Enabling the Transition to a Green Economy: Government and business working together

The Transition for the Food and Drink Industry

HM Government

Sector overview

Food and drink is the UK's largest manufacturing sector, accounting for 18% of manufacturing Gross Value Added (GVA).

The whole food and drink supply chain, including primary producers, manufacturers, wholesalers, retailers (including farm shops), catering, and restaurants, employs 3.7 million people and contributed £88bn to the UK economy in 2009 – 7% of total UK GVA.

There are around 200,000 companies, from micro-businesses to multinational companies[1].

The value of food and drink exports was £15.8 billion in 2010 (against imports worth £33.6 billion).

In 2009, 50% of food consumed came from the UK, and a further 29% from other EU countries.

43% of all food and drink purchased by UK consumers is provided by the hospitality industry, i.e. catering companies, restaurants and hotels. The hospitality industry is the UK's fifth largest employer and contributes £34bn in gross tax revenue. The UK hospitality industry directly employs 2.4 million people and a further 1.2 million indirectly.

The food chain is a heavy user of energy, second only to chemicals and metals manufacturing. The UK food chain (including industry and household emissions) produced about 160 million tonnes of CO_2 in 2007, equivalent to 15% of UK consumer emissions.

1 Data from Defra statisticians

Working together as an industry

Work by the industry to improve resource efficiency includes the Federation House Commitment, which is managed by the Waste and Resources Action Programme (WRAP). Objectives include a pledge to reduce water consumption by 20% by 2020. The industry has also co-ordinated voluntary action through the major trade associations, notably the Food and Drink Federation's "Five Fold Environmental Ambition" and the British Retail Consortium's "A Better Retailing Climate". Companies that have signed these agreements will seek to deliver a range of environmental improvements. The following are examples of industry action:

At the end of 2010, **Unilever** unveiled a new "Sustainable Living Plan" that aims to double sales and halve the environmental impact of its products over 10 years. Unilever aims to halve the carbon, water and waste impact of its products through innovation in the sourcing, production and packaging of the products. An example target is to source 100% of agricultural raw materials sustainably by 2015, including 100% sustainable palm oil (Unilever buys 3% of the world's annual supply of palm oil).

The Co-operative Group sustainability strategy includes: a target to reduce its own operational carbon emissions by 35% by 2017; biodiversity work in areas such as wood and fish will be matched with new targets on palm oil and soya; a target to reduce the environmental impact of packaging by 10% by 2012, on top of 15% weight reductions already achieved; and an increased target to reduce carrier bags by 75% by 2013.

Industry working with Government

Work is already underway to ensure that the food chain becomes more resource efficient. There has been help available to industry, via advice from WRAP, the former Envirowise initiative, and the Carbon Trust, to become more resource efficient, and to develop emissions reduction action plans. Defra has been piloting voluntary product "roadmaps" to reduce the environmental impacts across the life cycle of a range of food products.

The Courtauld Commitment is a responsibility deal between UK governments and the grocery retail and manufacturing sectors. It succeeded in halting growth in grocery packaging and led to a reduction in household food waste by at least 270,000t per year in its first phase (2006-10). This involved making packaging more resource-efficient, reducing its use where possible and utilising recycled materials. The second phase (2010-12) continues to focus on optimising packaging and helping householders waste less food, and includes ambitious new targets to tackle food and packaging waste in the supply chain[2]. Savings from Courtauld phase 1 (voluntary agreement on food and packaging waste) have been estimated at £300m, with a further £34m expected from Courtauld phase 2.

Automation will be increasingly important to drive resource-efficient food production, but the sector invests less in automation than many European competitors. To encourage investment in plant and machinery, from April 2011 the capital allowance short life asset regime for plant and machinery has been extended from four to eight years to encourage investment in plant and machinery – more closely aligning the relief with depreciation. The Government is contributing £600,000 over two years to help companies introduce automated systems and £50 million over three years in the Manufacturing Advisory Service to help small and medium sized businesses (SMEs) become more productive.

Government, the research councils and the farming sector will develop new technologies and techniques for agriculture and promote knowledge transfer via the Sustainable Agriculture and Food Innovation Platform. The Government is investing up to £90 million over five years, co-funded by Defra (£30 million) and the TSB[3] to promote innovation through collaborative, industry-led research and development.

The Food and Drink Federation estimates that food manufacturing will require 137,000 new entrants by 2017 and management, craft and technical skills will be critical. It has announced a campaign to promote the sector as a career. Defra is working with the industry to identify what can be done to address the concerns on skills, and *Improve* (the sector skills council for food manufacturing) is developing an action plan on skills. A new BBSRC[4] Advanced Training Partnership scheme is intended to help meet industry needs, e.g. in areas of health and sustainability.

The Campaign for the Farmed Environment promotes awareness to the farming community of the environmental benefits that the land can deliver. This is part of Government action to increase food production while simultaneously protecting and enhancing the environment. The Greenhouse Gas (GHG) Action Plan is encouraging farmers to improve livestock management and fertiliser use – it is primarily targeting methane and nitrous oxide, but also looks at the industry's wider footprint, including carbon storage, renewables and inputs.

The global context

The UK food sector is part of an a globalised food system. Global trade offers a way to manage volatility by spreading risk, keeping prices competitive, diversifying supply, and also improving productivity. By engaging in a competitive global food system, UK food

2 To reduce UK household and food waste by 4% and to reduce grocery product and packaging waste in the supply chain by 5%

3 The Technology Strategy Board – the UK's national innovation agency

4 Biotechnology and Biological Sciences Research Council

companies are encouraged to develop innovative products and deploy resources more efficiently. Improvements in productivity via resource efficiency, relative to international competitors, should enhance the UK food industry's international competitiveness.

A recent Foresight report[5] predicts that the global food system will experience an unprecedented pressure over the next 40 years. Global population may increase to over nine billion by 2050 and many people are likely to be wealthier, creating demand for a more varied, high-quality diet. 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. Price volatility, caused by climate-related uncertainties and political volatility, is another important factor that can be expected to drive poverty and hunger. The UK is arguing at the G20 forum that we need to tackle the problem of price volatility to avoid food commodity price spikes, and to help planning and investment.

Some stakeholders have argued that, because of reduced transport costs, locally-grown food and national self-sufficiency are more sustainable than a system of global trade. However, the full 'lifecycle' of food needs to be considered to properly appreciate the sustainability of the food system. For example, fruit and vegetables grown locally in heated greenhouses may cause more greenhouse gas emissions than those grown outside in warmer climates and then imported. Evidence also suggests that there is significant potential for more efficient global use of water through trade if exporters, such as the European Union, are able to achieve higher water productivity than importers[6].

A major challenge is to ensure that, when thinking about the impact of traded food, the cost of all the processes, including growing costs like the use of water, is included in the calculation of food prices. This would provide a good incentive for more sustainable food production, whether local or distant. Governments, in the context of the World Trade Organisation, are also challenged to make global food systems fairer to avoid dumping, export bans or cornering markets.

Innovation

Much is being done to improve resource and energy efficiency in the sector (see next section below). There is also potential to reduce the GHG emissions intensity of livestock production, for example through increased feed conversion ratios[7]. Defra is encouraging farmers to improve livestock management and to use fertiliser more efficiently to reduce GHG emissions per unit output, e.g. by better slurry management (including use of anaerobic digestion).

PepsiCo is the parent company of Walkers, Quaker, Tropicana and Copella, and is the largest buyer of British potatoes since switching to 100% British potatoes in 2007 for Walkers crisps. In October 2010, it announced plans to reduce water and carbon emissions on 350 partner farms by 50% in the period to 2015 through its "i-crop precision farming" technology developed in conjunction with Cambridge University and being trialled by a number of PepsiCo potato farmers. There are also trials of new low-carbon fertilisers with Spearhead farms, one of Walkers' largest suppliers, and a proposal to replace more than 75% of PepsiCo UK's current potato stock with varieties that will significantly improve farmers' yields and decrease wastage by 2015.

5 The Future of Food and Farming: Challenges and choices for global sustainability; Annex B to the report provides references for data

6 Foresight – Food and Farming - http://www.bis.gov.uk/assets/bispartners/foresight/docs/food-and-farming/11-546-future-of-food-and-farming-report.pdf

7 A measure of an animal's efficiency in converting feed mass into increased body mass

The food sector will have to adapt to climate change, which may have a major effect on the UK farming industry (e.g. disruption of production and movement of food raw materials, diversion of supplies, etc). The UK is a leader in science and new techniques for adaptation. Shifts in the climate are creating opportunities for changes, diversification and innovation in the crops that are grown in the UK as well as requiring adaptation of buildings and transport infrastructure (e.g. to reduce risk of heat stress effects on livestock). Globally, the market for crop varieties with greater resilience to heat and water stress is expected to increase. Also, as pests and diseases move under the influence of a shifting climate, there will be implications for the plant protection and animal health sectors. Other opportunities include servicing demand for more efficient processing facilities through equipment that cuts consumption and cuts costs, while maintaining food safety, and for design and development of 'green' buildings.

Mild, wet winters can impact the blackcurrant harvest. **GlaxoSmithKline** is supporting work at the Scottish Crop Research Institute to develop different varieties of blackcurrants that will thrive in a changing climate over the next 70 years. This will help UK growers to continue to produce enough fruit to allow Ribena production to meet demand without needing to import blackcurrants.

Resource and energy efficiency

Emerging Defra research indicates that relatively simple measures already taken to save energy and waste have saved the food and drink sector approximately £275m. It is estimated that the sector can save a further £76m from more efficient water usage.

Effective handling of food waste presents a considerable opportunity. Total food waste in the UK is estimated to be around 16 million tonnes, with 8.3 million tonnes (c50%) from household waste, 3.57 million tonnes (c25%) from manufacturing, distribution and retail, and the remaining c25% arising from areas including the hospitality sector, the public sector, horticulture and agriculture. Current evidence suggests that much of this waste is avoidable, for example, at least 60% of household food waste is avoidable and costs consumers £12 billion annually, while waste in supply chains to food retail is estimated at around £5 billion annually.

Technologies such as anaerobic digestion and in-vessel composting help divert food waste from landfill (where it breaks down to emit methane, a powerful greenhouse gas), and produce valuable products such as peat-free composts, soil conditioners, and biogas that can generate renewable energy. The Government is interested in seeing the development of a sustainable anaerobic digestion industry. Barriers to the increased uptake of such technologies include the current high costs relative to more traditional recovery options, lack of knowledge and understanding (leading to delays in obtaining planning permission), the ability to separate commingled food and packaging wastes and guarantee supply of source-segregated food waste as 'feedstock'.

The cost of waste in the post-farm gate supply of food and drink has been estimated to be £5 billion. Commercial pressure will drive efficient use of energy and raw materials. For example:

By mid-2010 **Premier Foods** had reduced waste to landfill from 38,000 tonnes (in 2008) to 7,379 tonnes, representing an 80% reduction. The company is now on target to achieve its goal of sending 'zero waste' to landfill by 2015. In early 2010, the company began the construction of a £5m anaerobic digestion plant at its RF Brookes' ready meals factory in Rogerstone, Newport. The plant will convert waste material into biogas, producing around 10% of the factory's power needs whilst also reducing the site's carbon emissions by 8,500 tonnes a year.

Unilever's Gloucester ice cream factory has installed a Combined Heat and Power plant that will reduce CO_2 arising from energy production by over 3,000 tonnes a year. Unilever's Marmite factory at Burton on Trent uses an anaerobic digester, which produces biogas from the waste by-product of the manufacturing process – this has also reduced water use at the site and the chemical oxygen demand burden on water sent to the municipal sewer.

In late 2009, **United Biscuits** introduced a new water recycling and cleaning system at its snacks factory in Billingham, Teesside, where the potato processing area accounts for the majority of its water use. Water is used for washing, transporting, peeling and slicing potatoes. Used water is now passed through a water treatment system using biological treatment and filtration before being returning to a blending tank with fresh water, which is then used in the potato processing area. Recycling water in this way is expected to save approximately 500,000 million[3] of fresh water per year, reducing water consumption by more than 30%. In the last two years, United Biscuits reduced its UK water use by 28% against a target of a 25% reduction by 2020. The company has raised that target to 45% by 2020.

Demand-led change

In common with other sectors of the economy, the provision of information, for example to support the case for business and institutional action to improve resource efficiency, is important in influencing business behaviour in the food chain. However, the demand side, from both consumers and investors, is equally important.

Consumers are concerned about the sustainability of the food that they eat, for example, "food miles". More information about the carbon "footprint" and embedded water might stimulate demand for more sustainably produced foods.

Sainsbury's, in partnership with the environmental consultancy, AB Sustain, has developed a carbon footprint model for its producers. The model assesses the environmental impact of production and provides farmers with individual advice.

Demand for greater business efficiency comes about as shareholders demand greater profitability, but increasingly the growing demand for more sustainable performance is driving better environmental performance and improved resource efficiency. This is becoming progressively more associated with good business practice in reducing the risks of reputational damage to companies (in respect of poor social and environmental practices) and of exposure to volatile commodity prices.

The industry is already giving some thought to the implications of this. In the case of trade:

- For imports, there will be an increased need for sustainable sourcing and for industry to consider, in appropriate cases, whether they can put something back to the communities producing the imported product, e.g. helping cocoa growers to rejuvenate their plantations.
- For exports, sustainable production and resource efficiency could become one of the selling points of UK products, for example that packaging is environmentally-friendly, that wastage in transit is minimised, and that sustainable forms of transport are used. Over time, sustainable UK food exports might displace competing products that are produced unsustainably (possibly through UK breeding of crop species that require less water and/or less fertiliser).

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