillat-Savarin)*

A heatwave hits a large part of Europe at the time these lines are written. According to a study published by Nature (June 2017), around 30% of world population is currently exposed for at least 20 days in the year to heat conditions that are above the thermoregulating capacity of the human body. By 2100, this percentage should reach 48%, in the case greenhouse gases (GHGs) were drastically reduced, and 74%, in the case of a scenario that would see the continued increase of these emissions².

An indisputable fact

There may still be a few minds blinded by their immediate economic interests that refuse to believe in the anthropic origin of climate change despite a mountain of evidence produced by the scientific community, but it is only a tiny minority today who does not admit that climate change is acutally happening. Its most obvious signs have been visible in the recent past - and one can expect that they will be amplified in the future -: multiplication of extreme meteorological events such as, in addition to heatwaves, cyclones, droughts, forest and bush fires, as well as floods.

Beyond these indisputable effects, it is the ecological conditions as a whole, everywhere on the planet, that are expected to evolve more or less rapidly, modifying radically our environment. This will make obsolete our ways of interrelating with nature from which we extract our living, in particular our food. For example, among the likely impacts of climate change, one can expect a displacement of the vectors of diseases affecting humans, as well as those hitting animals and plants that are at the origin of our food.

Consequences for food

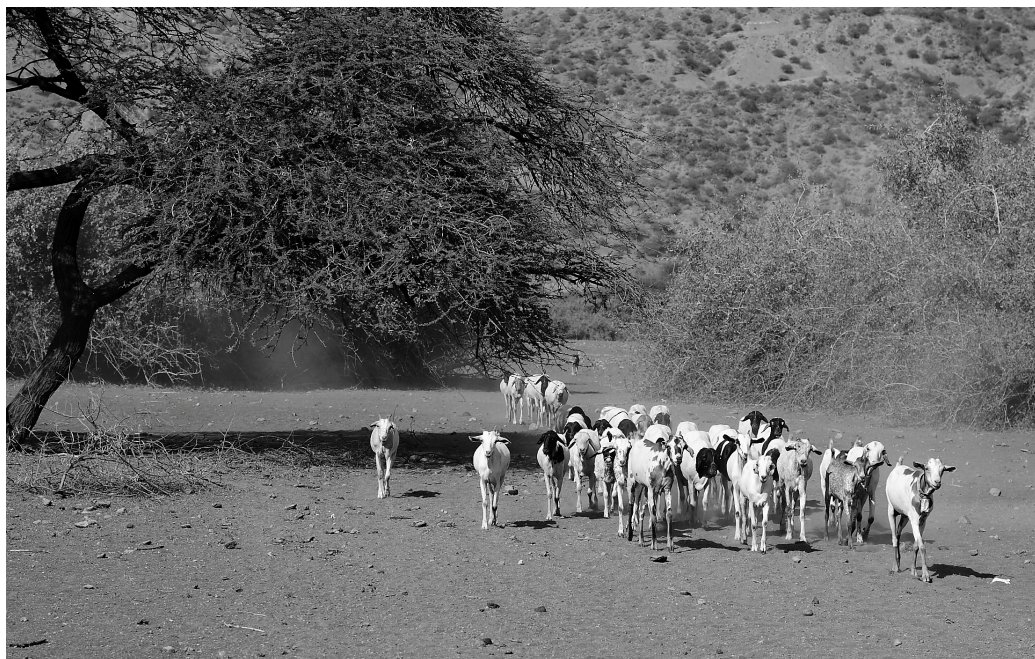
The work conducted by the Intergovernmental Panel on Climate Change (IPCC)³ illustrates abundantly that it is the least favoured areas of the globe that suffer most from consequences of climate change, insofar as it will impact dramatically on the most fragile rural communities. It is therefore expected that, in the future, those areas suffering from chronic undernourishment will see their condition further deteriorate if the evolution of our climate during the last decades continues. In a study that has just been published, a pluridisciplinary team showed that the accelerated melting of Greenland's icecap, as it may occur if GHG emissions were to continue increasing, would lead to

¹ By Materne Maetz, first published under the title “Alimentazione e cambiamento del clima”, in Rivista Incontri: L'ecologia integrale della Laudato si', Anno IX, No.17, gennaio-giugno 2017

² Mora, C. *et al.*, Global risk of deadly heat, Nature Climate Change (2017) <https://www.nature.com/nclimate/journal/vaop/ncurrent/full/nclimate3322.html>

³ https://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml

a reduction of the monsoon in the Sahel. This aridification could cut by around one million hectares the area cultivated in food crops in West Africa, with as consequence the possible migration of several tens of million persons⁴.



In some cases, the impacts of climate change compound to further aggravate the condition of local people. For example, it is proven that higher temperatures accelerate the degradation of organic matter in the soil. Yet, a lower level of organic matter reduces biological activity in soils which is indispensable for an efficient plant growth. It also makes the soil less capable of storing water, which contributes to increasing the vulnerability of crops in case of drought. As a consequence, agricultural producers living in arid and semi-arid zones, a large part of whom are already food insecure, face a higher frequency of bad years as meteorological conditions become increasingly uncertain and, in some areas, unadapted to cropping. When unable to feed themselves, these population groups are only left with the option of migrating: every year, climate change throws out upon the roads of migration millions of people, the majority of which are peasants living in poor countries for whom migrating appears to be the only solution left when all others have failed.

In the face of this danger that threatens, with time, food security of all inhabitants of the planet, it is however possible - and indispensable - to act by implementing soonest two types of solutions: (i) those that allow to adapt food production to climate change; and (ii) those that contribute to mitigate climate change by reducing its main cause, the emission of GHGs.

Adapting food production to the changes in climate

There are a series of well known ways in which to adapt to climate change that need to be implemented:

- Use of plant and animal species, varieties and lines adapted to new climatic conditions;
- Diversification of production with the view to reducing risks faced by producers;

⁴ Defrance, D. Consequences of rapid ice sheet melting on the Sahelian population vulnerability, PNAS, 2017, https://www.researchgate.net/publication/317350698_Consequences_of_rapid_ice_sheet_melting_on_the_Sahelian_population_vulnerability

- Improvement of drainage and irrigation infrastructure to manage water more effectively.

But this is not sufficient and these solutions must be complemented by other innovative ways that will require more research efforts in order to develop adapted technologies that are accessible by the mass of agricultural producers⁵.

Reduce GHG emissions due to our food

When the role of our food in climate change is being discussed, food is mostly presented as a victim rather than as one of the main causes of GHG emissions. And when the responsibility of food in climate change is acknowledged, the analysis is usually limited to the agricultural production part of the food system and to the GHGs produced by agriculture in the broad sense, including livestock production, forests and fisheries. Based on that, figures put forward suggest that agriculture represents around 24% of GHG produced by human activities⁶. Only considering agriculture in this estimate makes this figure a gross underestimate of the GHG emissions linked to our food by omitting many other ways in which our food emits GHGs and thus contributes to climate change. *This omission prevents from identifying all the changes that would need to be brought to our food system in order to make it less damaging for our environment.*

Indeed, our food requires many activities other than just agricultural production to be carried out. And they all emit GHGs⁷ :

- Our food is increasingly made of processed agricultural products produced by the agroindustry that can be estimated to be responsible for 4 to 6% of GHE emissions;
- Our food is traded and transported over long distances, creating thus around 2% of GHGs of human origin;
- Finally, one third of our food is lost or spoiled, and this is responsible for 8% of total GHGs.

When adding up all these additional emissions to those originating from agriculture, one can see that food, as a whole, is responsible for 35 to 40% of GHGs emitted by human activities. Quite considerable!

These remarks suggest that to reduced GHG emissions originating from our food system, *it is not sufficient to change the way in which we produce the food we consume, but we also need to change the way in which we consume it*⁸. This puts the ball back in our camp as we are all food consumers. It becomes our personal responsibility.

Coming back to agricultural production in the broad sense, and if we consider that the main sources of GHGs are deforestation, cultivation of peatland - which represents a huge stock of carbon -,

⁵ Maetz, M., **Climate is changing - Food and Agriculture must too - Towards a “new food and agricultural revolution”**, p.4-7, [hungerexplained.org](http://www.hungerexplained.org/Hungerexplained/Climate.html), 2016 <http://www.hungerexplained.org/Hungerexplained/Climate.html>.

⁶ Intergovernmental Panel on Climate Change (IPCC), **Climate Change 2014 - Summary for Policy Makers**, WMO/UNEP, 2014 http://ipcc.ch/pdf/assessment-report/ar5/wg2/ar5_wgII_spm_en.pdf

⁷ Maetz, M, *ibid.* p.2-4.

⁸ Maetz, M, *ibid.* p.7-10 et p.16-17.

livestock production (due largely to enteric fermentation and poor management of animal manure), we can foresee some ways in which to reduce emissions. We will need to:

- Protect forests and peatland, and increase their capacity to act as carbon sink so as to reduce the impact of forest conversion into cultivation and of forest and peatland fires;
- Reduce and improve livestock production management;
- Reduce food waste and losses;
- Decrease the use of energy for production, processing, storage and transport of food;
- Increase the carbon capture and storage capacity in agricultural land;
- Use paddy growing technologies that do not require flooding of paddy fields.

Technical solutions exist to achieve these changes and new technologies can be found, provided investment is made in research and innovation and if policies are in place to provide incentives to economic agents for adopting them. For this and for all other changes that will be required to adapt and mitigate climate change, it will be necessary to mobilise adequate financial and human resources. In the framework of the November 2015 [Paris Agreement](#), signed during COP21, rich countries had pledged to fund efforts by poor countries through a mechanism that was to mobilise yearly \$100 billion by 2020 (for all sectors). But it is unlikely that this objective will be achieved, even less now that the United States decided not to contribute. Less radical in its position, Europe has however given disturbing signals by showing that it was more inclined to invest in measures to combat immigration than to promote development activities in countries from which migrants come⁹, including “climatic migrants”.

In any case, changes at the level of agricultural production are not sufficient, as *we as consumers*, we are all responsible for the kind of food system that has developed over the last decades, and we have therefore a central role to place, each of us, if we want to really transform it in depth. What can we do ? We can:

- Consume more fresh non processed food that is produced near our homes and who have a lower than average carbon footprint¹⁰;
- Consume less animal products;
- Consume products produced by organic farming or ecological agriculture that lead to less GHG emissions and preserves natural resources, soil in particular¹¹;
- Be careful to manage with care our food to avoid wasting it¹².

⁹ Valletta Summit on migration: 1.8 billion euros for Africa to stop Africa-to-Europe migration - Illusion or irresponsibility?, [hungerexplained.org](http://www.hungerexplained.org), 2015, http://www.hungerexplained.org/Hungerexplained/News_14_November_2015.html

¹⁰ The current trend is an increase of the share of our food constituted by processed or ready for consumption food : “In the US, spendings on food away from home has more than doubled between 1990 and 2014 to surpass at-home food sales for the first time.” **US Food and Agriculture: present and (perhaps) future situation**, [hungerexplained.org](http://www.hungerexplained.org), 2017, http://www.hungerexplained.org/Hungerexplained/News_18_May_2017.html

¹¹ **A solution to combat climate change: an agriculture that stores carbon in the soil**, [hungerexplained.org](http://www.hungerexplained.org), 2015, http://www.hungerexplained.org/Hungerexplained/News_17_June_2015.html

¹² An example among others that is very easy to follow: refuse some types of discount offers that propose 3 bread loafs for the price of 2, if it is two loaves that your require, or 8 yogurts when you intended to buy 6...

Changing our food will also imply adjusting our way of life and give more importance to our food:

- By spending more time doing our own cooking rather than spending countless hours in front of screens (it is more creative!);
- By allocating a larger share of our budget to our food, to the detriment of telephony, clothing or other less vital budget lines, so as to pay the right price for food produced in an environment-friendly¹³ and socially acceptable manner.

In addition to having a positive impact on climate and the environment, this improved way of consuming our food will also contribute to better our health (less pesticides, sugar, salt and various deleterious additives in our food), social links (between consumers and producers, for example, through short supply chains) and even family relations (avoid a generalisation of quick meals taken irregularly, alone, in front of a screen and adopt an approach to food consumption based on meals where the family in its entirety meets to eat and communicate at fixed times). This change will require that each of us does his/her share each as individuals, of course, but also society as a whole.

With time, it is our food security that is at stake and this deserves to accept to reorganise our way of life and to provide assistance to the most vulnerable among us, our neighbours but also people living far away somewhere in the world.

We can only be pleased when a great personality such as Pope Francis makes a strong statement in this line of thought through his Encyclical Letter « *Laudato Si'* » on the Care of our Common Home. Let's hope that his message will have an echo with "people of good will" and that it will be taken up by other personalities and inspire our political leaders to reorient our public policies.

And good will is required in large amounts, as there are very powerful interests that extract wealth from the way in which our food system is currently operating, at the expense of us all and of nature of which we are an integral part.

Earlier articles on hungerexplained.org related to the topic:

- [Climate finance : for whom is the World Bank working?](#) 2017
- [Climate is changing - Food and Agriculture must too - Towards a "new food and agricultural revolution"](#) 2016
- [Climate finance for poor countries: confusion, lack of transparency and probability that commitments made will not be respected](#), 2016
- [A solution to combat climate change: an agriculture that stores carbon in the soil](#), 2015
- [A major challenge for agricultural research in the mid-term: developing climate-change ready rice varieties](#), 2015
- [The Global Alliance for Climate-Smart Agriculture: a new tool for an enlightened capitalism?](#) 2014

¹³ In France, "since 1960, households spend on food a decreasing share of their consumption expenditure: 20% in 2014 compared to 35% in 1960", **Cinquante ans de consommation alimentaire : une croissance modérée, mais de profonds changements**, INSEE, 2015 <https://www.insee.fr/fr/statistiques/1379769#inter1> - In the US, the share allocated to food is much lower than the level observed in France.