

The Food Crisis

Millions of people around the world are suffering food shortages, unaffordable food prices and hunger, primarily due to industrial farming, bad harvests related to climate change, unjust terms of trade and the rush for biofuels.

There is no single solution to the crisis. The G8 leaders at the Toyako, Japan summit from 7-9 July, need to step up emergency assistance to the 850 million people who are suffering from hunger, and address the underlying causes of the current food crisis by:

- Increasing public investment in research and development on ecological and climate change-resilient farming
- Stopping funding for GE crops and prohibit patents on seed
- Phasing out the most toxic chemicals in agriculture and eliminating environmentally destructive agricultural subsidies
- Protecting domestic food production through trade agreements
- Dropping mandatory targets to increase the ratio of biofuels used in transport

Causes and Solutions:

Securing natural resources for future farming generations

The future of farming lies in a biodiversity-intensive agriculture. Industrial agriculture compromises the very resources on which our food supply depends. It has turned regions that were once breadbaskets into dustbowls laden with pollutants leaving land devoid of life. It degrades soil, contaminates water and results in decreasing yields, despite increasing use of pesticides and fertilisers.

Biodiversity-intensive farming reduces the probability of pests and diseases by diluting the availability of their hosts. Millions of farms on all continents prove that organic and sustainable agriculture can provide sufficient food, increase food security, replenish natural resources and provide better livelihoods for farmers and local communities.

Governments need to channel investment in research and development on sustainable ecological farming methods, especially those that will increase food production by the poorest in the developing world, focussing on small-scale farmers. Data proves that small-scale farms average higher yields than large farms. Governments need to move away from chemical-intensive methods and the false promises of genetic engineering (GE).

What about GE?

GE is a threat to food security rather than a solution to the food crisis. GE crops experience lower yields and have failed under extreme fluctuations in temperature. Rather than increasing critical biodiversity, GE puts the world's natural biodiversity at risk of contamination in an unforeseeable and uncontrolled way; since 1996, there have been 216 cases of crops being contaminated by GE in 57 countries (www.gmcontaminationregister.org).

GE is also expensive and risky for farmers and governments alike. Its seeds are subject to patent claims which will indirectly increase the price of food and, as a result, will not alleviate poverty or hunger and poses a threat to countries' food sovereignty. This conclusion is shared by the 2008 International Assessment of Agricultural Science and Technology for Development (IAASTD) report; initiated by the World Bank, it is the first global scientific assessment of agriculture. Compiled by over 400 scientists from around the world, it saw no role for GE crops in achieving the Millennium Development Goals or in eradicating hunger. Some examples of why:

- Herbicide tolerant GE soybeans, currently on the market, are reported to have a 10 percent lower yield than traditional varieties.ⁱ
- Extreme temperature fluctuations caused losses of GE cotton crops in China. Researchers found the extreme temperature changes caused a loss of the GE function resulting in lower yields than conventional cotton.ⁱⁱ
- All GE crops, even those developed by governmental research institutions, are controlled through patents by a few multinational companies. Patent fees dramatically increase seed prices. In the US, the price for GE cotton seed increased up to four times over the past 10 years.

Traditional and modern conventional breeding techniques form a key part of achieving long-term solutions to the food crisis. They increase plants' ability to withstand the unpredictable and variable weather brought by climate change.

Adapting to climate change

Climate change will increasingly affect agriculture worldwide. Food security, particularly in poorer countries, is under threat from unpredictable changes in rainfall and more frequent extreme weather events. Furthermore, industrial farming is a significant contributor to greenhouse gas emissions, both directly for example from fertilisers, and indirectly as a result of destroying forests.

The most effective strategy to adapt to climate change is ecological, bio-diverse farming. Data on farming from around the world provides unequivocal evidence that mixing different crops and varieties is a proven and reliable method of increasing crop resilience to erratic weather changes (see www.greenpeace.org/raw/content/international/press/reports/cool-farming.pdf).

By contrast, GE crops are unable to provide security against extreme weather changes. They cannot adapt to the rapid and radical weather changes that will result from climate change. The gene inserted to cope in a GE crop is

switched on all the time regardless of changes in conditions. It is like an air conditioner always running at full speed – which proves deadly in winter.

Establishing food sovereignty and fairer trade systems

The worrying decline in domestic food production in many developing countries is, in most cases, the direct result of IMF and World Bank policies to phase out or reduce guaranteed prices, subsidies and tariffs on agricultural products, as well as to shift farming towards currency-earning export crops. As a result, agriculture is subject to trade laws and speculation, leading to a fundamental shift in agricultural practices and people's diets.

Many countries that were self-sufficient in producing food suffered a decline in local production, often due to heavily subsidised cheap food imports from developed countries. Local farmers could not survive the unfair competition, which has devastated rural livelihoods. Any long-term solution to the current food crisis must aim to increase local food production in developing countries. Barriers that prevent developing countries from increasing public spending on agriculture must be removed and tariffs developed that protect their agriculture from unfair competition.

Biofuels and the rise in oil prices

The high price of oil is a key contributor to the food crisis. Not only because our food system is intensively dependent on fossil fuels for fertilisers, farm machinery and transport, but also any increase in the oil price is an additional incentive to use crops for energy rather than for food.

In 2007, the US diverted 54 million tonnes of maize to produce bioethanolⁱⁱⁱ and the European Union used 2.85 million hectares^{iv} to grow rapeseed oil and other crops for biofuels. If the same land had been used to grow maize and wheat for food, it would have yielded an estimated 68 million tonnes of grain, enough to supply food for 373 million people a year^v. This equals the combined populations of the 28 least developed countries in Africa^{vi}.

The rush for biofuels in international markets is diverting productive land away from growing food to growing fuel and driving up grain prices; in addition to driving rainforest destruction, which fuels climate change. As an immediate measure, mandatory biofuel targets in developed countries must be suspended and legislation implemented to ensure biofuel production does not threaten food security, particularly in developing countries.

Additional forces behind the food crisis

Speculation on commodities is also a factor behind food price increases because speculators, who moved away from other markets that have fallen, are increasingly speculating on future commodity prices.

Growing demand for meat is diverting grain away from feeding people to feeding livestock. It is estimated that if 50 per cent of people living in the EU-

15 and US were to substitute half their average annual meat consumption with proteins from plants, the grain saved from feeding animals would be enough to feed half of the undernourished people in the world for one year.^{vii}

Conclusions – Farming with nature, farming for life

A fundamental change in farming practices and policies is needed to address soaring food prices, hunger and environmental disasters. “Business as usual is not an option”. This essential conclusion by the IAASTD report clearly states food security will neither be achieved through ever increasing amounts of chemical fertilisers or pesticides, nor through resorting to GE. The report reflects a growing consensus among the global scientific community and many governments that industrial, energy-intensive and toxic agriculture is a failed concept of the past. As it stresses, small-scale farmers and agro-ecological methods provide the way forward in ending the food crisis and meeting the needs of local communities.

For more information see [Food Security: The answer is biodiversity](#) [LINK]

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ⁱ Elmore, R.W., Roeth, F. W., Nelson, L.A., Shapiro, C.A., Klein, R.N., Knezevic, S.Z. & Martin A. (2001). Glyphosate-Resistant Soybean Cultivar Yields Compared with Sister Lines. *Agronomy Journal*, 93: 408-412.

ⁱⁱ Olsen, K.M., Daly, J.C., Finnegan, E.J. & Mahonr. R.J. (2005). Changes in Cry1Ac Bt transgenic cotton in response to two environmental factors: temperature and insect damage. *Journal of Economic Entomology* 98: 1382-1390.

ⁱⁱⁱ Economist Intelligence Unit, February 2008. World Commodity Forecasts: Food, feedstuffs and beverages. <http://www.eiu.com>

^{iv} EUROPA press release IP/07/1528, 17/10/2007; <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/1528>

^v We assume 182.5 kilogrammes (kg) of grain are needed to supply enough staple grain to an active person during a year (source: World Food Program).

^{vi} For United Nations list see: (<http://www.un.org/special-rep/ohrlls/lcd/list.htm>).

^{vii} Based on a population of 385 and 300 million people in the EU-15 and US respectively, with an average meat consumption of 92 kg per year and 124 kg per year (European Commission 2004, page 2 and Pimentel and Pimentel 2003, page 661S). It is estimated that on average 6 kg of plant proteins are needed to produce 1 kg of meat proteins (Pimentel and Pimentel 2003, Smil 2000, in de Boer et al, 2006, page 268). The meat sector in the European Union; http://ec.europa.eu/agriculture/publi/fact/meat/2004_en.pdf ; Pimentel, D., Pimentel, M., 2003, Sustainability of Meat-based and Plant-based Diets and the Environment, *American Journal of Clinical Nutrition* 78 (suppl), pages 660S–663S; Smil, V., 2000, *Feeding the World: A challenge for the twenty-first century*; The MIT Press, Cambridge, MA, United States.