



POLICY BRIEFING

The resilience of agriculture and food production: A planetary challenge

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Some things are inevitable, and rising demand for food is one of them. Yet, as is often the case, the questions of what to do about a challenge and how to go about implementing a response generate more questions than practicable policy solutions.

Between now and 2030, the Earth's population is set to leap from 6.9 to 8.4 billion (sources UN & FAO). This is a population increase – in two decades – of nearly 22 % – and with forecasts tending to be revised upwards rather than the opposite, we can be confident in these figures.

The trend within the trend is that the nutritional habits of people in developing countries have been changing too; their overall protein consumption has been rising and, within this, the share of animal protein in their diets has also been rising. The reason lies in a switch from plant to animal protein sources in East Asia, Latin & Central America, North Africa, and the Middle East (FAO). On the basis of these trends the FAO is forecasting a rise of 40 % in the global demand for protein by 2030.

With many of our contemporaries already suffering from hunger and malnutrition the question of just how are we going to feed the world's rising population can no longer wait for an answer.



We simply have no choice, this is the human and geopolitical imperative of our time. It is incumbent on political leaders and policymakers to step up and be proactive.

But what action can they take? A first step should be to ask what measures can be taken in the short term, assuming no rise in production levels. Such measures would include:

- Reducing losses in agricultural production *per se*;
- Reducing waste all along the food chain 'from the farm to the plate';
- Sharing the world's available food resources more equitably;
- Combating the unbalanced nutrition that lies at the root of many health problems (e.g. obesity).

But such measures do not obviate the need to also find new ways to produce more food. The two ways this can be achieved are:

- Opening up new agricultural land, and;
- Making productivity gains.

Taking these in turn:

Useable agricultural land

The earth still has unused but useable agricultural land, although it is distributed unevenly. Over the next 15 years some 52 Mha of arable land could be added to the 1534 Mha that is currently exploited.

But this overall increase masks the rises and falls that are predicted, in this scenario, to occur in different regions:

- North America will lose 32 Mha, a % reduction of 15%), Europe will lose 13Mha, a % reduction of 11%), and South Asia will lose 14Mha, a % reduction of 11%;
- In contrast, Sub-Saharan Africa will gain 53 Mha, a % increase of +24%. South and Central America will gain 31 Mha, (+17%), South East Asia 22 Mha, (+20%) and Oceania 5 Mha, (+12 %).

The lesson we can draw is that any growth in production that is to be achieved via opening up new arable land will therefore take place in developing countries. Of course, for this scenario to materialise, developing countries need to secure the necessary investment resources. A further uncertainty that arises is that this additional capacity will be located in regions where agricultural production depends heavily on climatic variability, a vulnerability that is only going to increase.

Regions that enjoy greater productive stability – made possible by favourable soil and climatic conditions – are going to see their agricultural surface areas continue to dwindle.

The consequence of all this is that the year-on-year variations of global agricultural production could widen, which would cause commercial stock levels to fluctuate from one season to another, and which in turn would generate higher volatility in world agricultural markets.

Productivity

The key issue for the coming decades will therefore ultimately be the ability of farmers – and of the agri-food sectors in which they operate – to (1) make the investments that are needed to increase production and (2), in view of the pressing need to limit the environmental footprint of food production, switch to new farming and production practices.

How much more food is needed? According to the FAO, meeting the needs of the world's population over the next 10 years is going to require an additional 51 Mt of meat (+16 %), 23 % more milk, 49 Mt of wheat, 57 Mt of rice and some 180 Mt of coarse grains, as well as 20 % more oilseeds – in particular to meet animal feed requirements.

According to the UN and FAO, this means that every productive hectare is going to have to feed, every decade, an extra 0.4 people. By way of context, in 2010 each hectare fed 4.9 people; this figure will rise to 4.9 by 2020 and by 2030 it will reach 5.3. In 1960 the figure was 2.3.

For this to happen, large strides in productivity will be needed – but according to the UN and FAO this will have to be achieved without a

significant contribution from the African continent – despite the latter’s potential to provide new agricultural land and irrespective of any efforts that could and must be made to provide Africa with the technology and organisational know-how it needs to develop its local food production systems.

We may therefore infer that, in order to tackle the food crisis in the short and medium terms, the international organisations are implicitly relying on overall production growth to be driven by yield growth in the USA, the EU and Asia, as well as increased production driven by a combination of opening up additional agricultural land and increasing yields in South America.

A key challenge will therefore be to increase the yields from the arable land that is already cultivated. The challenge applies to all agricultural regions, including the developed exporting countries with mild climates: every additional tonne that these countries produce would be one that is available to meet rising demand.

However, even assuming progress is made on reducing waste, tackling obesity, and so on, areas where everything still remains to be done, it is clear that no individual region is in a position to meet the predicted increase in demand on its own.

Asking the 64 000 dollar question

In light of the magnitude of the short-term challenge (less than 15 years!), the 64 000 dollar question is not *whether* the major producing regions should or should not participate more in global trade, but *how*. Indeed can they? Can they play the role that is incumbent on them – so that the planet’s entire population can eat decent food?

Without wishing to use a moral or moralist tone, it would appear difficult for Europe to evade its responsibility in this regard given the particularly advantageous conditions for agriculture that it enjoys as well as its agricultural know-how. It is therefore urgent to come up with answers to the question of *how*.

Yet ‘how’ is a tall order. If the regions that can are indeed going to boost their production they will need to rise to a series of challenges:

- **Investing – both sustainably and coherently at different levels:**
 - At the farm level: developing sustainable production techniques in a context of eminently fragile resources, adapting farms’ business & operational structures, securing finance for investment needs.
 - At the industry level: organising, positioning, financing, improving supply chain relationships.
- **Adapting to market volatility:** markets are going to remain subject to stress, to unpredictable weather events and to the deeper effects of climate change – the resilience of agriculture – which includes the resilience of individual farmers – will be a determining factor for long-term production growth.
- **Introducing innovation and high-performance technologies into farms** at a time when the breakthrough technologies that would be the foundation for sustainable productivity are not yet known, although certain new technologies currently being applied in agriculture do offer promising avenues.

Are we ready today to rise to these challenges? Beyond the sometimes comprehensive – sometimes less so – analyses that have been made of the situation, do we possess, today, a coordinated suite of measures that are calibrated to the scale of the challenges? It is difficult to escape the conclusion that we do not: in which case, what support do the different producing regions need to be able to mobilise their agricultural industries?

For the European Union, the pressing questions are:

- **In its external relations**, to what degree is the EU able to make this issue a real priority in its trade negotiations or in its international development policy; to what extent is it able to stimulate greater production, and do so in a way that would be socially, economically, and environmentally sustainable – or in other words – achievable?

- **Turning to its domestic productive capacity; does the EU have the ability to supply international markets, as it is expected to be able to do?** The European Union is virtually the only region in the world to enjoy stable year-on-year production thanks to its climate, its soils and its technology. Given that its agricultural areas are forecast to decrease in size, international organisations are relying on productivity growth to raise EU production to the levels needed to meet demand.
 - o Yet, is this compatible with the fact that for nearly two decades agricultural productivity has been stagnant in Western Europe?
 - Bearing in mind the timeframes involved in animal research / plant varieties research, are there sources of socially acceptable productivity gains that could be tapped into over the short and medium timeframes (less than 10 years)?
 - What strategy(ies) should we envisage to ensure that any productivity gains achieved can be sustained/improved on over the longer term?
 - o In light of the new economic and climatic context, are the conditions for a growing European agricultural sector in place?
 - The CAP has only recently undergone a new reform and the agricultural sector needs a clear and stable legislative environment in which to work.
 - **In the medium term, the physiology of the CAP's 1st and 2nd pillars needs to be revisited in view of the three interdependent challenges that the EU must meet** if it is to sustain its agricultural and agri-food sectors – not to mention its rural areas: investment, sustainability, and resilience. Could switching from an expenditure-driven approach to one based on objectives and results be a way of freeing up latent potential while at the same time ensuring balanced development?
 - **In the short term** would it not be feasible to adjust the current CAP so that it is more effective, without altering its basic framework, in particular with a view to:
 - Enhancing its reaction capacity in relation to

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market shocks?

- Helping agricultural industries to plan for – and be able to navigate through – market and climatic volatility by putting in place more practical policy tools and instruments.
- Addressing the issue of present and future investment needs, of how to finance them, of farmer indebtedness in a context of fluctuating markets, of making the sector more appealing as a career to a younger generation of farmers?

The question of resilience, left largely to one side during the most recent European policy reforms, has today arguably become the cornerstone without which the economic and social development of the sector cannot credibly be envisaged.