



Brussels Rural Development Briefings
A series of meetings on ACP-EU development issues

Briefing session n° 15
From Global Food Crisis to Local Food Insecurity

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From price spikes to future agricultures
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Executive Summary

The food price spike has convinced some people that the global food system is broken. Is it?

The spike itself was an unusual, extraordinary event: the conflation of matters of chance, the outcomes of complex systems, and things under direct human control and policy misjudgments — all acting over different time scales. Such outcomes are to be expected —occasionally — in complex systems. With hindsight, the price spike might well have been avoided, provided that Northern biofuels mandates had not been set, had some public stocks not been reduced, had rice trading countries stuck to their previous practices and not panicked, and had there been investment in agricultural development. Note, however, that none of these elements necessarily involves radical changes to the food system.

The spike has, however, directed attention to two sets of important matters:

- a. The continuing and unacceptable levels of hunger and malnutrition in the developing world, aggravated by the price spike and by current economic problems.
- b. The changes in agriculture that are very likely needed to confront probable future challenges.

Looking at the latter, there are four transitions that agriculture will almost certainly need to make in the next couple of decades:

- From heavy use of oil and gas for energy and fertiliser to renewable alternatives. This could see, at least in the short and medium terms, real energy prices and the cost of nitrogen fertilizer, currently derived from hydrocarbons, rise substantially. Conventional agriculture, heavily dependent in many parts of the world on copious amounts of nitrogen and on power from fossil fuels to run tractors and pump irrigation water, could see costs of production increase commensurately;
- From wasteful use of copious and free irrigation water to careful and sparing application of water. Agriculture is the main user of fresh water by humans, yet much water is wasted. In some of the more densely settled areas of the world, and especially where rainfall is spare, water is running short for human and industrial use. Some warn of water wars in the near future. When human supplies run short, agriculture will be cut off from water. The need is for farmers to adopt more careful and sparing use of water;
- From emitting large amounts of greenhouse gases (GHG) to neutral or even negative net emissions. Agriculture is a major emitter of GHG, reckoned to contribute around 13–14% of the total at the moment. If emissions are to be cut, then agriculture will need to reduce its emissions substantially. Agriculture could also go one step further: there are opportunities in some farming systems to lock carbon into soil and biomass so that net emissions might be zero or even negative; and, not least,
- From current to altered climates, marked by higher temperatures, more variable weather with more frequent extreme events, altered rainfall patterns; and the concomitants of raised sea levels, reduced and more variable river flows in many river basins, and changed incidence of pests and diseases. Few sectors are likely to be affected more by climate change than agriculture. Most projections see overall reduced yields to agriculture, all other things being equal.

What would farming that confronts these challenges look like? In outline, it may involve:

- Much more efficient and economical use of some external inputs, above all water and fertiliser — better information technology and pricing will help;
- Timely agriculture that responds promptly to (increasingly variable) weather — again information technology can help
- Much reduced emissions through better management of N fertiliser, manure, reduced stocks of ruminant livestock [!], low till agriculture, draining of rice paddies, and carbon storage in soil and biomass. What would world farming look like if carbon taxes were applied to food?

Two concomitants of the above:

- Producing in areas where scarcer inputs can be used most economically and where emissions can be minimised; and,
- Coping with increased variability of harvest owing to more variable weather.

Both of these potentially imply trade! Drives for self-sufficiency locally or domestically could be highly expensive if not plain destructive.