Briefing
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Foresight – Contribution to the debate on the future of EU agricultural policy

SUMMARY

Strategic foresight is increasingly being used as a technique to help organisations anticipate and prepare for potential challenges or opportunities. Its application to agricultural and rural development policies is examined in this briefing. A range of relevant foresight studies are identified and examined across a number of elements, covering: the identification of key drivers of change; the nature of the scenarios they present (including the role of technology and precision farming); and food security as well as the territorial dimensions relating to the future of Europe's rural areas. These findings are analysed for their implications for future policy-making in respect of EU agriculture and rural development matters.

In the field of public policy, there is a growing realisation that the policy process has to address many challenges such as: advancing greater policy integration; identifying and applying the lessons from previous experience of policy implementation; maximising the use of the available evidence base, and considering and adopting a long-term view of the future through forward thinking involving the development of different scenarios.

Foresight studies recognise the multi-disciplinary nature of the challenges facing agriculture and the importance of 'interconnected policy-making'. The potential also exists for strategic foresight to be applied at different territorial levels.

In this briefing:

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Glossary

Drivers of change: Factors causing change which affect or shape the future.

Forecast: A statement that something is going to happen in the future, often based on knowledge and trends.

Foresight: Often referred to as 'Futures Studies' or 'strategic foresight', it is a 'systematic, participatory and multi-disciplinary approach to explore mid- to long-term futures and drivers of change'.

Scientific foresight: The ability to identify what should be known about the future, involves the analysis of scientific and technological trends providing views on how the future could be influenced by techno-scientific developments.

Scenarios: These describe plausible alternative futures.

Horizon scanning: A technique which involves searching for signals of change in the policy environment i.e. searching and scanning for emerging trends and their possible impacts.

Time horizon: The time period in the future considered in the futures exercise or study.

Wild card: An unpredictable event which could change the course of the future.

Sources: Adapted from 'Towards scientific foresight in the European Parliament', STOA, 2015; A Glossary of terms commonly used in Futures Studies, September 2014; R. Ramirez and A. Wilkinson, Strategic Reframing – The Oxford Scenario Planning Approach, 2016.

Background

Strategic foresight is recognised as a way for organisations, both public and private, to anticipate and prepare for potential challenges or opportunities when developing a strategy. 'Towards Scientific Foresight in the European Parliament', a paper published in 2015 by the European Parliament's Scientific Foresight (STOA) Unit, noted that foresight is 'increasingly being used as a policy tool at European, national and regional levels, enabling policy-makers to make more responsible and more informed, decisions about the future'. This is reflected in its application across a range of diverse policy areas, such as robotics, collaborative economy, energy resilience and waste management. In all of these cases, the intention is to identify and explore a range of possible futures to challenge and inform strategy. In the context of the Parliament, the intention is to translate outcomes from foresight work into an accessible description of a diverse set of possible future scenarios, with their associated opportunities and challenges, which might be addressed today. This would provide a range of pathways for legislative work which is more future oriented, and is especially useful in the agenda-setting phrase of the policy cycle.

The extent to which strategic foresight has been applied in the field of agriculture and rural development policy within the EU is examined in the following pages. A selection of foresight studies relating to agriculture and rural development are identified, and analysed for the implications they may have for future policy.

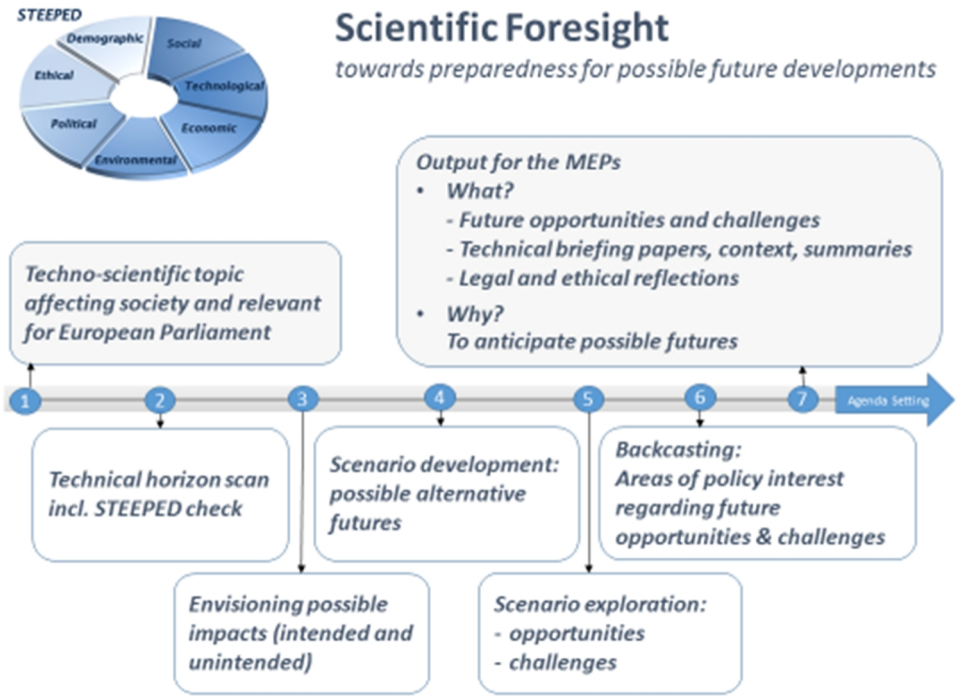
Strategic foresight – process and methods

Foresight studies make use of time horizons ranging between 20 and 50 years into the future. An important distinction is drawn between **forecasting**, which predicts the future based upon an extrapolation of past knowledge and **foresight**, which adopts a wider approach to forecasting and focuses on dealing with uncertainties about the future. (See glossary of terms set out above). Overall, foresight studies involve identifying alternative images of the future and choices of action based on those images. It is not about predicting the future, rather it is about exploring a range of possible futures supported with analysis of scientific and technological trends. By considering what could potentially

happen in the future, policy-makers are better positioned to anticipate and prepare for potential challenges or opportunities which lie ahead.

The processes and phases involved in undertaking foresight studies are comprehensively explained in the STOA paper, 'Towards Scientific Foresight in the European Parliament'. Summarised in Figure 1, they include methodologies such as: horizon scanning (where plausible impacts of a given trend are investigated by recognised researchers or stakeholders); 360-degree envisioning (where meetings are held to identify the possible impacts of a particular innovation); and what is termed 'backcasting', where exploratory scenarios are connected with current societal and legislative issues, through identification of possible future challenges and opportunities, which may be anticipated today.

Figure 1 – Illustration of the European Parliament's foresight cycle



Source: Towards scientific foresight in the European Parliament, STOA (2015), updated in 2017.

A key part of any foresight study is scenario planning. The latter is a technique where a set of scenarios or narratives are developed to represent different possible futures. The extensive literature[1] on foresight studies highlights a number of advantages from developing scenarios. For example, they do not describe just one future but several possible alternative futures. Exploring these scenarios can provide insights and early warnings of possible future opportunities and risks. They can include extremes, in terms of possible 'futures'. Provision can also be made for 'wild cards' or disruptive events. Although the probability of these occurring may be considered to be low, if they were to occur, their impact could be potentially significant.

Strategic foresight applied to agriculture and rural development

To what extent has strategic foresight been applied in the field of agricultural and rural development policy within the EU? One review of the state of foresight research in food and agriculture found some 65 relevant foresight studies.[2] Written up as a series of short briefings, they included 12 global studies, all focusing on agriculture, ten regional studies (six on food and agriculture, three on rural societies and one on the low-carbon society), and some 16 national studies (of which nine covered agriculture, two local land use

planning, and others covering climate change, local environment, research priorities, markets and animal health). A survey published in 2010 on the use of strategic foresight in relation to agriculture across 21 countries, undertaken by the French Ministry of Food, Agriculture and Fisheries, noted that that considerable diversity existed in terms of the organisational arrangements and budgets for such work. In addition, there was a continuing preference for public policy evaluation programmes.

Table 1 lists examples of relevant foresight reports published since 2009. Compiled by EPRS on the basis of a brief literature search, the list provides an indication of the scale, scope and coverage of such studies where either formal foresight approaches have been pursued or where elements of foresight methodology have been incorporated. It is neither exhaustive nor definitive in nature. It does not include other futures studies relating to agriculture and rural development policy which have been published in the form of academic articles or which have a more specific country focus. There are, for example, studies on:

- the impacts of alternative climate and energy policy scenarios on farms in Finland;[3]
- the future of genetically modified foods;[4]
- future images of possible local food systems in Finland by 2030;[5]
- the prospects for a farmer-led, community-supported agriculture movement in Hungary,[6] and
- the future of sustainable eating, which examines alternative future scenarios for plant protein consumption.[7]

The applicability of strategic foresight to agricultural policy issues is illustrated in a series of briefings produced by the French Ministry of Food, Agriculture and Fisheries covering, for example, the prospects for mitigating French agriculture's greenhouse gas emissions (October 2014); how farming will adapt to future energy challenges (April 2010[8] and September 2015); climate change (September 2013[9]) and the future of water resource availability in France (April 2014).

Further illustration of the diversity of foresight studies can be obtained by examining the coverage given to such studies on the European Foresight Platform (EFP) – a network-building programme supported by the European Commission. It sought to build a global network to share knowledge about foresight studies and to better exploit foresight as a resource to support policy-making. By September 2016, the EFP website contained some 263 policy briefs, providing a synthesis of foresight studies classified by theme (for example: energy, environment, agriculture, health, nanosciences, socio-economic sciences and humanities), geographical scale (EU, global, national, regional) and time horizon.

Two points may be noted concerning the range of foresight studies listed in Table 1. Firstly, brief scrutiny of those sources suggests that there is increasing recognition of the interactions which exist across policy issues concerning, for example, agricultural production, climate change and energy policy, including an appreciation of the 'increasing complexity of these interactions'.[10] Continuing concerns relating to climate change, for example, raise questions as to how farms and agriculture should participate in greenhouse-gas mitigation efforts in the future.[11]

Secondly, the changing dynamics of the agricultural sector, including changes in the agri-food industry, and the range of challenges that have evolved over the years, have provided fertile ground for this type of work. Commenting on the application of strategic

foresight to agriculture and rural development, one study[12] noted that 'a changing common agricultural policy has been an inspiring research target for agricultural economists throughout the past several decades...'. This has been fuelled by a desire to know more about the potential impact of anticipated policy changes. The nature of these challenges has already been acknowledged in a previous EPRS briefing. They include issues relating to food security, the environment and climate change, territorial imbalances in terms of socio-economic conditions within Europe's rural areas and issues relating to price volatility.

Table 1 – Examples of foresight and related studies relevant to EU agriculture, food and rural development

Study title	Institution	Year published
The future of food and agriculture - Trends and challenges	Food and Agriculture Organisation	2017
Agrimonde-Terra: Foresight land use and food security in 2050	INRA and CIRAD *	2016
Delivering on EU Food Safety & Nutrition in 2050-Future challenges & policy preparedness	JRC**Science & knowledge service, European Commission	2016
Precision Agriculture & the future of farming in Europe	STOA, European Parliament	2016
Teagasc Technology Foresight 2035	Teagasc – the Agriculture & Food Development Authority, Ireland	2016
Alternative futures for global food and agriculture	OECD	2016
The Future of technology in agriculture	STT Netherlands Study centre for Technology Trends	2016
Strategic foresight: Towards the third strategy programme of Horizon 2020	JRC Science & Policy, European Commission	2016
Sustainable agriculture, forestry and fisheries in the Bioeconomy - A challenge for Europe.	European Commission	2015
Global Food Security 2030	JRC Science & Policy, European Commission	2015
Tomorrow's Healthy Society: Research priorities for foods and diets	JRC – European Commission	2014
Technology options for feeding 10 billion people	STOA, European Parliament	2013
Foresight. The future of food and farming (2011) Final project report	Government Office for Science, London	2011
European development opportunities for rural areas	EDORA	2011
Foresight Land use futures project, Final project report.	Government Office for Science, London	2010
European crop protection in 2030: A foresight study	ENDURE Network	2010
Alternative futures of rural areas in the EU	LEI Wageningen UR	2009
SCENAR 2020-II: Update of scenario study on agriculture and the rural world. Final report.	European Commission	2009

*French National Institute for Agricultural Research (INRA) and French Agricultural Research Centre for International Development (CIRAD); ** JRC refers to the Joint Research Centre, the European Commission's science and knowledge service which provides independent scientific advice and support to EU policy.
Source: Compiled and adapted by EPRS.

Analysis and findings

In light of the coverage of the agricultural sector by foresight studies, what are the key findings from this work and are there any implications for future EU agricultural policy? To address these questions, the studies cited in Table 1 have been analysed on the basis of a number of common elements relating to (i) the drivers of change; (ii) the nature of the policy scenarios included in the studies; (iii) the issue of food security; and (iv) the territorial dimension relating to the future of Europe's rural areas. The potential implications of this analysis for future policy are then discussed.

Drivers of change

A significant element in foresight studies relates to the identification of trends and the underlying drivers of change. The analysis of such drivers is often used as a key tool in foresight processes. The foresight study on the 'Future of Food and Farming' (2011) identified six key drivers of change affecting the world's food system (see Table 2). The study pointed out that it was essential to assess the implications of these drivers, as in each case there were policy implications arising. For example, in global terms, a range of critical resources are identified on which food production relies such as land for food production, energy and water. These will come under more pressure in the future. Equally, changes in the values and ethical stances of consumers are seen as having a major influence on policy-makers and on consumers. Examples which it cites include the value placed on animal welfare, issues of equity and fair trade and the acceptability of modern technologies such as genetic modification. There is complementarity with the 'key drivers of change' identified in other studies, such as the JRC study on 'Global Food Security 2030' as well as the JRC study on 'Food Safety and Nutrition in 2050'. In the case of the latter, these are: global trade, EU economic growth, the structure of the agro-food chain, technology uptake, social cohesion, food values, climate change, the depletion of natural resources and world population growth. These formed the basis for the development of different scenarios for food safety and nutrition for the EU in 2050.

Table 2 – Drivers of change affecting the global food system

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

Source: Foresight. The future of food and farming. Final project report, 2011.

Scenarios

A key feature of foresight exercises involves the drawing-up of scenarios. A review[13] of global food security scenarios published in 2014 highlights how scenario analysis has been applied as a tool for dealing with the complexities and uncertainties associated with major global issues such as climate change, food security and land use. The review presents a typology of scenarios describing possible futures. These include: an '**Economic optimism scenario**' (usually associated with rapid technological development, high economic growth and free trade at the global level); a '**Reformed markets scenario**' (with policies aimed at reducing market failures); a **Global sustainable development scenario** (characterised by environmental protection and reduced inequality); a '**Regional competition scenario**' (where regions focus more on their own, immediate interests and regional identity); and a '**Regional sustainable development scenario**' which has a focus on 'finding regional solutions for current environmental and social problems'. The STOA

study (2016) on precision agriculture **(PA)** draws on this typology, as summarised in Table 3. This sets out the role of precision agriculture under each scenario, and the implications for the skill sets farmers will need in the future.

In the scenario labelled 'regional sustainability', emphasis is placed on small-scale change and on local production, with some communities trying to become more self-sufficient in respect of their food needs. Though precision farming may have made inroads, farms are not fully automated. Animal welfare is high on the agenda and organic production has become the norm. Farmers are valued as 'custodians of the countryside'. By contrast, in the first scenario, agriculture in Europe has become 'fully automated', consistent with a positive economic environment. There is probably a belief that technology can resolve issues including contributing to global food security. (One study undertaken by the Netherlands Study Centre for Technology identifies some 20 technological developments which may have a large impact on the Dutch agri-food sector. They include developments such as: SMART farming, renewable energy; protein transition etc.).

Table 3 – Four explorative scenarios for the future of precision agriculture in the EU

Issue:	**Scenario 1: Economic optimism**	**Scenario 2: Global sustainable development**	**Scenario 3: 2050 Regional competition**	**Scenario 4: 2050 Regional sustainability**
Focus	Rapid economic growth	Global sustainability	Security	Regional sustainability.
Key features	Trade is free and global Open markets	Global cooperation & free trade	Regions have taken over; Trade barriers	Tightly knit communities.
Role of precision agriculture (PA)	Seeks to achieve higher efficiency; Autonomous robots; Farming is fully automated	Drives the sustainability of agriculture Semi-autonomous technologies used. Every plot of land has a specific use.	Stimulates regional growth. Technology chosen for efficiency and security.	Used to produce more sustainably and to decrease environ-mental impact. Farms not fully automated.
Type of farmer	Entrepreneurial skills are very important.	Farmers' role as sustainability shepherds.	Combination of traditional skills and PA methods	Combination of PA and traditional skills, and local cooperation.

Source: Adapted by EPRS from an annex to the report: Precision agriculture and the future of farming in Europe, Scientific Foresight Study, STOA, EPRS, European Parliament, 2016.

This emphasis on the role of technology is also seen in the Technology Foresight 2035 report published in March 2016 by Teagasc, Ireland's Agriculture and Food Development Authority. It identifies a number of technology areas the agency will prioritise in its research programmes to support Ireland's agriculture and food sectors. A key conclusion of this foresight report is that the agri-food industry is '...on the verge of a revolution in the application of new powerful technologies...'. These have the potential to 'transform the sector'. Examples include the application of genomics to the dairy and beef sectors, allowing the production of better livestock products at lower costs to the environment and climate. This study also highlights the implications for the skill sets of farmers. The skills required for agriculture identified in the report include applications such as robotics, computer-based imaging, satellite navigation and positioning technology, climate forecasting and environmental controls.

In considering scenarios, foresight studies are not necessarily limited to the typology outlined above. For example, the JRC study on Food Safety and Nutrition in 2050 constructed four scenarios based on different drivers that could impact on the food system. They include: (i) a '**Global Food**' scenario, where the impacts of climate change are being felt and where the global food chain is dominated by international companies; (ii) a '**Regional Food**' scenario, where there is a drive towards self-sufficiency and local production, with citizens involved in food production in urban settings; (iii) a '**Partnership**

Food' scenario, where an economically weak EU has developed 'close trade and food policy ties with the USA and Canada and where, by 2050, the focus is on efficiency, mass production and climate change resilience; and (iv) a '**Pharma Food**' scenario, where the population strives for a healthy lifestyle, multinationals control most of the food chain and 'people turn to processed foods and even foods with added pharmaceutical substances aimed at optimising their health status'. While the focus of these scenarios is on the implications for food safety and nutrition, the narratives developed throw light on the changing role for agriculture, whilst taking account of the impact of drivers such as climate change.

Food security

The challenge of food security figures strongly across a number of foresight studies listed in Table 1. The JRC Foresight report on 'Global Food Security 2030' sets out a vision for food security in 2030. Bringing together experts and stakeholders to develop a vision for food security in 2030, it foresees 'a significant reduction in the relative number of undernourished people'. Food security is guaranteed on a sustainable basis through:

- the maintenance of an enabling environment in rural areas (i.e. rural development);
- a food system where production and consumption are balanced between local, regional and global levels;
- a largely demand-driven food system where responsible consumer behaviour shares sustainable objectives; and
- significant transformation of agricultural and food production systems through sustainable intensification, technology transfer and the transformation of agricultural business models.

As part of this vision, consumers would be empowered to take more control over the nutritional aspects of what they eat. Set against this, the development of such a demand driven food system faces a number of challenges such as the effects of climate change and uncertainty in both trade and markets. The report notes that the context for such challenges will be increasing urbanisation with more than 65 % of the world's population expected to be living in urban areas by 2050.

An OECD analysis published in 2016 provides an overview of three alternative scenarios that agricultural markets at the global level could follow up to 2050. These are: (i) '**Individual fossil fuel-driven growth**', where technological developments are based on fossil fuel extraction; (ii) '**Citizen-driven, sustainable growth**', where technologies are focused on natural resource savings and the preservation of the environment; and (iii) '**Fast, globally driven growth**', where technologies flourish in many domains, particularly in the areas of food, feed and energy production. In all three scenarios, the environment is being placed under strain and agricultural greenhouse gas emissions and other pollutants continue to increase.

The policy responses put forward by the OECD include: an accelerated movement towards more sustainable lifestyles and consumption patterns; innovation; and the role of agricultural risk-management systems to manage volatility in markets. All of these are relevant to the current debate on future EU agricultural policy.

The Future of Europe's rural areas

Foresight exercises have been undertaken in relation to the future of Europe's rural areas.[14] As part of the ESPON programme,[15] the EDORA project (European Development Opportunities for Rural Areas, 2012) sought to obtain a better understanding of the

development opportunities and challenges facing rural areas in Europe over a period of 20 years. It assumed that the most likely and most influential potential 'shock' in a rural context was climate change. A second was the impact of the credit crunch and recession. Applying these 'high level drivers of change', four scenarios were identified, as shown in Table 4. The horizontal axis goes from 'gradual climate change' on the left to 'rapid climate change' on the right. The vertical axis shows different models of economic governance, ranging from free market conditions (at the top) to more interventionist highly regulated conditions (at the bottom half of the diagram). The subsequent four scenarios are described in a separate paper on 'Future Perspectives' (2010). They range from a 'business as usual' scenario (Scenario 1) to scenarios dealing with more rapid and disruptive climate change (Scenarios 3 and 4). Scenario 3 involves 'rapid and disruptive climate change' which gives rise to the intensification of agricultural production, the adoption of bio-technology and a concentration of control of the means of production in corporate hands. Scenario 4 combines rapid climate change with a highly regulated economy. There is a 'coordinated consensus-based public policy response', rapid public investment in new forms of nuclear power, and careful regulation of rural land use to ensure food supplies. New residential developments are increasingly concentrated in existing towns and villages. This scenario experiences 'strong and selective migration flows from South, East and Central Europe into the North and West as well as towards major cities'. Agricultural activities which give rise to significant greenhouse gas emissions (GHG) are limited. By 2030, the EU, through a revised CAP, achieves its goal of 80 % self-sufficiency in food, energy and water. This is achieved through the promotion of local and regional food systems. The study makes the point that each of these scenarios would have a differential impact depending on the types of regions involved, for example: largely agrarian-based regions where the primary sector plays a major role in the local economy, or where there is a more diversified economy with a strong secondary or tertiary sector.

Table 4 – Scenario analysis applied to the future of rural areas

Free market

Scenario 1: Gradual response to climate change + highly deregulated market economy	**Scenario 3: Rapid response to climate change + highly deregulated market economy**
• EU competes in global food markets on basis of comparative advantage • Increased primary sector productivity through application of bio-technologies. • Slow transition to a low-carbon economy • Rural transport dominated by private car ownership – most cars powered by electricity.	• Economic systems are largely self-regulated • Quick transition to low-carbon economy • Rural transport transition to a hub and spoke model with private cars used to access public transport hubs • Protein production is industrialised to maximise input –output efficiency
Scenario 2: Gradual response to climate change + highly regulated market economy:	**Scenario 4: Rapid response to climate change + highly regulated market economy**
• Highly regulated economy • Gradual recouping of CAP payments to production to increase self-sufficiency • Primary sector remains productive through increasing economies of scale. • Slow transition to a low-carbon economy	• Large scale rural-urban flows of young people; • Radical recouping of CAP payments to production to increase self-sufficiency • Development of regional food systems. • Rural transport is increasingly provided through community-based schemes.

Interventionist

Source: Adapted by EPRS from 'Future Perspectives', Final Report Annex 1, Scientific Working Paper No 26. EDORA-European Development Opportunities in rural areas. The ESPON 2013 programme May 2010.

European Parliament

The European Parliament is making a significant contribution to foresight studies through its Science and Technology Options Assessment (STOA) Panel, an official parliamentary body with a mission to undertake studies and other activities that provide Members with impact assessments of new technologies and options for policy action. Further institutional support to the Parliament's foresight activities is provided through the EPRS Scientific Foresight and Global Trends Units. The former undertakes work specifically in the field of science and technology for the Parliament's STOA Panel. The intention of the 2016 study on precision agriculture, which STOA commissioned, was to assist MEPs and committees in 'exploring, anticipating and responding to potential precision agriculture development paths....'. This study together with the other foresight studies mentioned can be seen as a way of informing and supporting the European Parliament's role in the policy-making and legislative process. Foresight studies should help to reinforce the evidence base available to MEPs.

Outlook and lessons arising

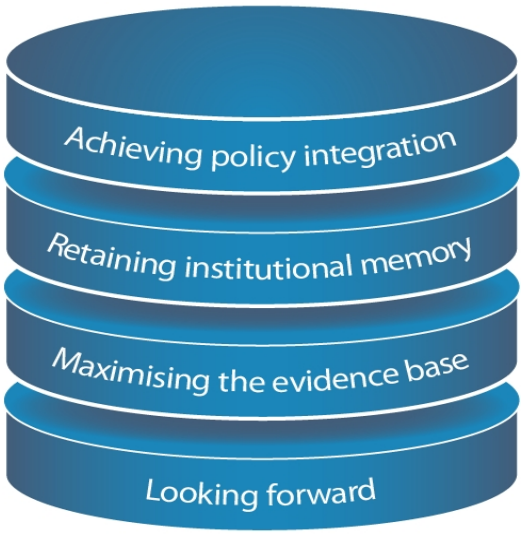
A range of foresight studies relevant to agriculture and rural development have been identified in this briefing alongside a number of additional sources. They vary in terms of when they were undertaken and their precise focus. In relation to future EU agricultural and rural development policies, the following observations can be considered:

- The findings of these foresight studies have relevance for the current debate on the future of EU agricultural and rural development policy. The OECD foresight study highlighted issues relating to sustainable development, risk management, market regulation and agricultural innovation. Such issues are relevant to any discussion on the most appropriate instruments for the next CAP.
- The foresight studies recognise the multi-disciplinary nature of the challenges facing agriculture. The foresight report on 'The Future of Food and farming' highlighted the critical importance of 'interconnected policy-making'. The suggestion here is that policy in sectors outside the food system need to be developed in conjunction with those for food.
- The research examined for this briefing shows how applicable the foresight approach can be to many aspects of agricultural and food policy. For example, scenarios have been compiled on plant protein consumption, the future of genetically modified foods and on how to reduce meat consumption.
- Strategic foresight has also been applied at different territorial scales, i.e. not just at the global scale, but at EU, national and regional levels. In the case of the latter, this has the potential to allow for a more tailored form of policy advice – all the more important in the light of flexibility in existing or future CAP instruments. This makes such studies relevant to the work of the Committee of the Regions, given its interest in the future of agriculture and rural development.

There are limitations to foresight studies. Scenarios will be limited by the assumptions they are based on and by the parameters chosen for their measurement. Is it possible to fit the different perspectives on the future into simple 'four box diagrams' (as in Table 4, above) against the complexity of the real world? Scenarios are best seen as tools for exploring possible concerns, challenges and opportunities arising from a range of

alternative futures. By considering such challenges and opportunities, it is possible to gain an understanding of the implications arising from different courses of action. Potentially, this could help to prepare policy-makers for possible future developments in anticipation of problems arising. Scenarios provide a series of potential policy directions enabling policy-makers to weigh up the pros and cons of possible future policy options. The process of reflection which foresight studies involve may therefore be just as important as any final report, because of the new insights they may provide. The potential also exists for engagement and dialogue with stakeholders, technical experts, social scientists and representatives of civil society organisations.

Figure 2 - Challenges facing any policy process



Source: Adapted by EPRS from: (i) 'Completing the legislative cycle' and (ii) 'Towards scientific foresight in the European Parliament', STOA, 2015.

For any policy process, coping with change is always challenging – even more so when the scale and magnitude of the change is not predictable. The types of challenges which the policy process can face are summarised in Figure 2. The challenges can include: (i) overcoming the 'silo effect', i.e. trying to achieve greater policy integration; (ii) applying the lessons from previous experience within a policy area, i.e. 'retaining institutional memory'; (iii) collecting, analysing and using evidence to support policy changes, whether in terms of policy development or policy implementation – including 'knowledge about possible futures'; and (iv) adopting a long-term view through forward thinking involving scenario planning, as part of efforts to 'future proof' policies.

Though there may be no single central repository for foresight studies on agriculture, the sources identified in this briefing illustrate the application of foresight to agricultural policy including the potential which exists to bring together stakeholders and different constituencies of interest to help identify policy options, taking account of longer-term policy needs.[16] A challenge for those taking forward the findings from foresight studies is how to ensure that they are conveyed to those involved in the policy-making process. In support of this, it probably helps if such exercises can prioritise their conclusions or findings, as in the case of the foresight report on 'The Future of Food and farming', which included a set of 'high level' conclusions. This helps to identify what needs to be done immediately, such as the need to produce food more sustainably and the need to minimise food waste. In light of the European Commission's efforts to modernise and simplify the CAP post 2020, foresight studies can provide a useful source of reference, especially if combined with evaluation evidence on what has worked well during the current and previous programming periods.

Main references

Ramirez, R. and Wilkinson, A., Strategic Reframing – The Oxford Scenario Planning Approach, Oxford University Press First Edition, 2016.

Van Woensel, L. and Vrščaj, D., In-depth analysis 'Towards scientific foresight in the European Parliament', STOA, EPRS, European Parliament, 2015.

Van Woensel, L., Precision agriculture and the future of farming in Europe, Scientific Foresight Study, STOA, EPRS, European Parliament, 2016.

Endnotes

[1] Other sources of guidance on the application of strategic foresight and scenario planning are: Scenario Planning, Foresight Horizon Scanning Centre, UK Government Office for Science Guidance Note, October 2009; P. Schwab et al 'Foresight-using scenarios to shape the future of agricultural research' in Foresight 5.1, 2003 pp. 55-61; F. Van Duijne, 'Five key advantages of scenario planning' in Futurista blog (19 January 2014); See also Annex 1 of STOA's in-depth study for an overview of relevant literature on foresight and futures studies.

[2] R. Bourgeois, 'The state of foresight in food and agriculture: Challenges for impact and participation'. Document de travail ART-Dev 2014-O1

[3] H. Rintamki, P. Rikkonen, P. Tapio, 'Carrot or stick: Impacts of alternative climate and energy policy scenarios on agriculture' in Futures 83, pp. 64-74, 2016.

[4] C. Gurau, A. Ranchod, 'The futures of genetically-modified foods: Global threat or panacea?', Futures 83, pp. 24-36, 2016.

[5] T. Kuhmonen, 'Exposing the attractors of evolving complex adaptive systems by utilising future images: Milestones of the food sustainability journey', Technological Forecasting & Social Change, 114, pp. 214-225, 2017.

[6] B. Balazs, G. Pataki, O. Lazanyi, 'Prospects for the future: community supported agriculture in Hungary', Futures 83, pp. 100-111, 2016.

[7] P. Jallinoja, M. Niva, T. Latvala, 'Future of sustainable eating? Examining the potential for expanding bean eating in a meat-eating culture', Futures 83, pp. 4-14, 2016.

[8] Agriculture & Energy 2030: How will farming adapt to future energy challenges? Centre for Studies and Strategic Foresight - French Ministry of Food, Agriculture and Fisheries, Analysis No 17, April 2010.

[9] Agriculture, forestry and climate: the road to new adaptation strategies: the AFCLIM foresight study's key findings. Centre for Studies and Strategic Foresight - French Ministry of Food, Agriculture and Fisheries, Analysis No 62, September 2013.

[10] P. Chapuy and V. Gros, 'Collectively foreseeing future issues: Prospective strategy contributes to the Agriculture and Food systems', 'Futures Studies' Club', Technological Forecasting & Social Change 77, pp. 1540-1545, 2010.

[11] H. Rintamki, P. Rikkonen, P. Tapio, 'Carrot or stick: Impacts of alternative climate and energy policy scenarios on agriculture' in Futures 83, pp. 64-74, 2016.

[12] See E. Huan-Niemi et al, 'Combining quantitative and qualitative research methods to foresee the changes in the Finnish agri-food sector' in Futures 83, pp. 88-99, 2016.

[13] M. Van Dijk and G. Meijerink, 'A review of global food security scenario and assessment studies: results, gaps and research priorities LEI Wageningen University & Research Centre FOODSECURE, Working paper No 20, February 2014.

[14] These have included (i) an early comparative assessment identifying a range of alternative futures for these areas, (ii) the EURALIS scenario study published in 2008 which looked at the future of rural areas in Europe to 2030.

[15] ESPON is an applied research programme aimed at supporting the formulation of territorial development policies in Europe. It is partly financed by the European Regional Development Fund.

[16] Other reference sources include: The European Strategy and Policy Analysis System (ESPAS); ORBIS (Open Repository Base on International Strategic Studies); an on-line open library on long-term trends and URBIS (Unified Repository Base on Implementation Studies), the European Parliament's Implementation Studies' hub; and the European Commission's JRC publications repository.

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