Foresight

Making the future work for you

Preparing for the Future

Food Chain and Crops for Industry Panel report

Contents

Preface

In this document the Food Chain and Crops for Industry (FCCI) Foresight Panel sets out the recommendations for action that we believe will improve the competitiveness of businesses in the FCCI sectors, as well as raise the quality of life of people in the UK. It is not the first such document – in 1995 the first UK Foresight panels addressing our sectors produced recommendations. However, these were aimed largely at the research community as part of what was then the Technology Foresight programme[1]. Many of those panels' findings have since been incorporated into the strategies of the relevant Research Councils and Government Departmental research programmes.

Foresight, as it is now called, has always been about bringing together people who know about technology with those who know about markets and consumers to look at how the future may develop. In the period since the first report, both the present and the earlier panels have focused increasingly on getting this process used more widely within businesses, their representative organisations, government and others. However, we have also focused on the opportunities that science and technology bring, as well as exploring the barriers to their exploitation.

The second round of Foresight was started in 1999 and saw the establishment of the FCCI panel which I chair. As well as the panel itself, we have set up six task forces:

- Communication in the food chain
- Spreading best practice
- Unlocking the potential of industrial crops
- Food's contribution to health in the future
- Debate on the use of technology in the food chain
- Future skill needs of the UK's food chain and crops for industry sector

1 Progress Through Partnership no 7; the report of the Food and Drink Technology Foresight Panel, 1995 (ISBN 0 11 430121 2); and Progress Through Partnership no 11; the report of the Agriculture, Natural Resources and Environment Technology Foresight Panel, 1995 (ISBN 0 11 430125 5).

Everyone involved has based their work on a 20 year time horizon but we have from the start been aiming towards recommendations for actions to be taken now in order to prepare for the future. We will measure our success initially by seeing how much buy-in we get to our proposals and then the extent to which our recommendations are realised. We attach particular importance to persuading other organisations to use the Foresight process for themselves.

This document is the culmination of discussions by 70 senior people working in or with the FCCI sectors. The recommendations for action arise from their knowledge, experience and creative thinking as well as from commissioned research, presentations from outside experts and the views of over 130 organisations and individuals we received in response to the consultation document that we published in May. Our purpose is that this document should both present clearly what we believe should happen and also identify those organisations that we believe can and should take the lead – I hope we have achieved this.

This report signifies the beginning of a long process of change both to have the ideas for action implemented and also the methodology of Foresight adopted. As a panel we will continue to facilitate action, to track progress on our recommendations and to promote the use of the Foresight process. I hope that you in your turn will play your part by helping to give effect to our recommendations.

Deirdre Hutton

Deirdre Hutton
Vice-Chairman, National Consumer Council
Panel Chairman

Our recommendations for action

We have tackled six issues that we believe to have the highest priority for the FCCI sectors:

- Communication in the food chain
- Spreading best practice
- Unlocking the potential of industrial crops
- Future skill needs of the UK's food chain and crops for industry sector
- Food's contribution to health in the future
- Debate on the use of technology in the food chain.

In the following six sections our analysis of the problems associated with these issues, now and for the future, is followed by:

- Our vision for the future and what things need to happen to help this come about
- What should be done now, and by whom – we have approached the organisations identified and have asked them to consider for themselves *how* these recommendations can be taken forward. In each case, we consider that industry and academia should work together, with appropriate input by government.
- A short summary of what people said in response to the consultation document we published in May and how we used this to develop our recommendations for action.[2]

2 The full text of each of the responses received is on our web site at www.foresight.gov.uk/fcci

COMMUNICATION IN THE FOOD CHAIN

We consider communication to pervade all the other issues the panel has looked at and so the ideas from the task force that looked at this topic are relevant and important for all the task forces. The FCCI panel will continue to take forward itself the actions identified.

Our approach to this issue was to make a subjective analysis of the quantity and effectiveness of current communication links between different parts of the food chain. We then looked at the driving factors that would affect the future and other Foresight work on changes in society and we heard from the Henley Centre about their research on the consumer of the future. From this information, we concluded that we should focus on the link that appeared the least effective, that between farmers and consumers, and in our consultation document we asked questions about the reasons for the current situation and about what could be done to improve this in the future.

The problem

There is a mismatch between many people's perception of the way food is produced and the realities of modern agriculture (including organic agriculture), processing and manufacturing. There are cultural, attitudinal and commercial barriers that get in the way of better communication between farmers and growers and the people who ultimately eat what they produce. This is a problem now as it results in unrealistic expectations on all sides, a lack of trust in sources of information, confusion about what to believe and unresponsiveness towards consumers' wishes and concerns. It is also a barrier to people considering the food chain as a potential career. In the future, there will be many more sources of information and hence the potential for better informed producers and consumers – but also for more confusion.

Vision of the future and our recommendations for what needs to happen

Our vision is that in the future, all stakeholders in a transparent food chain will trust and be confident in the information they supply and receive and will be able to access it in the form they need.

In this vision, food consumers of the future will be also be sophisticated consumers of information about food production. Broadcast and other communication channels will be even more tailored to individual preferences with the potential to respond better to consumers' demands for information.

- There needs to be better communication with the adult public about real life food production. Existing initiatives like the Countryside Agency's "Eat the View", NFU's activities to encourage farm visits, and IGD's "Walking the food chain" initiative are moves in the right direction

- Education of children about food production needs to be more in-depth and aimed at giving sufficient understanding to allow children to make informed choices as they grow up and start purchasing food themselves (see also the skills topic below). It should include exploring the sustainability of food production, for example by examining local food production, food consumption and waste production in a particular area.

Our plans for action

The FCCI panel, with expertise from the public sector, the science base and industry, will take forward ideas for projects to address these needs. For example:

- Material for broadcasts on food production covering the whole food chain and suitable for a wide range of audiences
- A series of children's video diaries. In these, children would "walk the food chain" and show how their perception of the way food is produced, including views on issues about sustainability, has been informed by seeing it at first hand. The diaries would aim to put across the message that the consumers of the future can be empowered to make more informed decisions about their food purchases
- A web portal to provide an electronic one-stop-shop for web-based information sources. It would show the public how food is produced and explore issues and concerns around the food chain with links to interest group sites.

The potential benefits

If people have a better understanding of food production and more information is available on the food for sale they should be able to make more informed choices about the food they buy. From these choices, the food chain should be able to gain a more accurate understanding of its customers' changing requirements and so be better able to make decisions about investing resources to develop their business.

What people said in response to our consultation

We received 39 written responses to this section of the consultation document and we also interviewed 19 people with expertise covering the whole food chain. There was general support for our analysis and most agreed with our view that the farmer/consumer link was in most need of attention. As with the skills topic, communication with school children by the farming community was seen as a priority. There is already a range of initiatives addressed at this group as well as others directed towards adults and we hope that our recommendations will add value to these.

SPREADING BEST PRACTICE

In developing our initial views on this issue, we consulted leading organisations in the food chain on their views of best practice as it exists today and how current systems and protocols will need to change in the future[3]. The clear message that came through was similar to our own views – that in the future, best practice will reflect a much greater supply chain understanding and market focus. In the consultation document we developed this idea and identified two types of best practice: vertical best practice which effectively transmits consumer demands for quality, safety, traceability etc through a supply chain; and horizontal best practice which is best practice within each sector in the chain helping business to be more efficient. We generated a vision of the factors we believe best practice in the future will need to include and proposed four inter-related actions centred around the idea for a best practice centre.

The problem

Many UK food chain businesses do not have the tools or often the inclination to be able to compare their technical and business performance with those of their competitors, here and overseas. Despite the many sectoral initiatives that have been and are addressing this, many businesses often do not have access to information on what constitutes best practice for their particular production system. This is storing up problems for the future in many areas of the food chain because such businesses will be less able to compete as global competition for many markets increases.

Our vision of the future and our recommendations for what needs to happen

In our vision of the future, food chain businesses will strive for continuous improvement and regularly compare their performance with the best in class using, for example, established frameworks like the European Foundation for Quality Management (EFQM) Business Excellence Model or the UK Benchmark Index. They will use a process like Foresight to anticipate future demands, opportunities, particularly those from science and technology, and public concerns. Supply chains will be efficient, flexible and responsive to consumer needs. Finally, food chain businesses will harness science and technology to a much greater degree to produce new and better products and services for consumers.

Production benchmarking and decision-making tools need to be developed, tailored to specific sectors, which can be simply and cheaply applied by businesses themselves. These need to be made widely available and promoted to UK food chain businesses, particularly SMEs. They should complement existing business benchmarking and management best practice tools.

3 *Best practice through the food supply chain - today and tomorrow*. Promar International on behalf of the task force. February 2000.

What should be done now and who should take the lead

The food chain through IGD, the science base led by the Institute of Grassland and Environmental Research, the Institute of Food Research and the Institute of Arable Crops Research (IGER, IFR and IACR), and research and technology organisations led by Campden and Chorleywood Food Research Association (CCFRA) should together address the establishment of a food chain best practice centre bringing in other relevant organisations to develop and promote these tools. The centre's remit should be to:

- Identify gaps in knowledge about best practice, specifically looking to other industry sectors and other countries as well as to UK research institutions for relevant techniques and scientific developments to improve established practices
- Complement other activities, for example the new Farm Business Advice Service and existing benchmarking exercises, by helping existing business support organisations and consultancies to access and pass on knowledge about best practice
- Have high visibility within the food chain and a promotional rôle to encourage greater use of existing benchmarking initiatives and best practice throughout the chain

Pump-priming funding will probably be needed and should be sought from all stakeholders.

The potential benefits (implications for sustainable development in bold type)[4]

These new production benchmarking and decision-making tools, if widely applied, would help food chain businesses to improve competitiveness. In agriculture, for example, raising productivity of the median performers to the level of the top 10% would have an enormous impact on the sector's profitability and viability. Businesses would then be likely to **invest more** in new technology, including **IT**, **skills**, plant and machinery.

Enhanced competitiveness would **increase economic growth** in the UK's food chain and reduce the food trading gap. More widespread use of production benchmarking could provide evidence to the customer about the way in which the whole food chain is working to appropriate ethical, social, environmental and welfare standards, accounting for different production systems (eg generic, local produce, organic, fair trade). Benchmarking would also help reduce **waste**, and drive down costs for consumers. Overall, it would provide the means to audit and enhance the competitiveness of the sector.

What people said in response to our consultation

We received 48 written responses to our consultation and we also interviewed a further 19 people with expertise covering the whole food chain[5]. Most agreed with our analysis of the priorities for the future and with the principle of a centre; there were also some other suggestions for initiatives, for example a national award for best practice, which we felt could be considered alongside this idea. A few people felt, however, that such a centre might duplicate existing structures and there were also some concerns about whether businesses would use it sufficiently to make it worthwhile. We took these and the other comments into account in framing our recommendation.

4 Based on the Government's headline indicators for sustainable development
5 Interviews by Promar International on behalf of the task force. September 2000

UNLOCKING THE POTENTIAL OF INDUSTRIAL CROPS

Our analysis of the future potential of the industrial crops sector in the UK illustrated the issues involved by focusing on a set of unique competencies that a UK company working in this sector might need to have in order to be successful. In our consultation document, we presented a model company, Wompom.com, whose divisions had analysed the current situation and the opportunities and barriers that would affect success in the future. We asked for comments on this analysis and on the implications for research, for agriculture and for Government.

The problem

There is potential in the future to develop large world markets for industrial uses of UK-grown crops and to use significant areas of land. But identification of appropriate end-use targets is difficult and there are significant barriers to entry which will remain for many years yet as fossil oil-based products continue to have big cost advantages.

Our vision of the future and our recommendations for what needs to happen

Our vision is that in the future UK companies will be in a good position to exploit the latest findings from research on new molecules and materials in plants. They will have access to information about the precise needs of potential markets and access to the necessary skills and manufacturing plant to produce sufficient samples to convince potential customers.

There needs to be a bigger, sustained effort to harness and exploit intellectual property from UK research in these sectors and to facilitate companies coming together with scientists to demonstrate the feasibility of a potential end-product right the way through the production chain. There also needs to be better communication with potential consumers about these products so that they can make better informed choices, thereby giving a clearer message to potential suppliers.

There needs to be continuing, concerted action to reduce disincentives from market-distorting EU agricultural regimes.

Better and standardised methods for Life Cycle Analysis (including economic as well as environmental analysis) and environmental risk assessment need to be developed and harmonised internationally to help substantiate the sustainable credentials of new products.

What should be done now and who should take the lead

The new Government-Industry Forum on Non-Food Applications of Crops, bringing together government, industry and researchers, should take forward actions to address these needs. In particular, the forum should consider how a respected, independent centre of know-how with its own knowledge, technology and intellectual property could be developed with a remit to:

- Broker information and ideas between manufacturers who know what functionality they require, researchers who know what might be possible in terms of providing new molecules or materials, Government and others working on the UK's environmental commitments, and agricultural businesses
- Be a source of information trusted by the public
- Provide the data for Government and sector organisations to discuss support for industrial crops and for international standardisation of life cycle analysis.

The potential benefits (implications for sustainable development in bold type)

The development of successful new products based on plants should benefit **economic growth** by allowing UK companies (those with significant investments and/or manufacturing base or employment in the UK) to exploit more successfully the results of UK research. Products that use a significant area of crops as a feedstock could also contribute to reducing emissions of **greenhouse gases**.

What people said in response to our consultation

Most of the 30 responses we received broadly agreed with our analysis. They emphasised the importance of continuing support for research to maintain UK expertise and of exploiting the IPR from it. The implications for agriculture and for government included the need to support the development of on-farm processing capability and reform of EU agricultural regimes to create more of a level playing field. There was a range of views about life cycle analysis, from enthusiastic support to caution about over-use. We felt that many of the ideas in these comments and from our consultation document could be developed by an organisation with an executive as well as a sign-posting and networking rôle and have proposed that the new Government-Industry Forum takes this action forward.

FUTURE SKILL NEEDS OF THE UK'S FOOD CHAIN AND CROPS FOR INDUSTRY SECTOR

To build on our own knowledge of ongoing activities addressing skill needs in the FCCI sectors, we invited Ufi (the organisation set up to deliver the Government's vision of a University for Industry) and the national Learning and Skills Council to come and talk to us. We also commissioned a review of key technical skills data and of the driving factors that were likely to affect the future supply and use of technical skills in these sectors[6]. In our consultation document, we presented an analysis of the current position and looking to the future, we presented an ideal education and training process to address the gaps in skills that we observed.

The problem

The food chain has a poor image as a potential career path and as a result people considering their career options are put off applying for vocational and academic courses and for jobs. Technical skills are essential to maintain safety in the food chain and to increase competitiveness but technical skill levels in this sector are low in comparison with other sectors and other countries and recruitment into technical, engineering and operational rôles is a problem. In the future, this will compromise the UK food chain's ability to be competitive and to deliver consumers' expectations.

Our vision of the future and our recommendations for what needs to happen

In our vision, science and technology will continue to deliver consumers' aspirations and provide the means for businesses to innovate and compete. People will be better informed about how the food chain operates and the science underlying it (see also the Communication in the food chain section above). Over time, more food chain businesses will invest through training and recruitment in the skills needed to take advantage of what science and technology offers. The food industry will be regarded highly as a profession and graduates as well as others with a range of experience will perceive that they have excellent career opportunities in the industry as well as the opportunity to acquire transferable skills. One consequence is that top quality students, who are likely to be in the forefront of scientific innovation, will be attracted to the food sector as a career.

- A programme should be launched in concert with schools, further and higher education and government to encourage food chain businesses to bring teachers onto their premises. This includes food manufacturers investing in facilities to host visits by teachers, pupils and interested members of the public to show at first hand how modern food production and distribution works
- A directory of teaching resources about the food chain should be compiled, mapped onto the coverage of science subjects in the National Curriculum and made available

6 Commissioned from PyeTait

to all teachers. A model is the Food, Farming and Countryside Directory of Learning Resources produced by Lantra. In their training, science teachers should be encouraged to use food-based examples to teach biological, chemical and physical sciences

- Food science should be taught as part of the Science curriculum as well as part of the Design and Technology curriculum
- Careers advisers should be better informed about the way modern food production works and the potential career paths open to new entrants
- Closer links should be forged between food chain businesses and universities and their students to ensure graduates have the right skills mix for the food chain of the future.

What should be done now and who should take the lead

DfEE together with the food chain NTOs and food chain employers should consider establishing a Food Chain Skills Forum to gain cross-chain commitment to taking forward these issues, to liaise with national skills supply bodies and ongoing food chain skills initiatives (for example the Food Skills Group activities in Scotland), find funding and review delivery. The forum should bring together (for the first time) senior representation from across a wide range of stakeholders – National Training Organisations, employers, food chain research institutes and university departments, regional and national Learning & Skills Councils, Regional Development Agencies, Connexions and others.

The potential benefits (implications for sustainable development in bold type)

These actions should reduce the barriers to entry into the food chain industries. They should encourage more people to acquire skills and **qualifications** relevant to a career in the food chain and for businesses to **invest** in better technical skills. They should help improve the competitiveness of food chain businesses by improving their ability to harness science and technology and thereby help increase **economic growth**.

What people said in response to our consultation

We received 38 written responses to our consultation and we held a workshop on 15 September 2000 to consult key organisations. There was widespread acceptance that our pyramid model painted an accurate picture of the current situation with respect to technical skills and also agreement that the food chain has a poor image as a potential career path. There are many sectoral initiatives under way to address the problems and we also heard about food cluster activities in Scotland which take a whole chain approach. In trying to look to the longer term, we felt that we should concentrate on one main area to add value to these existing activities: on providing help for educational establishments to use information about the food chain with their students (tying in closely with the ideas above on Communication in the food chain).

FOOD'S CONTRIBUTION TO HEALTH IN THE FUTURE

In this area, where there have been so many initiatives with the aim of helping to improve people's diets, we developed some scenarios of possible futures as a tool to help us prioritise ideas for further actions. We presented these in the consultation document along with proposals and questions in four areas: fostering demand for a healthy diet; supporting the supply of a healthier diet; linking a healthier diet to economic benefits; and research.

The problem

Despite all the many good activities under way to promote a healthy lifestyle in the UK, the situation is not improving quickly enough. In particular, many people continue to choose unhealthy diets and to do too little exercise. Unless this situation changes soon, more and more people will suffer from diet-related diseases and, in turn, this will cause even greater pressures on the healthcare system.

Our vision of the future and our recommendations for what needs to happen

In our vision, everybody in the UK will be able to afford a balanced diet, will have the opportunity to eat one and will be sufficiently informed to make appropriate choices about diet for themselves. Healthcare professionals will have nutritional status at the centre of their clinical practice and the food chain will collaborate in initiatives to broaden the nutritional range of food products.

- The messages about healthy lifestyle need to be got across to the public more effectively, to all age-groups. Examples of effective ways of doing this are the Bangor project, which encourages children to eat more fruit and vegetables, and the food industry funded food**fitness** programme encouraging a balanced diet and healthy lifestyle
- The impact of advertising and the media on the food choices of children and their families should be clarified in order to inform public health education and information services
- The rôle of diet, nutrition and exercise should be given a more central place in clinical practice, both in training practitioners and in delivering healthcare
- Food chain businesses should work together through their representative organisations with the public sector to help provide consumers with a range of foods of appropriate composition to promote health and to avoid economic and competitive barriers which might stifle potentially beneficial innovations
- A science based A level/Scottish Higher on nutrition and food science should be established.

What should be done now and who should take the lead

The Food Standards Agency should establish a strategic forum for activities promoting a healthy diet, to construct convincing proposals for action, to conduct research to fill in gaps in nutritional knowledge and to bring together all organisations with a rôle to play in order to agree concerted action: the public sector (Government, the healthcare professions and consumer organisations); education and science organisations (British Nutrition Foundation, health education bodies and academia); and industry (food manufacturers, retailers and foodservice operators). The forum should be an enabling infrastructure to coordinate existing activities and maximise their impact on public health. It should recognise people's changing lifestyles, for instance where people consume food, the types of food they eat, and the rôle of functional foods.

The potential benefits (implications for sustainable development in bold type)

More concerted action to improve diet and lifestyle should improve people's health and increase their **expected years of healthy life** as well as reducing the significant burden of illness on the healthcare system and the UK economy. Making it easier for all people to have a healthy diet should help **reduce social exclusion**.

What people said in response to our consultation

We received 67 written responses to our consultation, the highest number of all the FCCI task forces. A few people took exception to the scenarios as reflecting a world view that they could not accept although we had tried to show that we had used them as a tool to help debate rather than as any form of underpinning for the proposals themselves. There was almost unanimous agreement on the need to improve knowledge of nutrition among healthcare professionals and also that nutrition should have stronger focus in clinical practice. Most people also agreed with our proposal that a forum should be established for developing actions involving all stakeholders and they felt that the FSA should be strongly involved. Our most contentious ideas were about the rôle of advertising in influencing diet in children. Organisations and individuals closely involved in using food advertising insisted that it did not have an effect on consumption of food categories (for example, confectionery versus vegetables) but was about influencing choice of brands. Some of us, however, as well as a number of our consultees did not see the issue as black and white as this and our recommendations include a continuing need for clarification of the impact on food choice of the media generally.

DEBATE ON THE USE OF TECHNOLOGY IN THE FOOD CHAIN

Our work exploring ways in which in the future the use of technology in the food chain might better be debated with the public is still in progress. It differs from the other topics in that we are not planning to make recommendations but believe there is a need to develop a toolkit which can be used by decision-makers involved in introducing or regulating new technologies. In our consultation document we set out our plans to pilot four mechanisms of debate in parallel with one another. We developed descriptions of six hypothetical products which might use different types of technology and asked whether people thought they were likely to stimulate a useful debate.

The problem

Rapid scientific changes are transforming the ability to deliver new types of food and in the process are threatening the ability to hold an effective public debate about these products. It is difficult for the public to get balanced information and to be involved in an informed debate on contentious topics. It is also hard for people in politics and business to base their decisions on a reasonably accurate view of how their voters or customers are likely to view such topics, what their concerns may be and what information they trust or do not trust. Unless this situation is improved in the future, justice and the public's rights to information may be jeopardised and future decisions on investments or on public policy may be ill-founded.

Our vision of the future and our contribution to realising it

Our vision is the same as that above for communication in the food chain: in the future, all stakeholders in a transparent food chain will trust and be confident in the information they supply and receive and will be able to access it in the form they need. Food consumers will also be sophisticated consumers of information about food production.

We have started to evaluate different types of debate mechanism and believe a toolkit needs to be developed for decision-makers about consulting on technology in the food chain. Such a toolkit should provide:

- Practical guidance on consultation procedures and associated costs (both time and money)
- The types of responses each mechanism can provide about people's views or concerns - qualitative vs quantitative, considered or gut reaction
- A comparison of the ways in which information gained from using each mechanism is likely to be useful for different end-users (policy-makers, business investors, the participants themselves). For example, "Mechanism x is good in y situation because..."

- Advice on participant selection
- The ways in which the debates can best be organised so that an evaluation of the outcome scores highly against accepted criteria for different end-users
- Suggestions on the future form and content of information provided for the public.

The potential benefits

As in the communication section above, if people have a better understanding of food production they should be able to make more informed choices about the food they buy. The toolkit should contribute to this by helping those considering bringing a new technology into use in the food chain to set up mechanisms which allow a better quality of debate.

What people said in response to our consultation

We received 42 written responses to our consultation and there was a range of opinion on the questions we posed. Most who commented thought the products we had chosen were interesting and covered a good range of types of technology (one of our ideas for products, the anti-cancer broccoli, has recently been announced as having been produced). Some thought we should have chosen different types of product, or questioned the rationale behind our choice, and some found them too extreme. The explicit use of GM versus "natural" foods was criticised by some. Many thought our approach would give valuable information – retailers and manufacturers were the most positive here. Of the four discussion methods, many who commented felt that a citizens' jury would be the most useful.

Issues from other Foresight panels

In reviewing the consultation documents of the other Foresight panels, we have identified the following points of contact:

- As we noted above under Communication in the food chain, ways of communicating will be much more numerous and varied in the future (**Information, Communications and Media panel**) which should give opportunities to assist teachers in teaching about the food chain and produce a generation of consumers who are better informed and more interested in finding out where their food comes from.
- Information from the human genome (**Healthcare panel; Crime prevention panel**) may allow dietary choices to be made according to one's own genetic makeup and food ingredients may accordingly be available tailored to a wide variety of nutritional needs. Means for consumers to verify the composition and source of food ingredients in considerable detail, for example sophisticated personal scanners, may be widely available.
- The vision of future manufacturing in the **Manufacturing 2020 panel** document – highly customised, just in time production where the product is often just one part of an overall service to the customer – is one that is already being realised by major food and drink manufacturers (for example themed pubs which provide an entertainment service with drinks as a part of the overall offer). Smaller companies are likely to be less able to realise this vision, particularly so in the food chain where competitive pressures are particularly strong. If successful, the Foresight Programme's efforts to promote the use of a Foresight process by SMEs should help.
- Our view of the trends and challenges posed by the **Ageing Population panel** is that the market is likely to be able to respond to provide the anticipated changing customer needs, though within the limitations we have identified in the recommendations sections above.
- The **Retail and Consumer Services, Chemicals** and **Manufacturing 2020 panels** all identify the same challenges for the future in the skills area as we have. The Retail and Consumer Services panel in particular highlighted the poor image of the industry as a career and the importance of increasing skill levels.
- There are similarities between the **Energy and Natural Environment panel's** debate on environmental appraisal and our work on technology in the food chain. Also, the panel identified water availability as a key driving factor in the future. On present trends, two out of every three people in the world will live in water-stressed conditions by 2025[7] – this will be a particularly important issue for the food chain to prepare for.
- The **Retail Logistics Task Force** run jointly between the **Retail and Consumer Services** and **Built Environment and Transport panels** has been looking at the ways in which adverse environmental impacts of the growth in e-shopping and home delivery might be minimised. Some of the possible solutions, eg collaboration between non-competing companies to lower delivery costs and reduce the numbers of vehicles on the road, will require better communication between the parts of the food chain and the widespread use of best practice developed in the UK or elsewhere.

7 UNEP, Global Environmental Outlook 2000, Nairobi, 1999

The Foresight process

No-one can predict the future, but Foresight can help you prepare for it. It can help you to think more broadly than you might usually do, to develop a vision for where you want to get to and to decide upon actions to take now so that your organisation will be in the best possible position, regardless of what the future may actually bring.

The Foresight process is a structured discussion about the future and how it may affect your organisation's activities. For example:

- The future prospects for a sector
- How markets and society might change
- The future influences on public policy and legislation
- How emerging technologies may affect products, services and consumers.

The Foresight process consists of five elements:

1. Identifying the need for the exercise, its purpose and who needs to be involved
2. Understanding the present (eg strengths, weaknesses, opportunities and threats) and identifying future driving forces (eg social, technological, economic, environmental and political)
3. Deciding upon possible actions
4. Prioritising actions, for instance by developing "what if" scenarios against which to test them, and consultation
5. Developing an action plan and gaining commitment.

The Foresight directorate has developed detailed guides to help organisations to undertake this process for themselves. Copies are freely available on the Foresight web site at **www.foresight.gov.uk** or can be obtained from the Foresight secretariat (contact details on page 21).

Case studies of Foresight in action

The two case studies overleaf show how using a Foresight process has brought real benefits to the people and organisations that have been involved. We will actively look for ways to promote similar activities with other food chain organisations.

CASE STUDY:
SEASONAL WEATHER FORECASTING FOR THE FOOD CHAIN

For the last three years the Foresight programme has brought together new networks of people to explore for the first time the potential value to food chain businesses of using seasonal weather forecasts in their business decisions. Participants have been working together to develop a common understanding of the benefits and limitations of seasonal forecasts, and of the types and formats of data which would be useful to businesses in the UK food chain.

Seasonal forecasts differ from the forecasts we are familiar with on the nightly news in that they show the probability that a certain type of weather will dominate over the season. They typically give outlooks up to two seasons ahead. Techniques for production, display and application of the forecasts are relatively new and their development in line with users' needs is a long-term goal. The forecasters involved in the Foresight work have found it invaluable, as **Richard Graham** from the **Met Office** explains:
"This project has given us the opportunity to liaise closely with industrialists. Through learning about their businesses, we have learned a good deal more about how we should be tailoring the forecasts to their needs. The project has also done ground-breaking work in testing methods of using the forecasts."

Central to the success of this Foresight work has been the bringing together of groups of forecasters, business people and scientists, many of whom had never before collaborated in this way. The novel combination of participants, the pre-competitive nature of the subject and the in-depth nature of the discussions were the critical factors which allowed the development of a common understanding of the issues. It also proved valuable to take a whole-chain approach rather than concentrating on one stage in the supply chain.

"Without doubt the Foresight work has shown that the application of seasonal weather forecasts offers real opportunity for improved supply chain management. It will help the UK food chain to reduce waste, reduce cost, and serve our customers better."

George Marston, Strategic Development Manager, Tesco

To date we have concentrated on demonstrating to end users that there is potential for wealth creation in the use of these forecasts. It is hoped that the common understanding gained during the Foresight work will provide the foundation for further collaboration between forecasters and users and thus lead to the development of affordable systems which will deliver the appropriate weather information to users, tailored to their specific needs, and in a format which will allow them to incorporate the data easily into their everyday decision making.

"There is no doubt in my mind of the potential benefits of seasonal weather forecasting for food chain businesses. This special Foresight study has shown that the benefits can be realised through scientists and food chain businesses working in partnership."

John Sherlock, MAFF Chief Scientist's Group;
Foresight Seasonal Weather Forecasting for the Food Chain Steering Group chairman

These activities have been jointly led by MAFF and the FCCI secretariat and this phase will be complete with the publication of a final report in February 2001. There are plans to take the work forward in the form of a collaborative research project involving scientists, forecasters and food chain businesses.

CASE STUDY:
MALTSTERS USE FORESIGHT TO RAISE THEIR SPIRITS

A Foresight workshop held in May 1999 by the Maltsters Association of Great Britain (MAGB) brought together senior managers from all of the major UK malting companies to look at the future of their industry. Why did these highly competitive companies decide it was in their interests to talk strategy with one another? **Ivor Murrell, MAGB's Director General**, sets the scene.

"The malting industry supplies one of the chief raw materials for making beer and whisky and as such it is part of a multi-billion pound global sector. Over the last few years, a combination of the high value of sterling and the financial crises in the Far East and South America has put buyers in a strong negotiating position and the price of malt has been talked down. By 1998 maltsters were trying to come to terms with the fact that the market had changed and old operating and marketing methods no longer worked. What had been a 'bespoke' operation supplying a variety of different types of malt for different markets had moved much closer to a 'commodity' situation. UK malt had historically always traded on having the best materials, malting equipment and expertise in the world but suddenly, the key issue was price and our competitors were drawing closer to the UK on quality standards. The large drop in price had resulted in a ferocious battle for market share and the mood amongst maltsters was gloomy."

Ivor and James Craven Smith, Brewing Sales Director for the Crisp Malting Group and MAGB chairman, realised that the Association needed to respond to this situation and they turned to the Foresight process as a way to lift the industry's sights above its current problems. With some financial support from the Office of Science and Technology's Foresight programme for professional facilitation and advice from the Food Chain and Crops for Industry Foresight team they organised a workshop held over an evening and a day in Bury St Edmunds, Suffolk, centre of the major malt manufacturing area in the UK. **Ivor Murrell** again:

"Before the workshop took place the facilitator and I held individual meetings with senior personnel in the industry and it became obvious to us that there were several key issues in common. At the workshop, we invited two highly respected commentators on the brewing and distilling industries to give us the latest intelligence on future trends and we used these together with feedback from the pre-meeting interviews to stimulate discussion and challenge assumptions. To hear doubts and concerns expressed was difficult for some but by the end there was a better collective understanding about the 'new world' all the UK companies were operating in."

The discussion focused on identifying three forward-looking, pre-competitive issues for the afternoon syndicate session. These were: Differentiating UK malt; Factors affecting UK malt's competitive position; and Raw material supply. In the syndicates, discussion was frank and sometimes difficult but by the end a collective understanding of the issues was gained and gaps in knowledge identified and the process generated considerable enthusiasm amongst the participants to be involved in follow-up activities by the MAGB to address these. **James Craven Smith** summed up the day:

"The Foresight meeting provided an opportunity for senior members of the industry to stand back from the daily pressures of a very competitive market place and consider the issues that direct the business environment. The challenge for us now is to follow up the non-competitive issues affecting

the industry and to ensure its strengths and weaknesses, its cost pressures, legislation, raw material supply and changing technology are built into its future planning and strategy. British malt has in the past been the natural choice of UK and global brewers and distillers. Its pre-eminence is constantly challenged as local brewers become globalised. Foresight has enabled the industry to question the validity of our assumptions and to focus on the issues that will determine its long term success.

"I think it is true to say that if OST had not given its support at this time, then the workshop would not have gone ahead. The industry has had to cut back strongly on its costs and would not have supported such an untried proposal without encouragement. This was more than just financial support, it lent credibility to the venture and awakened interest in the idea of looking anew at our situation."

Other participants at the workshop also saw the benefits of the Foresight approach.
Gerald Prior, MD of Muntons plc:

"The Foresight meeting created a marvellous catalyst for developing a way forward for the industry as a whole and in particular, the rôle of our trade association."

And here's what **David Wilkes, MD of Paul's Malt** in whose premises the workshop was held, thought:

"The malt market is currently as competitive as it has ever been. The Foresight workshop demonstrated that even in such an environment it is possible for competitors to work together in addressing generic industry issues."

The last word should go to **Ivor Murrell** who championed the idea of the workshop within MAGB's committees:

"You might ask, 'What benefit did MAGB obtain from the workshop?' That is easily answered: it made the membership realise that the Association had a significant rôle to play for the UK malting industry. More importantly, what did the maltsters themselves gain? This is more complex. Some gained an overview of the current position of the whole industry, particularly how the export market and the home market now so closely interact. All certainly gained from the multi-discipline mixing of the syndicates and the exercise of trying to find a common answer from their pooled knowledge.

"But I think the main reason for the feeling of enthusiasm at the workshop was the realisation that even within very difficult circumstances and under tight financial restraints, the industry has identified at least three issues on which all can work together to benefit UK malting."

And to bring this report right up to date:

"The MAGB Foresight Initiative continues to operate, directed by a small group of senior malting industry executives, now looking at three key areas that are considered as being the most relevant for a cross-industry approach: R&D projects; communication improvements through the supply chain; and a range of operational actions which could help build UK maltsters' market share. To widen the debate we have invited selected experts from outside the sector to take part and as the project progresses, more and more of MAGB's member companies are supporting it."

Plans for the future

Our work in this current round of Foresight (until 2004) will focus on:

- Promoting use of the Foresight process
- Tracking progress on the actions we have recommended and helping where we can
- Taking forward our ideas for action on improving communication between farmers and consumers as well as addressing future communication between the other links in the chain
- Taking forward the work in progress by the task force on Debate on the use of technology in the food chain
- Contributing to thinking on sustainable development in the food chain in the future by developing a framework within which debate can take place. This might include:
  - Identifying the key stakeholders
  - Establishing objectives which include intermediate steps which can be taken
  - Examining the use of appropriate timelines in measuring trends
  - Considering the inter-relationship between sets of indicators and identifying areas of conflict.

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The Foresight Programme

The UK Foresight programme brings together the voices of business, government, the science base and others to look at what might happen in the future and what we need to do now to secure long-term competitive advantage and enhanced quality of life for all.

The programme was launched in 1993 following the Government White Paper on science, engineering and technology, Realising our Potential. It has a panel-based structure and operates on a five-year cycle. The current round of Foresight began in April 1999 and work has been carried forward through three thematic and ten sectoral panels.

Each Foresight panel looks at the future for a particular area, identifying the challenges and opportunities that the country is likely to face over the next ten to twenty years and beyond. In doing so, Foresight aims to bring about a culture change for the better in the way organisations relate to each other and to the future.

All panels consider the implications of their conclusions for education, skills and training and sustainable development.

This report - and those of the other panels - represent the culmination of over a year's intensive research, debate and discussion. They provide the basis from which panels and others will work to help turn the recommendations into action.

Foresight panels:

- Ageing Population
- Crime Prevention
- Manufacturing 2020
- Built Environment & Transport
- Chemicals
- Defence, Aerospace & Systems
- Energy & Natural Environment
- Financial Services
- Food Chain & Crops for Industry
- Healthcare
- Information, Communications & Media
- Materials
- Retail & Consumer Services

A further industry-led panel is looking at Marine issues and there is a task force addressing the impact of E-commerce on business processes and supply chains.

Copies of the full reports for all panels are available from the Foresight web site at **www.foresight.gov.uk** or by sending a fax to the Office of Science and Technology on: 020 7215 6715.

Foresight also supports an ever-increasing programme of activities for younger people. Further details can be obtained via the fax number above or at **www.youngforesight.org** and **www.visionsonline.org**

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