

This brief series was developed in preparation for the Foresight Breakout Session of the Global Conference on Agricultural Research for Development (GCARD 2012) and the Global Foresight Hub¹. The briefs were written to communicate to a wider audience, such as policy makers, civil society organizations, researchers, and funders. The briefs were classified into three categories: Future Studies, Regional Update, and Visioning.

The Future of Food and Farming

Camilla Toulmin, International Institute for Environment and Development. (IIED) and Charles Godfray, University of Oxford

Based on Foresight. The Future of Food and Farming (2011). Final Project Report. UK Government Office for Science, London. Foresight. One-year Review (2012). UK Government Office for Science, London.

Exploring the pressures on the global food system

The Foresight Global Food and Farming Futures project published its findings on 24 January 2011 under the title *The Future of Food and Farming: Challenges and choices for global sustainability*. The culmination of two years' work, the report brought together over 400 leading experts and stakeholders from 35 countries covering subjects ranging from ecology and biology to economics, ethics and agriculture. Commissioned by the Government Chief Scientific Adviser, Professor Sir John Beddington, the project was co-sponsored by the Department for Environment, Food and Rural Affairs and the Department for International Development, which co-chaired the Project's High Level Stakeholder Group. The latter consisted of a host of international experts from the UN, the EU, the World Bank, industry and civil society. The report was overseen by a Lead Expert Group, chaired by Professor Charles Godfray, which provided the best available scientific scrutiny for the project.

The report built on previous studies, including the International Assessment of Agricultural Knowledge, Science and Technology for Development, the Royal Society report on Reaping the Benefits, and the International Fund for Agricultural Development Rural Poverty Report. Using the best available scientific and other evidence, the team explored the pressures on the global food system today, and how these will likely evolve between now and 2050. The goal was to identify the decisions policy makers need to take, today and in the years ahead, to ensure that a global population rising to 9 billion or more can be fed sustainably and equitably.

The report concluded that the food system is moving into a new era of uncertainty and pressure. To prepare policy makers accordingly, comprehensive strategic analysis is required that looks across adjacent policy areas and ahead to the future challenges and possible solutions. The report aims to make a contribution to this goal. It builds on the Food Matters Report published by the UK Cabinet Office in the wake of the food price spikes of 2008, which called for a major new Foresight Project to examine future global food systems.

The project has aimed to add value by:

- Taking a long-term, strategic look at likely challenges over the next 20 years (to 2030) and the next 40 years (to 2050). It has used futures techniques to embrace the many uncertainties inherent in the future, and to identify choices that are resilient to a range of outcomes.

¹<http://www.egfar.org/our-work/shaping-future-together/global-foresight-hub>

- Taking a very broad view of the food system. It has considered the concerns and experiences of many different types of stakeholder, from African smallholders to multinational retailers, from issues of governance to evolving consumer demand.
- Commissioning new economic modeling to explore possible future trends and volatility in food prices.
- Involving participants from a very wide range of disciplines and backgrounds: natural and social scientists and experts in risk management, economics and modeling; and from research, private sector, government, international agencies, farmer associations and retailers.

The overall structure of the report is outlined in Figure 1, demonstrating the relationship between the various teams, individuals and committees that the project put in place. This is a similar process to that undertaken by most foresight projects, and allows for continual feedback between the contributors to ensure their most effective input.

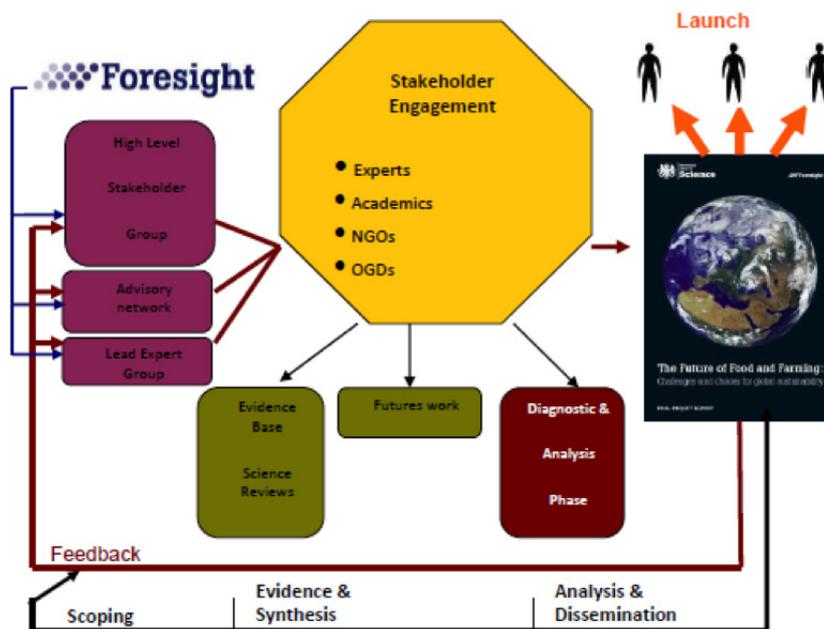


Figure 1. Structure of the Global Food and Farming Futures project
 Source: Foresight. One-year Review (2012). The Government Office for Science, London. p. 10.

Drivers of Change

The project commissioned more than 20 reviews of drivers of change, as well as a number of workshops. The aim was to assess how different drivers might affect the food system, and the uncertainties associated with them. Six drivers were highlighted:

- Global population increases
- Changes in the size and nature of per capita demand
- Future governance of the food system at national and international levels
- Climate change
- Competition for key resources
- Changes in values and ethical stances of consumers

These drivers converge to shape a global food system, which will experience an unprecedented confluence of pressures over the next 40 years. On the demand side, global population size will increase from nearly 7 billion today to 8 billion by 2030, and probably to between 9 and 10 billion by 2050. Many people are likely to be wealthier, creating demand for a more varied, high-quality diet that will require additional resources to produce. On the production side, competition for land, water and energy will intensify, while the effects of climate change will become increasingly apparent. The need to reduce greenhouse gas emissions and adapt to a changing climate will become imperative. Over this period, globalization will continue, exposing the food system to novel economic and political pressures.

Any one of these pressures ('drivers of change') would present substantial challenges to food security; together they constitute a major threat that requires a strategic reappraisal of how the world is fed, and what combination of actions make sense.

5 key challenges and 12 priorities

Overall, the project identified and analysed five key challenges for the future. Addressing them in a pragmatic way that promotes resilience to shocks and future uncertainties will be critical if major stresses to the food system are to be anticipated and managed. The five challenges are:

- *Balancing future demand and supply sustainably* – to ensure that food supplies are affordable to everyone and in particular the poorest groups.
- *Ensuring that there is adequate stability in food supplies* – and protecting the most vulnerable from the volatility that does occur.
- *Achieving global access to food and ending hunger* – producing enough food in the world so that everyone can potentially be fed is not the same thing as ensuring food security for all.
- *Managing the contribution of the food system to the mitigation of climate change.*
- *Maintaining biodiversity and ecosystem services while feeding the world.*

These last two challenges recognize that food production already dominates much of the global land surface and water bodies, and has a major impact on all the Earth's environmental systems.

While the global food system currently delivers for many, it is currently failing in two major ways, which demand decisive action:

- it is consuming the world's natural resources at an unsustainable rate; and
- it is failing the world's poorest, with almost 1 billion still suffering from hunger.

In view of the current failings in the food system and the considerable challenges ahead, decisive action must take place now. A broader perspective needs to be considered by policy makers, which must recognize that the global food system from production to plate is made up of a mosaic of elements, poorly connected and with no overall governance.

Interconnected policy making is critical, with policy in other sectors outside the food system also needing to be developed in much closer conjunction with that for food. These areas include energy, water supply, land use, the sea, ecosystem services and biodiversity. Any policy decision needs to be informed by being built on a strong evidence base. Additionally, action is required simultaneously on four fronts:

- More food needs to be produced sustainably through use of existing technology; this needs more investment in new science and technology, social institutions and infrastructure, (water, transport, markets).
- Demand for resource-intensive types of food needs to be contained.
- Waste in the food system should be minimized.
- Political and economic governance of the food system should be improved.

Addressing climate change and achieving sustainability in the global food system need to be recognized as dual imperatives, with nothing less than a redesign of the whole food system being needed to bring sustainability to the fore. It is necessary to revitalize moves to end hunger, with food and food production moving up the political agenda. Additionally, greater priority should be given to rural development and agriculture as a driver of broad-based income growth. The report rejects autonomy in food production as the option for all nations to strive for. Rather, global food security may best be achieved through building greater regional resilience and trade networks. It stresses the importance of crafting food system governance to maximize the benefits of globalization and to ensure that they are distributed fairly.

By analysing these five challenges and conclusions, the report identifies the following priorities for action by policy makers:



1. Spread best practice.
2. Invest in new knowledge.
3. Make sustainable food production central in development.
4. Work on the assumption that there is little new land for agriculture.
5. Ensure long-term sustainability of fish stocks.
6. Promote sustainable intensification: more output on the same land with fewer adverse impacts.
7. Include the environment in food system economics.
8. Reduce consumer and post-harvest waste in high- and low-income countries, respectively.
9. Improve the evidence base upon which decisions are made and develop metrics to assess progress.
10. Anticipate major issues with water availability for food production.
11. Work to change consumption patterns.
12. Empower citizens to make informed choices.

Source: Foresight. *The Future of Food and Farming (2011). Final Project Report. The Government Office for Science, London*

A one-year review of impact

The project set aside resources to disseminate its reports and to help ensure that the report and its key messages were used to achieve impact. Since the report's publication, a foresight 'Follow-up' Team has worked with many of the project's stakeholders to help catalyse action. Between 25 January 2011 and 9 February 2012, 40 dissemination events took place around the world. The Team also conducted a One-year Review. The review was not intended as a comprehensive record; rather, it highlighted the wide range of the initiatives that the project has informed. It sets out the report's impact on government and other organizations' policy development and strategic thinking, on the work of the research community and on business.

As a result, the main body of the review was comprised of statements from the stakeholder organizations themselves. It concludes that the report has had, and continues to have, significant UK and international impact with multiple stakeholders. This extensive impact has made its mark at a national level in the UK and elsewhere and with multinational bodies such as the UN, EU and OECD. The report's methods and findings have found particular resonance with policy and research communities and with several non-governmental organizations and the business community.

Citation:

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Contact information:

Camilla Toulmin (camilla.toulmin@iied.org); the Brief series coordinator Robin Bourgeois (Robin.Bourgeois@fao.org).

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