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## Trends and challenges to be met in order to secure a sustainable future for our food and agriculture

Our food system undergoes rapid and fundamental changes that are both a cause of hope and of concern. Mankind will have to be capable of meeting some fundamental challenges to make our future one with a sustainable food and agriculture.

This is what the United Nations Food and Agriculture Organization (FAO) tells us in its thorough work on "[The future of food and agriculture - Trends and challenges](#)".



The trend analysis conducted by FAO stresses the importance of the evolution of world **demography** that is characterised by population growth, rapid urbanisation and a gradual aging of world population.

From an **economic** point of view, the UN agency takes stock of a lack of real convergence between rich countries, on the one hand, and emergent and poor countries, on the other, with the significant exception of China : inequalities among countries and among population groups within countries do not decrease, and this results in very diverse levels of investment that are likely to reinforce existing gaps. This is particularly true for Africa, where the number of poor and under-nourished continues to increase.

FAO also shows concern for the degradation of **natural resources** and **climate change**. In these two areas, our food system is at the same time one of the top culprits of the degradation observed and one among the main victims. The UN organisation notes a

slowdown in growth of **agricultural productivity** and a very high concentration of research and innovation in rich countries as well as an increase in the risks linked to pests and transboundary diseases because of growing trade flows and hyper-intensive technologies used in animal husbandry.

It is also worried by the negative effects of more and more frequent **conflicts** and **natural disasters**. Changes observed in the global food system (concentration, industrialisation) lead, for many consumers, to a degradation of the **quality of food**, with serious health consequences (overweight, obesity, cardiovascular diseases), and, for small producers, to an increasing risk of **marginalisation**.

Finally, FAO observes, particularly since the 2007-2008 food crisis, a renewed importance of **investments** in food and agriculture and an increased interest in this area of both the States and the private sector.

The picture presented by the UN agency corresponds to the reality of the symptoms observed and the statements made are based on very solid evidence and descriptions.

One would however have liked to see a more clinical, explanatory analysis rather than one that is mainly of a descriptive nature and puts all these trends on the same level, without highlighting clearly those that act as driving forces. The lack thereof is probably a reflection of the internal structure of the organisation, a strength as well as a weakness, where each unit wants to put forward the domain in which it is specialised. One would have liked to see more strategic analyses that identify root causes and explain the role of the logic of operation of the global food system so as to give readers a better understanding of the mechanisms that underpins the trends observed. Based on such an analysis, it would have been easier to identify clearly and convincingly the strategic challenges to be met, as well as concrete measures to take.

Indeed, it is only by understanding the drivers and the logic of changes taking place that it is possible to identify measures capable to reorient the food system and make it more economically, socially and environmentally sustainable. From this perspective, the ten challenges presented by FAO are not really satisfactory, as they basically reorganise the trends identified in a more summarised and integrated way, and lead to rather general objectives, often formulated in a tautological way, that do not propose a concrete and credible way forward.

It is hoped that this work will, one day, be complemented by a second volume with very specific proposals. One may however doubt that, considering that a UN agency typically has to adopt a reserved and careful attitude with respect to the interests of the most powerful of its members.

For [hungerexplained.org](http://hungerexplained.org), there are three fundamental causes that explain the problems of our food system and that are well illustrated by the trends described by FAO: the **technological choice**, the **dynamics of food and agricultural value chains** and **governance shortcomings**.

- **The technological choice.** One key cause of the trends observed by FAO is the direct consequence of a fundamental policy choice made a century ago: the choice of an industrialised agriculture based on the use of a paraphernalia of chemical products which serves as an outlet for goods produced by the very powerful chemical industry [read [Food, Environment and Health](#), p.4], and on a major reliance on irrigation that required a

great deal of construction of infrastructure, a great opportunity for the construction industry to make profits [read [The “all-out irrigation” strategy has led to a fragile, wasteful and inegalitarian system](#)].

It is this “chemistry and concrete’ agriculture that is not sustainable and has dramatic consequences on the environment, climate change and human health, as illustrated by a report presented at the UN Human Rights Council, a few days ago, by the UN Rapporteur on the Right to Food that uses results of FAO work [read the [report](#)].

From this point of view, it would have been useful to explain that the slowdown in growth of agricultural productivity goes along with a reduction of yields observed in countries, such as France - but it is also true in India, China and in other places - where intensive chemical agricultural has started to degrade the best agricultural soils and reduce their level of biological activity.

Similarly, it is this fundamental technological choice that caused the increasing risk for human health of zoonotic diseases, the development of resistance of pests to chemical treatment, the growing marginalisation of small farmers, the degradation of food quality, etc.

It is clear from this enumeration that the key challenge here is to develop alternative and more sustainable agricultural technologies, even if they are less integrated with the rest of the economy, but that will better safeguard the future.

- **the dynamics of food and agricultural value chains** : because they are characterised by a rapid concentration of the supply of agricultural inputs, of processing and retail channels in a few hands, these dynamics create an imbalance of power that allows certain economic agents to gain a dominant position.

Agricultural producers, who are often poorly organised, are caught between the oligopoly of large seed and agrochemical multinationals (often consolidated to dominate these two domains), on one hand, and the oligopsony of agroindustrial and retail multinationals (supermarket chains), on the other.

This set-up, well advanced in rich countries and promoted in poor countries, explains the current crisis situation of agriculture: low farm prices, poverty and despair of producers that leads to increasingly frequent suicides and to the closure or concentration of agricultural production units that fuels a massive migration towards towns or the development of a rural proletariat made of poorly paid seasonal agricultural labourers a proportion of which may be migrants.

A similar condition is that of workers - often women - who are under-remunerated and work under very harsh conditions in agro-processing industries (including slaughterhouses) and in large retail outlets or hypermarkets (poorly qualified part-time jobs, with chaotic and uncertain work rhythms, low salaries, etc.).

- **governance shortcomings** : because concentration and financialisation - an aspect that is almost entirely left out of the FAO report but that affects agricultural commodity markets, investment in food and agriculture (pension funds) as well as humanitarian assistance and social protection programmes that are being progressively established in poor countries - occur in the global food system and because of the global dimension of certain key problems that need to be solved (climate change, impoverishment of

agricultural biodiversity, technological change), it is quite clear that a governance based on national states is no more adapted. The weakness of States in the face of industrial, commercial or financial giants does not give them the capability to impose the changes required to meet the challenge, all the more as governments tend to seek the immediate national interest and often adopt a free rider behaviour which further weakens them.

These are, according to us, the key issues faced by global food and agriculture. We trust that if these aspects do not emerge clearly from the FAO report - but most of them are implicitly present -, it is not by lack of awareness but rather by political caution. But when dealing with such dramatic problems, can we reasonably be satisfied with political caution?

We can congratulate FAO for a work that clearly identifies the main symptoms of what plagues the global food system. FAO's analysis, from this perspective, is much richer than the work conducted earlier by the OECD [\[read\]](#), the European Union [\[read\]](#) or [IFPRI](#). But we regret to see that FAO is not in a position to move a step further in its thinking to prevent an insufficiently informed reader to believe, at the end of reading the report, that what is needed is to do more and bigger what is already being done, when what the world needs is a change in the logic underpinning the operation of our food system.

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Here is a summary of the **fifteen main trends** and the **ten challenges** that, according to FAO, will decide of the future of our food and agriculture.

### The fifteen trends:

1. **Demography:** *Demographic growth*, strong in Africa and South Asia, rapid *urbanisation* and a progressive *aging* of world population that will impact the labour situation, migrations, transform the patterns and levels of food consumption as well as the rhythm of adoption of new agricultural technologies.
2. **Economy:** the economic future of the world is characterised by great *uncertainty*, and in all cases, it is highly probable that *the gap existing between rich countries and poor or emerging countries will remain large*, measured by GDP/person, largely because of the *low level of investment* in these countries (apart from China) compared to rich countries. This difference in the investment level is also observed in the agriculture sector and is likely to lead to a persistence of undernourishment. Eradication of hunger would require an annual investment of USD265 billion in productive and social protection programmes (to be compared to more than USD10,000 billion of investment in the world, of which 400 in agriculture).
3. **Increased competition for natural resources:** a greater pressure on natural resources leads to their *unsustainable management* and their *degradation*. It is estimated that around 1/3 of agricultural land is degraded and agriculture is the main cause of deforestation, particularly in poor countries [\[read\]](#). It is also estimated that 40% of world population is living in water basins where water is insufficient, and possibilities to expand irrigated area are quite limited.
4. **Climate change:** *agriculture is a major source of greenhouse gas emissions* (GHG) and these emissions are strongly *increasing* while the sequestration capacity of GHGs by forests seems to be regressing. Climate change affects negatively yields in poor countries, while for rich countries, the impact is more positive. It also has a negative effect on fisheries production and on the nutritional quality of food.



5. **Agricultural productivity and innovation:** the increase in agricultural productivity has been at the cost of soil degradation, salinisation of irrigated land, overuse of water resources, deforestation, loss of biodiversity and the development of resistant pests. Over the last two decades, the rhythm of growth of yields has been slowing down. But there are important potential productivity gaps in poor countries and expenditure in R&D has been increasing since the turn of the century, although research activities are mostly being conducted in rich countries.
6. **Pests and transboundary diseases:** intensification and globalisation leads to an increase of risks and zoonotic diseases can have a serious impact on the economy and human health, particularly as there is a growing level of resistance of pests to treatment and medicines,
7. **Conflicts, crises and natural disasters:** over the last decades there has been a surge in the number of conflicts and natural disasters, and areas under conflict represent around 80% of humanitarian appeals. It is expected that there will be a greater coincidence of natural disasters and conflicts.
8. **Poverty, inequality and food insecurity:** while they are decreasing at world level, poverty and food insecurity continue to increase in Africa. Agriculture has a key role to play in combatting poverty and hunger, but it is not sufficient alone. Education, economic diversification in non-agricultural rural activities and the establishment of mechanisms of social protection are indispensable ingredients for eradicating poverty and hunger. Income inequalities between rich countries and poor countries have not decreased (with the exception perhaps of China) and they could continue to trigger massive migrations that could become unmanageable.
9. **Nutrition and health:** the “triple burden” of malnutrition (undernourishment, micronutrients deficiencies and overweight/obesity) are a global health emergency. While undernourishment appears to be decreasing [\[read\]](#), deficiencies affect more than 2 billion people and overweight is on the increase everywhere in the world because of the deterioration of the quality of food (growing share of processed food often with excess content of sugar, salt and preservatives). This impacts very seriously on human health.
10. **Structural change and employment:** the economic weight of agriculture, measured in terms of the share of the sector in GDP, decreases almost everywhere in the world. This is also true, although in a lesser way, for agricultural employment. Fragmentation of farms and aging of the population (youths being attracted by cities) tend to slow down changes in rural areas and exacerbate social tension in urban areas.
11. **Migration and feminisation of agriculture:** poverty, conflicts and natural disasters have contributed to boost migrations and forced displacements. With climate change, it is expected that there will be more frequent natural disasters. Feminisation of agriculture often contributes to greater women workloads but also offers women with opportunities, particularly in processing of agricultural products.
12. **Changing food systems:** urbanisation gives a greater importance to processing and distribution of food and large food retailers (super- and hyper-markets) have an every day larger share of the market (up to 75% in rich countries) which contributes to a strong tendency to concentration and industrialisation of food value chains and raises the issue of the capacity of small producers to respect norms imposed by distribution and thus have access to the market. This change is also a challenge for keeping track of the origine of food products (traceability) and of control of the ecological footprint of food.
13. **Food losses and waste:** one third of food produced in the world is either lost or wasted. This represents a wastage of natural resources and energy, and additional GHGs emissions. It is difficult to know how these losses and waste evolve over the time, given the major changes occurring in food chains.

14. **Governance for food security and nutrition:** governments are less and less inclined to programmes promoting “good governance” and prefer programmes that have a direct impact on development at a time when achieving the [Sustainable Development Goals](#) require an *efficient and responsible governance at global and national level*.
15. **Development finance:** the trend is one of *growing financial flows* towards middle-income countries. These are made of financial resources coming from abroad (foreign direct investment) and of financial resources mobilised locally.

#### The ten challenges:

1. **Sustainably improve agricultural productivity to meet increasing demand.**
2. **Ensure a sustainable natural resource base.**
3. **Address climate change.**
4. **Prevent transboundary pests and diseases.**
5. **Eradicate extreme poverty and reduce inequality**
6. **End hunger and all forms of malnutrition.**
7. **Improve income-earning opportunities in rural areas and address the root causes of migration.**
8. **Build resilience to protracted crises, disasters and conflicts.**
9. **Make food systems more efficient, inclusive and resilient.**
10. **Meet the needs for coherent and effective national and international governance.**

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To know more:

- FAO, [The future of food and agriculture Trends and challenges - Summary version](#), FAO, 2017
- FAO, [The future of food and agriculture Trends and challenges](#), FAO 2017 (full report)
- Hilal Elver, [Report of the Special Rapporteur on the right to food](#), A/HRC/34/48, 2017

Earlier articles on [hungerexplained.org](http://hungerexplained.org) related to the topic:

- [The World Economic Forum's “New Vision for Agriculture” is moving ahead on the ground...](#), 2017
- [Climate is changing - Food and Agriculture must too - Towards a “new food and agricultural revolution”](#), 2016
- [Food, Environment and Health](#), 2014
- MacMillan, A. [Hasn't the time come for some brave new thinking on food management?](#) Options, 2014
- [Water - The “all-out irrigation” strategy has led to a fragile, wasteful and inequalitarian system](#), 2013
- [Seven principles for ending hunger sustainably](#), 2013.