

The climate problem is a food problem

Potatoes in Greenland, olives in the south of England, bell peppers grown outside of greenhouses in the Netherlands... The warmer weather offers possibilities¹. Furthermore, thanks to the mild winters, we can start growing our crops a few weeks earlier than we used to. And a higher level of CO₂ also ensures a quicker growth rate and higher profits. This is the good news.

In reality, climate change is also dangerous for food production. Also, agriculture contributes heavily to the emission of greenhouse gases. Both these effects will be discussed in the following paragraphs.

Food production leads to climate change

The agriculture, forestry and other land use (AFOLU) is **responsible for about 24% of the greenhouse gas emission**². That is more than the percentage of gases caused by the industrial sector (21%) or the transports (14%). In Europe (EU-27), we are talking about huge amounts of animals: 153 million pigs, 123 million cows, 99 million sheep and more than 500 million battery hens and almost 11 million tons of chicken meat in 2008³. We can notice that these statistics are expressed solely in terms of weight, which says enough about how the life of a chicken is valued.

Next to the emission of the infamous carbon dioxide (CO₂), the relevant gases when it comes to keeping livestock (cattle and other farm animals) are primarily **methane** (CH₄) and **nitrous oxide** (also known as *laughing gas*, N₂O). In order to still be able to compare products, **everything is translated into CO₂-equivalents**. The results show enormous differences between butter and beef on the negative side of the scale, and vegetables, grains and legumes as sustainable alternatives

CO ₂ -emissions in grams per kilogram	
beef	13.300
chicken and other poultry	3.500
pork	3.250
eggs	1.950
milk	950
butter	23.800
hard cheese	8.500
yoghurt and soft cheese	1.950
apples	550
vegetables (on average)	153
beans	144
brown bread	750

(source: GEMIS-database)³

¹ How Climate Change is Transforming Food Culture in Greenland, <http://www.travelandleisure.com/slideshows/greenland-food-climate-change>

² Intergovernmental Panel on Climate Change's report http://ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full.pdf, page 63. Figures for 2010.

³ Figures from Eurostat, ec.europa.eu/eurostat. Usually from 2008, but figures from some countries are older.

(comporting proteins and other rich nutriments necessary to our daily consumption).

Meat and dairy score worse than vegetarian food; the animal as an intermediate step renders the process far less efficient. Beef scores extra badly because of the huge amounts of methane that develops in the process of chewing the cud. Moreover, the more an animal is able to move, the less efficient the production of food becomes. That's why we frequently prevent livestock from being free in grazing lands. On the other hand, a more natural diet means lower emissions of CO₂. A rule of thumb as regards dairy is *the fatter the dairy product, the worse it is for the environment*. As a result, butter scores particularly badly per kilogram.

The development of new fields for keeping livestock and producing food for cattle has also to be taken into the equation. The main aliments we are talking about are **corn and soybean**. "*With one-third of the world's cereal harvest and 90 percent of the world's soy harvest being raised for animal feed, the energy required to grow those crops is a major factor in these on-farm emissions*"⁴. The transformation of these areas consists in burning down forests and savannas and drying of swamps, which causes large-scale CO₂ and methane emissions. And the production itself has a very bad food-print in the environment. It's a **method of monoculture, using huge amounts of pesticides and fertilisers**. To improve the crops yields, there is also a large use of GMO. Without talking about the transport food-print, water for irrigation,...⁵

An example is the south of Brazil. Soy for cattle-fodder is now grown on a very large scale in areas that used to be covered in rainforest. As these areas are making their own climate, it means that less water evaporates there, leading to less rainfall elsewhere. The result is poorer harvests, which force soy and cattle-farmers to use the remaining rainforest even more quickly. Rainforests used to cover the 14% of the Earth's land surface, but it's now only 6%. They could totally disappear within forty years⁶.

Worldwide, meat can still be seen as a luxury product. **Your income growing, you're more likely to eat meat**⁷. The rich part of the population consume the most meat and dairy and hence contribute a disproportionate amount

⁴ GRACE Communications Foundation <http://www.sustainabletable.org/982/agriculture-energy-climate-change>

Pachauri, R. Global warning: The impact of meat production and consumption on climate change. Compassion in World Farming. London, Sept 8, 2008.

⁵ <http://www.onegreenplanet.org/animalsandnature/livestock-feed-is-destroying-the-environment/>

⁶ Who is responsible for the destruction of the Amazon rainforest? teachitgeography.co.uk 2013

⁷ FAO, Economic growth, hunger and malnutrition Income growth and changes in food consumption. <http://www.fao.org/docrep/016/i3027e/i3027e03.pdf> Page 4

Table 4. Per capita consumption of livestock products

Region	Meat (kg per year)			Milk (kg per year)		
	1964 - 1966	1997 - 1999	2030	1964 - 1966	1997 - 1999	2030
World	24.2	36.4	45.3	73.9	78.1	89.5
Developing countries	10.2	25.5	36.7	28.0	44.6	65.8
Near East and North Africa	11.9	21.2	35.0	68.6	72.3	89.9
Sub-Saharan Africa ⁹	9.9	9.4	13.4	28.5	29.1	33.8
Latin America and the Caribbean	31.7	53.8	76.6	80.1	110.2	139.8
East Asia	8.7	37.7	58.5	3.6	10.0	17.8
South Asia	3.9	5.3	11.7	37.0	67.5	106.9
Industrialized countries	61.5	88.2	100.1	185.5	212.2	221.0
Transition countries	42.5	46.2	60.7	156.6	159.1	178.7

who.int/nutrition/topics/3_foodconsumption/en/index4.html

to climate change. This can be true for country scale as well. **The EU consumption of livestock products average is higher than the global one:** in 2009, the EU consumption for whole milk was 79kg/capita/yr. The consumption of cheese and butter was 18kg and 4kg/capita/yr. However, the global average of whole milk consumption in 2007 was 50kg/capita/yr, and 2.84kg/capita/yr and 1.32kg/capita/yr for cheese and butter⁸.

In 2008, the Institute for Prospective Technological Studies published a report commissioned by the European Commission, concluding that meat and dairy are responsible on average **for 24% of the damage to the environment in all EU countries.**⁹ The GRACE Communications Foundation has estimated that 33% of the total global warming effect can be attributed to the food system¹⁰.

Climate change has a negative impact on food production

⁸ Compassion in World Farming, <https://www.ciwf.org.uk/media/5235182/Statistics-Dairy-cows.pdf>

⁹ Environmental Improvement Potentials of Meat and Dairy Products from IPTS, <ftp://ftp.jrc.es/pub/EURdoc/JRC46650.pdf>

¹⁰ GRACE communications foundation, <http://www.sustainabletable.org/982/agriculture-energy-climate-change>

Next to over-fishing, erosion and soil exhaustion caused by non-sustainable agriculture and the pollution of water and soil through industry and the use of pesticides, also **climate change endangers food production**. The argument that some people proffer, namely that the yields increase due to the higher concentration of CO₂ in the air, is invalid. After all, the warmer weather is simultaneously leading to an increase of ozone on the earth's surface, which decreases agricultural yields.¹¹ Research by the UN predicts “*that the ever more prevalent failed harvests due to extreme weather such as droughts or heavy rains will have more effect than the average rise in temperature. (...) Due to climate change, the amount of people who suffer from famines will increase.*”¹² The same study shows that the temperate zones can hope for increase the yields for a short time, while the countries around the equator will suffer most from these developments. **In general this are the poorest countries with the most vulnerable agricultural systems.**

For the long-term, the Centre for Global Development comes up with even more pessimistic figures: “*Worldwide, potential agricultural production may decrease by 5-20% due to climate change, if nothing is done until 2080. (...) However, these statistics mask an even greater decrease in India (-30%-40%) and Africa and Latin America (both – 20%).*”¹³ It must be mentioned that the influence of the coming lack of fossil fuels (for machines and as an important ingredient of artificial manure and pesticides) has not been discounted in these figures. “*Climate change has the potential to both positively and negatively affect the location, timing, and productivity of crop, livestock, and fishery systems at local, national, and global scales*”¹⁴ “*By mid-century and beyond, these impacts will be increasingly negative on most crops and livestock*”

Next to climate change, **there are other indirect factors that constitute a danger for food production**. The coming lack of fossil fuels has ensured a growing production of *bio-fuels* (or *agro-fuels* if we refuse to adopt this misleading word). A substantial part of the rapeseed, grain and corn crops already goes towards this fuel and is taking a great part of the land for agriculture¹⁵. The grass root online resume it by saying that “*in exchange for some minor and*

¹¹ UN IPCC Fourth Assessment Report (AR4): Climate Change 2007: Impacts, Adaptation and Vulnerability, Chapter 5, http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_wg2_report_impacts_adaptation_and_vulnerability.htm

¹² See footnote 1.

¹³ See the report ‘Global Warming and Agriculture’ <http://www.cgdev.org/content/publications/detail/14090> of <http://www.voanews.com/english/archive/2007-09/2007-09-13-voa16.cfm?CFID=251796887&CFTOKEN=87411355&jsessionid=8430e2c460b388a5a54cac4e4547031e7b20>

¹⁴ See the six “key message” of National Climate Assessment on <http://nca2014.globalchange.gov/report/sectors/agriculture#intro-section-2>

¹⁵ Biofuel organisation <http://biofuel.org.uk/land-use.html>

unproven greenhouse gas savings compared to fossil oil (except for sugarcane), agrofuel production will increase intensive monoculture plantations of oil palm, corn or sugarcane; and will contribute to deforestation and biodiversity destruction”¹⁶.

In addition, **increased prosperity in parts of the world is leading to the adoption of the Western pattern of consumption** (i.e. the consumption of excessive amounts of meat... and waste). This adds to the pressure on the land to produce all that extra food for cattle, all of which leads back to the precedent information. All in all, ever less land is available for actual food production.

Guess who are the first to suffer the ill effects...

With climate change, the poorest and most vulnerable are, as ever, the first to suffer the ill effects: **scarcity leads to higher food prices**. People with a low income, little in reserve and no access to their own land are directly affected adversely by these developments. Already, they are spending a large amount of their income on food and cannot save on anything else.

And what are governments and companies doing to solve this problem?

Very little things. The COP21 was almost only focusing on the energy problem. Agriculture is still left behind and the food system seems to be changing too slowly. The politicians turn to the really challenging issues: the stimulation of companies and export, and smoothing the way for an even more large-scale cattle industry. Companies still need to optimise their profits in this capitalist system in order to survive. So they encourage monoculture, grab land, pressure farmers, sell GMO seeds,... You can't expect the companies involved to voluntarily reduce the production of cattle-fodder, meat and dairy and to promote sustainable vegetarian alternatives. We will have to give the animal industry a hand with ending their murderous activities towards animals and the climate. Once again, organisations and people will have to defend nature, health and animals during the COP23, in Bonn, by denouncing this food system¹⁷.

Small-scale farming leads to a cooling-down

Our current food system is creating global warming. By transporting food all around the world, but also by imposing industrial and polluting forms of production, converting land and forests into non-agricultural areas. This results to

¹⁶ <http://grassrootsonline.org/sites/default/files/small-scale-farmers.pdf> Small-scale sustainable farmers are cooling down the Earth

¹⁷ Link to Eduard and Louis' article ?

the destruction of biodiversity, and the “*transformation of agriculture from an energy producer to an energy consumer*”¹⁸.

Small-scale agriculture actually reduces climate change. In contrast to conventional agriculture (with pesticides and artificial fertilisers, and often large scale), organic agriculture leads to deposits of CO₂ in the soil. Also, conventional agriculture uses artificial manure to bind nitrogen in the soil. A lot of natural gas is necessary to produce this. It has been calculated that **one medium-sized organic company binds as much carbon dioxide as 100 cars emit**.¹⁹ In addition, small-scale farming leads to employment and the means to sustain oneself for a large part of the world’s population. It is also less vulnerable to the coming deficit of (fossil) fuels.

For food production that takes mankind, animals, the environment and the climate into account, and abandons multinationals and owners of large properties!

Join our struggle against over-consumption and polluting industries, support ecologically and socially sustainable production and join!

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¹⁸ <http://grassrootsonline.org/sites/default/files/small-scale-farmers.pdf> Small-scale sustainable farmers are cooling down the Earth

¹⁹ <http://www.sustainabletable.org/issues/climatechange>, datas from Rodale Institute