OECD Meeting of Agriculture Ministers
Background Note

OECD
BETTER POLICIES FOR BETTER LIVES

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Building Robust Food Systems for an Unpredictable Future

Highlights

- The global food system faces a number of uncertainties in future decades, including the pace of market growth and the effects of climate change.
- Scenario analysis provides a means to consider these uncertainties and formulate effective policies to address challenges and avail of opportunities.
- The OECD has developed three potential scenarios for agricultural markets in the lead up to 2050: Individual, Fossil Fuel-Driven Growth; Citizen-Driven, Sustainable Growth; and Fast, Globally-Driven Growth.
- Five policy approaches are recommended which are relevant across all three scenarios. These include greater regulatory coherence across countries and the removal of obstacles to sustainable productivity growth.

What's the issue?

The global food system will face both new opportunities and a formidable array of challenges over the coming decades. Markets are growing, but seldom at a predictable pace. Not only will the sector face rising competition for increasingly limited natural resources, in particular water, it will also have to adapt to – and in some cases to help mitigate – the unpredictable effects of climate change. The sector is also expected to contribute to economic growth, poverty alleviation, rural employment and development.

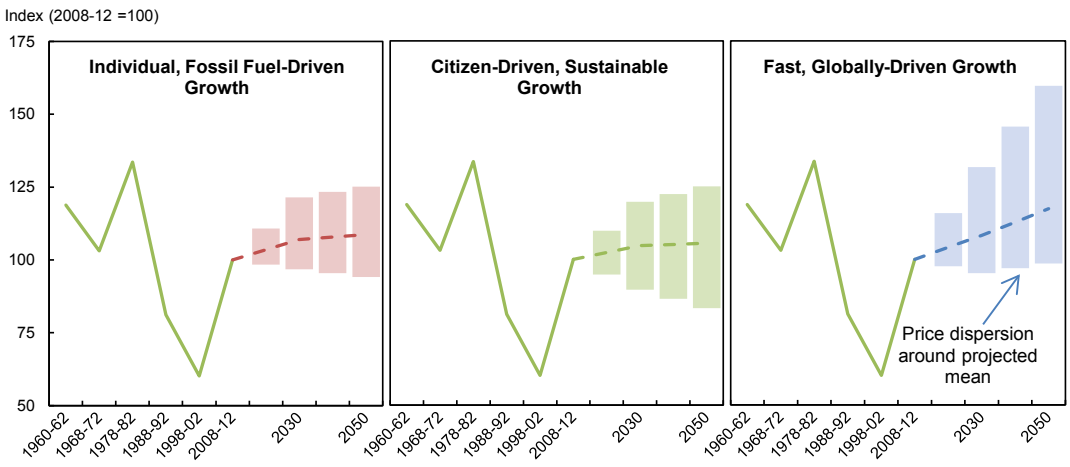
Policy decisions taken today will send important signals to farmers and the broader food sector. Will it be business as usual, or will governments shift the focus to improve the preparedness of the sector to confront an uncertain future?

Scenario analysis provides an approach to address an inherently uncertain future which model projections alone cannot completely assess. By allowing for structural breaks with past trends and unpredictable shocks, scenario analysis can facilitate the design and implementation of robust public and private strategies to address the challenges which lie ahead.

The OECD has developed three potential scenarios for agricultural markets in the lead up to 2050:

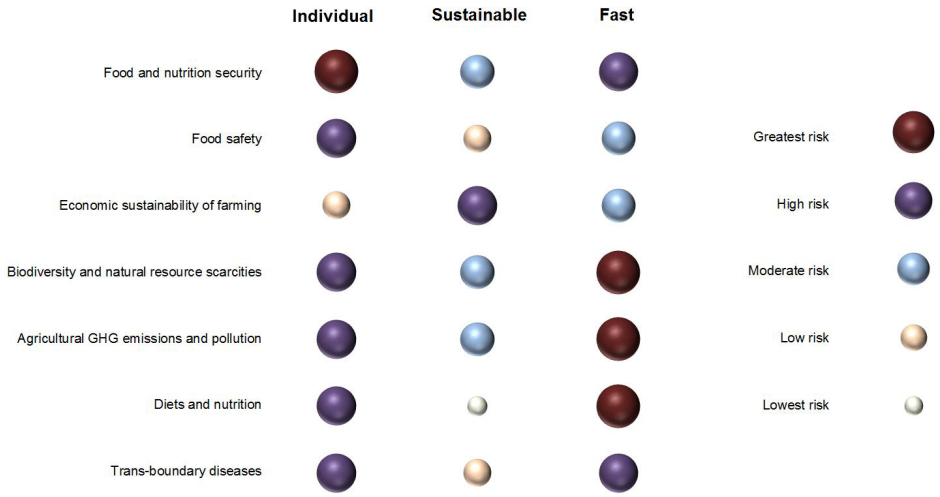
- **The Individual, Fossil Fuel-Driven Growth scenario** portrays a world driven by the strong focus of individual countries and regions on their own economic growth, and relatively minimal emphasis by governments or their citizens on environmental or social questions.
- **The Citizen-Driven, Sustainable Growth world** is one in which consumers and citizens drive their governments to emphasise environmental and social protection above all. Global co-operation is relatively limited.
- **The Fast, Globally-Driven Growth scenario** is characterised by a strong focus on international co-operation to achieve economic growth. Environmental issues receive less attention from governments or their citizens.

FIGURE 1. PROJECTED PRICES AND VARIATION IN THREE SCENARIOS



Note: Historical real commodity prices, prospects for average global real producer prices. All prices deflated based on US GDP deflator. Dotted lines represent means across four contributing models, while vertical bars represent the range of model results.
Sources: Historical data from World Bank (2015), US GDP deflator from World Bank (2015), prospects from results provided by models. Graph presented within OECD (2016), *Alternative Futures for Food and Agriculture*.

FIGURE 2. EACH SCENARIO FACES DIFFERENT PRIORITY CHALLENGES



Note: Larger bubbles correspond to greater overall risks related to specific challenges.
Source: Qualitative representation of scenario outcomes, derived from model results and discussions during OECD Workshops on Long-Term Scenarios for Food and Agriculture, December 2013 and December 2014, and presented within OECD (2016), *Alternative Futures for Food and Agriculture*.

What do these scenarios indicate?

Food prices could once again rise, although the level and related uncertainty varies among the scenarios. Farm incomes should also increase – however, the contribution of the agricultural sector to GDP and employment will fall.

Each scenario features its own priority challenges. Growth based on independent decision-making by countries and a high reliance on fossil energy – as is the case in the Individual scenario – could exacerbate food insecurity risks and increase pressure on the environment. Indeed, although global food security may well improve across all scenarios, the degree and speed of progress varies dramatically between them. Meanwhile, the Citizen-Driven scenario would challenge farmers to adopt more sustainable production methods, and the Fast scenario could witness amplified climate change-related risks.

All three "futures" see the environment being placed under increasing strain – albeit to varying extents. With the further expansion of agricultural land use and the growing use of farm inputs, the Individual and Fast scenarios indicate serious threats to sensitive habitats and ecosystems. Even in the Sustainable scenario, forests in Sub-Saharan Africa and Latin America would continue to decline – albeit at lower rates than in the other scenarios. Agricultural greenhouse gas emissions would likely continue to increase within all scenarios.

What should policy makers do?

Versatile, comprehensive and robust strategies are required – not only involving governments, but also private actors, where relevant. Five approaches are recommended:

- **Accelerated movement towards more sustainable lifestyles and consumption patterns**. This can be achieved both by public policies – such as the reform of subsidy and tax systems and consumer awareness campaigns – and private sector initiatives, including voluntary standards.
- **Improved coherence of food market regulations across countries** is essential for a well-functioning international trade system, the effective management of trans-boundary livestock diseases and the development of climate-resilient infrastructure.
- **Sustainable productivity growth is fundamental**. Governments need to reform policies that pose obstacles to sustainable productivity growth – including support for the use of fossil energy or other energy-intensive inputs – and invest in effective agricultural innovation systems.
- **Correcting infrastructure deficits** can increase market efficiency, support local economies and enable higher revenues for farmers and lower prices for final consumers.
- **The improvement of agricultural risk management systems**, with a clear delineation of public and private responsibilities, is increasingly critical for the management of volatile markets due to weather, policy or technological shocks.

Further reading

This document is based on the evidence and analysis found in a number of OECD reports and papers published in recent years:

- **OECD-FAO Agricultural Outlook 2015**
- **Agricultural Market Information System (AMIS)**
- **Alternative Futures for Global Food and Agriculture**
- **Price Volatility in Food and Agricultural Markets: Policy Responses**

A complete list of relevant books and papers can be found at **http://oe.cd/taking-stock** or on the Agriculture Ministerial website at **www.oecd.org/agriculture/ministerial**.