Sustainable food systems
How does the UK measure up?

Includes contributions from
Maria-Luiza Apostolescu | Minette Batters
Dan Crossley | Elizabeth Dowler
José Graziano da Silva | Martin Harper
Catherine Howarth and Clare Richards
Philip Lymbery | David Mottershead | Julian Parfitt
Pete Ritchie | Charles Seaford | Anna Taylor

Food Ethics Council
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td>3</td>
</tr>
<tr>
<td><strong>Introduction</strong></td>
<td></td>
</tr>
<tr>
<td>The Food Sustainability Index</td>
<td>5</td>
</tr>
<tr>
<td>Maria-Luiza Apostolescu</td>
<td></td>
</tr>
<tr>
<td>What can an index do?</td>
<td>8</td>
</tr>
<tr>
<td>Pete Richie</td>
<td></td>
</tr>
<tr>
<td>How well is the UK doing on sustainable food and farming?</td>
<td>10</td>
</tr>
<tr>
<td>Dan Crossley</td>
<td></td>
</tr>
<tr>
<td><strong>Sustainable agriculture</strong></td>
<td></td>
</tr>
<tr>
<td>Biodiversity in the UK</td>
<td>13</td>
</tr>
<tr>
<td>Martin Harper</td>
<td></td>
</tr>
<tr>
<td>Farm animal welfare: Is the UK a leader?</td>
<td>15</td>
</tr>
<tr>
<td>Philip Lymbery</td>
<td></td>
</tr>
<tr>
<td>The quality of agricultural subsidies</td>
<td>17</td>
</tr>
<tr>
<td>David Mottershead</td>
<td></td>
</tr>
<tr>
<td>Diversity in farming</td>
<td>19</td>
</tr>
<tr>
<td>Minette Batters</td>
<td></td>
</tr>
<tr>
<td><strong>Nutritional challenges</strong></td>
<td></td>
</tr>
<tr>
<td>Dietary challenges</td>
<td>22</td>
</tr>
<tr>
<td>Anna Taylor</td>
<td></td>
</tr>
<tr>
<td>The rise of food poverty in the UK</td>
<td>25</td>
</tr>
<tr>
<td>Elizabeth Dowler</td>
<td></td>
</tr>
<tr>
<td><strong>Food waste and loss</strong></td>
<td></td>
</tr>
<tr>
<td>Food waste metrics</td>
<td>28</td>
</tr>
<tr>
<td>Julian Parfitt</td>
<td></td>
</tr>
<tr>
<td><strong>Leveraging change</strong></td>
<td></td>
</tr>
<tr>
<td>How investors are balancing financial returns and food sustainability</td>
<td>31</td>
</tr>
<tr>
<td>Catherine Howarth and Clare Richards</td>
<td></td>
</tr>
<tr>
<td>More value from less food</td>
<td>34</td>
</tr>
<tr>
<td>Charles Seaford</td>
<td></td>
</tr>
<tr>
<td><strong>Final Word</strong></td>
<td></td>
</tr>
<tr>
<td>Sustainable development goals</td>
<td>37</td>
</tr>
<tr>
<td>José Graziano da Silva</td>
<td></td>
</tr>
</tbody>
</table>
Foreword

“...there is potential for well-designed indexes to be powerful tools [...] to incentivise bold action and accelerate progress”

How sustainable are UK food and farming systems? The honest – and frustrating – answer to that question is that it currently depends on a whole host of factors: who’s answering the question; the criteria used to judge ‘success’ (and how they are weighted); whether the focus is on relative or absolute performance; what’s in scope (e.g. imported food included or just UK produced food); and the comparability and robustness of data sources. Also, national averages can mask stark regional and local differences.

Despite these challenges, the Food Ethics Council believes that now is a good time to assess country performance using a holistic range of indicators. In our view, the science is moving on apace and indexes are starting to appear that attempt to bring together multiple aspects of sustainability – social, health, economic, environmental and animal welfare – rather than focusing on single issues. Tools are getting more robust, which we welcome, although we caution that the ‘pursuit of the perfect’ in terms of robust measurements can be taken to extremes, and may even become an excuse for inaction.

Indexes are infrequently used by policy makers, but we believe there is potential for well-designed indexes to be powerful tools for them and for those who seek to influence policy, to incentivise bold action and accelerate progress.

The UK’s withdrawal from the European Union will affect our food system more dramatically than at any time since World War Two. An index – done well – can provide a valuable evidence base for NGOs and progressive businesses to make the case for a more sustainable food system. It can drive the ‘race to the top’ in food, farming, environment and social justice policies.

We asked a number of UK food policy experts to look at results from the Food Sustainability Index (FSI), assess why – in their view – the UK is doing badly in certain areas, and give us their thoughts on potential policy solutions that would help drive the UK up the index.

The FSI is, in our opinion, the best attempt by an index to assess national food systems, bringing together multiple aspects of sustainability. However, it is not perfect, with some indicators that could be strengthened, and some areas where more or different indicators are needed.

The articles in this compendium assess the UK’s performance in the three key areas that the FSI focuses on, namely sustainable agriculture, nutrition and food waste and loss. They also look at how the UK might do better in these areas, giving food for thought to policy makers and campaigners. Some authors also suggest ways that the FSI itself could be strengthened.

The articles reflect the views of the authors rather than the Food Ethics Council, and are a ‘starter for 10’ in discussions about how to make a robust index that will encourage the UK to take meaningful steps towards a sustainable food system.

We believe that indexes have the power to create real and lasting change in our food systems. The Food Ethics Council’s work on unleashing the power of indexes – kindly funded by the Esmée Fairbairn Foundation – will further strengthen the metrics in existing food indexes, and shine a spotlight on the results to put pressure on the UK Government and Devolved Administrations for the policy changes that are so urgently needed.

Ruth Layton
Chair of the Food Ethics Council
Introduction
Feeding the ever-growing global population in the years to come will prove challenging; yet, despite these challenges, food systems are not high enough on policy makers’ agendas. More research and more organised data is needed to understand where we are at now and what policies are to transition to sustainable food systems. The Food Sustainability Index is the next step in building a body of research on sustainable food systems, how they work and what policies are necessary in order to achieve the Sustainable Development Goals (SDGs) by 2030.

The overall aims of the project are to promote food and its surrounding issues of production and access to the top of the agenda for the near future. The research is presented in the form of a benchmarking tool that can help policy makers identify the areas of urgency/priority and the need for action.

Another key project objective is to integrate this work within global efforts to achieve the SDGs by 2030. Each indicator in the index tool can be linked to one or more relevant SDGs (Figure 1). These links show that the index is not only relevant for the second SDG focusing on hunger but also to others, including climate change action, life on land, sustainable cities, employment, responsible consumption and production, as well as gender equality, good health, education, and infrastructure.

**The index framework**

The Food Sustainability Index framework is based on a literature review, a data availability audit and discussions with experts from different areas, such as nutrition, public health, food waste, soil erosion, sustainable agricultural practices etc. The result is a framework composed of more than 50 individual metrics combined into indicators and categories that make up sustainable food systems. With three types of metrics – environmental, societal, and economic – the index innovates by including qualitative indicators that assess the quality of policy responses to several challenges such as reducing food waste, smallholder land ownership protection, etc.

**OUR CURRENT FOOD SYSTEMS ARE NOT SUSTAINABLE**

- Climate change impacts on agricultural systems are becoming more visible yet harder to estimate, whilst at the same time the ecological footprint of agriculture is increasing
- Simultaneously, the shift from fossil fuels to renewable sources of energy like biofuels reduces the surface of land available to grow food
- Almost one billion people suffer from hunger whilst a third of the food is lost or wasted
- Obesity and hunger coexist within nations, and rising rates of obesity put a strain on healthcare systems to the point of being economically unsustainable

**Figure 1**

Mapping the SDGs to the Food Sustainability Index

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>CORRESPONDING SDGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food loss and waste</td>
<td>12, 2, 15</td>
</tr>
<tr>
<td>Pre-consumption level food loss</td>
<td>12, 2, 15</td>
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<tr>
<td>End-user level food waste</td>
<td>12, 2, 15</td>
</tr>
<tr>
<td>Sustainable agriculture</td>
<td>6, 12, 14</td>
</tr>
<tr>
<td>Water</td>
<td>8, 9, 10, 12, 13, 15</td>
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<td>Land use</td>
<td>3, 9, 15</td>
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<td>Biodiversity</td>
<td>8, 9, 4, 15</td>
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<td>Human capital</td>
<td>3, 9, 15</td>
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<td>GHG emissions (air)</td>
<td>13, 15, 11, 12, 7</td>
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<tr>
<td>Hunger and obesity</td>
<td>1, 2, 3</td>
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<td>Life quality</td>
<td>1, 3</td>
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<td>Life expectancy</td>
<td>2, 3</td>
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<td>Dietary patterns</td>
<td>1, 3</td>
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</tbody>
</table>
sustainable urban agriculture initiatives, etc. The index is scored from 0-100 with 100 being the best score.

Box 1

A simplified version of the framework

A. Food loss and waste
   1. Food loss
   2. End-user food waste
B. Sustainable agriculture
   1. Water
   2. Land
   3. Air
C. Hunger and obesity
   1. Life quality
   2. Life expectancy
   3. Dietary patterns

Further details can be found at: http://foodsustainability.eiu.com

Country coverage

In 2016, the index covered 25 countries: the 19 country members of the G201 (Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, UK, US) and six others (Colombia, Egypt, Ethiopia, Israel, Nigeria, and the UAE). They were selected through a data-based selection matrix considering geographical coverage, data availability, the importance of agriculture in the country’s economy and employment as well as other metrics.

With a very comprehensive and complex index framework requiring a large amount of comparable data, we have decided – in the first edition of the index – to include a set of countries that have relatively easily available data and also cover a large proportion of the world population and GDP. These 25 countries add up to roughly three quarters of the global population and three quarters of world GDP, making the index a relevant tool for researchers and policy makers interested in the global issue of sustainable food systems.

In 2017, the index sees the addition of nine other countries: Greece, Hungary, Jordan, Lebanon, Morocco, Portugal, Spain, Sweden, and Tunisia. We are hoping to add more countries over the coming years, so that a more accurate picture of the current situation of food systems can be drawn. However, geographical expansion is limited by data availability, which is very scarce in a number of countries that would benefit from being included in this index. One of the aims of this project is to draw attention to the need for more and better data collection on the topic of food waste and loss, nutritional challenges and agricultural matters.

Defining sustainable food systems

In addition to the data availability challenge, there was the issue of defining sustainable food systems. There are many definitions of the concepts of sustainability and sustainable development, and applying those to food systems - which can also be defined in many ways - was challenging. However, the index benefits from a comprehensive framework that allows it to have a relatively broad definition while also setting some directions as to what is meant by sustainable food systems (see box 2 below). Defining food systems at a country level can also prove challenging in a globalized world with global challenges. However, the index provides a starting point for conceptualising food systems at a scale that is the most appropriate and efficient for the policy making community, i.e. country-level. The index framework is one of the first to take a holistic view of food systems rather than just focus on one specific aspect, such as hunger or agricultural practices, and is thus an innovation in the space of sustainable food systems thinking.

What the index tells us about food systems

The most striking fact about this index is that no country has achieved the perfect score of 100.² This shows us that our current food systems are far from sustainable and there is a need for better policy incentives and for better awareness among consumers of the impact of the food they consume and the impact of their behaviour on the environment and their health.

In the three areas – food loss and waste, sustainable agriculture, nutritional challenges – major issues need to be addressed by policy makers, researchers and consumers alike. For instance, in terms of food waste at retail and consumer level, there is a clear need for better accounting and tracking of waste levels. Initiatives, such as the Food Loss & Waste Protocol by the World Resources Institute, should hopefully help produce more accurate data that will enable a better breakdown of food losses and waste as they occur along the value chain.

This is an area of action where everyone along the food system chain can and should be involved – from consumers who can adopt better practices in terms of food planning, through retailers who have the power to reduce food waste by discounting prices, to policy makers who can design policies around expiry dates and safety regulations that would enable a better recycling and reusing of food products.

Another important area of action is soil health. Often neglected, soil erosion due to pollution and climate change is a major threat to food security and
sustainability. Researchers lack funding to further investigate the health status of our soils and need more resources allocated to this area of research. A number of other areas to be addressed urgently can be identified thanks to the index by looking at the scores for each indicator or the scores for each country.

Improving sustainability

The index is a first step towards more sustainable food systems and can help stakeholders in their efforts to achieve the SDGs and other similar objectives. Policy makers can use this index to understand where each country is at in terms of the sustainability of their food systems, identify the policy areas where the most urgent action is needed, and spot policy best practices thanks to the qualitative indicators.

The index is also intended for academics and researchers to use in their work, as a starting point for in-depth studies around key issues highlighted by the index. For instance, the Food Sustainability Index is the inspiration for the forthcoming index on agro-biodiversity which will be launched by Biodiversity International later this year. Another example of how the index is used is this Food Ethics Council publication on how the UK is doing in terms of food sustainability. In other words, the Food Sustainability Index can be used by researchers and Civil Society Organisations to hold governments to account, highlight policy failings and propose better policies that support sustainable food systems.

Consumers and citizens can also use this index to understand the issues and challenges facing the food systems of their countries, how their choices can influence the outcomes and to make better choices in the future. The comprehensive framework of the index can help consumers understand the various components of a sustainable food system and better grasp the direct impact food systems have on consumers, especially in terms of dietary patterns and their impact on our health.

Consumers can influence the outcomes of this index through their choices: the type of diets and lifestyle they choose to adopt; the type of behaviour they choose to have in relation to reducing food waste at the end-user level; and an awareness of how their food was produced and in what conditions (with respect to farmers and agricultural workers, animals and more generally, the environment). Citizens can also use the index to understand the importance of policies in this area and hold accountable their governments for their decisions in the area that affects us all.

Future developments

It is very important that the index is widely disseminated, because it can help governments assess how well they are doing and where they need to improve. It also helps researchers and academics by offering a starting point and a comprehensive framework for thinking about sustainable food systems and framing their research.

It is also clear that there is a need for better data on sustainable food systems. While the first edition of the index gathered the best available data sources and indicators at the time of research, over the years it would be important to keep the data up to date with the latest developments in terms of new sources, new ways of collecting the data (such as the WRI’s Food Loss + Waste Protocol) and new indicators that could better capture some of the notions included in the index.

The uptake of the index in policy making, in research, as well as the continuous improvement of data availability will be the object of a number of workshops and events throughout the coming months and years, gathering researchers, experts, policy makers and civil society representatives around the issue of sustainable food systems.

Maria-Luiza Apostolescu is Public Policy Senior Analyst at the Economist Intelligence Unit

1. The G20 is composed of 19 country members plus the European Union as the 20th member. Since this is a country-based index and in order to avoid double counting, we have left aside the EU.
2. The top three countries and their the overall score out of 100 are: France (67.5), Japan (66.7), and Canada (64.9).
What can an index do?

An index, done well, can drive change by influencing policy makers. Pete Ritchie asks what it would take for the Food Sustainability Index to make such a contribution to food sustainability.

The Food Sustainability Index (FSI) is an ambitious attempt to guide policy making by comparing the food systems in different countries and synthesising information into a simple ranking of how well they are doing on sustainability.

This article considers the conditions for success in this endeavour: what would it take for this index to make a significant contribution to food sustainability? How can holding up a mirror to ‘what is’ help to shape ‘what happens next’?

The role of an index is to try and influence the policy landscape. As such, all indexes are based on certain underlying assumptions about policy making. In order to judge how effective an index – and more specifically, this index – can be, we need to understand how policy making actually works.

Policy making: how does it work?

This index is trying to help, and its theory of what would be helpful rests on several assumptions: that policy makers at national government level want to move their country in the direction of a more sustainable food system; that they are looking for information and ideas to help them do this; and that they care about how well their country is doing in relation to others.

There’s a further assumption too: that civil society organisations working for a more sustainable food system will get better traction with policy makers if they can compare their own country’s performance with others.

These assumptions are not entirely unfounded, but they are optimistic. In many countries, there is no coherent process for making and implementing food policy. As John Boyd Orr remarked in his Food, Health and Income report in 1936, ‘one of the main difficulties in dealing with these problems is that they are not within the sphere of any single Department of State.’ Typically, the three pillars of the FSI - nutrition, agriculture and food waste - come under three different ministries. As yet, few countries have mainstreamed food policy in the way many have started to mainstream climate change policy.

Interested and influential policy makers – the uninterested and ineffective ones are not good customers for the index – arguably have no difficulty accessing ideas and information. Civil society organisations tend to network well internationally and waste no opportunity to lobby policy makers on how they could do better.

So how much value this index adds depends largely on its ability to provide traction. Can it help agents of change within government, business and civil society cut through noise and create opportunities for moving things on? What helps turn a dataset into a ratchet?

What makes an index influential?

Pre-eminence in its field

Nerds are over-represented in civil society organisations. We love detail, and we can detect minute differences in policy emphasis at a hundred metres. We have no problem with multiple indexes, and will happily explain their strengths and weaknesses to anyone who will listen. But to get the attention of politicians we need one clear message: one index that stands out.

Recently, the Scottish Government has been under significant pressure on education, because the Programme for International Student Assessment (PISA) survey showed Scottish children slipping down the rankings. No-one cares about other data sets which might qualify those findings: PISA is the gold standard.

When the results came out, BBC Scotland commented: “The PISA figures are not the last word on education. They are not a definitive measure. There are many critics. But because they are the nearest thing there is to a fair way of comparing the education systems of different countries they have a huge influence on policy and political debate.”

The visibility and prominence of PISA is partly because education (like health) matters to voters – much more than food policy – and partly because the survey is an OECD undertaking.

Longevity matters too - the best-known index in the world is Dow Jones industrial average which has been compiled for more than a century. The value of an index is in marking change over time – both how an individual share or country goes up and down, and also how they change relative to others.

Credibility

An index makes a stronger claim than a review or a report. It claims to point to and reveal measurable realities. Not so hard in principle when measuring share prices or the price/earnings ratio but much tougher when comparing large, fuzzy-edged systems like food across countries.
The KidsRights Index recently showed the UK falling from 11th place globally to 156th and received some press coverage. The KidsRights Index is constructed using a geographical mean so that a low score in one domain has a much more significant impact on the overall ranking than if an arithmetic mean was used. Some states are marked down heavily on the one qualitative domain because of the language used when their performance was reviewed by the UN Convention on the Rights of the Child (which in turn judges States by their performance relative to their wealth). This leads to the UK being ranked below the Democratic Republic of Congo, and New Zealand falling well below Syria and Yemen. This method of weighting makes the index less credible to policy makers and less useful to civil society organisations.

FSI conversely works with an arithmetic mean of scores, and generates the scores from raw data using a logarithmic scale. This approach flattens the final score distribution, so the ‘bottom’ country still scores almost two-thirds of the top-performing one.

Some indicators in the FSI are likely to be criticised as too blunt – so, for example, while fertiliser use is measured in kilograms per hectare, water use is scored on the basis of actual water used, rather than water per hectare or per kg of produce.

A guide to action
This sort of index has to work at two levels. It provides a snapshot – how are we doing overall? Are we going up or down? – and it also picks out specific areas where work is needed.

The index should be granular enough to highlight distinct and manageable areas which need attention, but not so granular that the picture disappears in a mass of detail. The FSI has 35 domains, which seems about right. On each of those it is possible to find the best-performing countries and in theory learn from what they do.

A good map of the territory
A good index covers all the territory while having minimal overlap between domains. The more domains are independent of each other, the easier to pinpoint specific strengths and weaknesses.

Ideally domains should be of comparable size and importance, and be based on similar quality of evidence. Currently the FSI domains include both physical outputs such as water and fertiliser use, and quantities of food waste, as well as policy inputs such as laws to protect smallholders, quality of agricultural subsidies etc.

The sort of evidence being used to score countries also varies between numerical physical data (e.g. fertiliser use) and judgement calls (e.g. quality of agricultural subsidies).

It is helpful to distinguish these different sorts of indicators more clearly, so that the index reports both on the current physical manifestations of sustainability and on the policy, legislative and leadership environment which will influence the system’s direction of travel.

FSI currently misses large areas of the food sustainability territory. There are no consumption indicators, either calories per person or meat consumption per person. The UK diet relies heavily on using other countries’ land, water and biodiversity, so its lack of food sustainability is not fully captured here.

The index could usefully include nitrogen use efficiency, for which a robust methodology and country information already exist.

The index doesn’t get past the farmgate in terms of looking at the emissions from food processing and distribution. At the same time, it includes an indicator on physical activity (and weights this as twice as important as sugar consumption). This could be seen as stretching the scope of food sustainability as a concept. Other indicators (such as average age of farmers, number of young people and women as farmers) seem only marginally linked to food sustainability.

Encourages further enquiry
A good index is open and transparent, making it easy to follow back to the raw data and its source. It also evolves over time in response both to external changes and to feedback from users.

How could the FSI evolve to become an influence on policy?
The index could become a powerful tool for change. There does not seem to be anything better in widespread use at the moment, and with some work it could sensibly answer the question ‘how are we doing compared to (some of) the rest of the world?’

In my opinion, the index needs a fair bit of work, ideally before the next assessment exercise – and should keep evolving at least for the next 2-3 years. The greater challenge is to raise the profile of the index, so it becomes the PISA of sustainable food. Engaging policy makers, academics and civil society organisations in the 25 featured countries would be a helpful next step. A global learning group working together over the next couple of years could both sharpen the index as an analytic tool and exchange the ideas and policies needed to move countries down the sustainability path.

Pete Ritchie is Director of Nourish Scotland, an organic farmer and a Trustee of the Food Ethics Council.
How well is the UK doing on sustainable food and farming?

The FSI highlights that there are some serious issues for the UK’s food system and that real problems are being stored up for the future, says Dan Crossley.

A snapshot analysis…

The Food Sustainability Index (FSI) came out in December 2016, assessing 25 countries’ food systems against a number of criteria in the areas of sustainability, hunger and nutrition. It is the first comprehensive attempt to look at food systems in the round, rather than to only focus on certain aspects, such as animal welfare or biodiversity.

Some elements of a sustainable food system will always be very difficult to properly measure, such as the strength of food culture, and of people’s connection with food and where it comes from. But there are enough suitable outcomes that are already being well measured, in order for a food sustainability index to be meaningful.

The recent General Election gives us a good reason to set a baseline to enable progress to be tracked over the course of this Parliament. This ‘snapshot’ analysis is intended to do just that. It draws heavily on the FSI, as we believe that the FSI has the potential to become a key index to assess countries’ performance and to drive a ‘race to the top’.

However, the FSI is far from perfect. Our key challenges to the first version FSI are on some of the metrics; on the issues not included (e.g. fair treatment of workers, impacts of food imports); and some of the weightings used (particularly in relation to animal welfare, which we feel is significantly underplayed). Crucially, the FSI only includes production metrics, but over time it should incorporate metrics relating to the environmental and social impacts of imported food, as well as food produced in that country. It should also be noted that the first version of the FSI only includes 25 countries – so there are several countries (including the Scandinavian nations) not included that may have outperformed the UK on many of these indicators.

The FSI provides a useful indicative sense of how the UK is doing overall, the conclusion being ‘requires improvement’. Using ‘neutral’ weighting, the UK comes either seventh or eighth in the rankings on food waste (overall), sustainable agriculture (overall) and nutritional challenges (overall). When combined, this leads to a UK ranking of fifth, behind France, Japan, Canada and Germany – in the ‘chasing pack’ behind the leaders. When you unpeel the layers, however, the FSI reveals some stark realities and concerns about the UK food system.

Areas UK is performing well

Most of this analysis will focus on areas the UK is performing poorly, but it is only fair to highlight areas where the FSI tells us the UK is performing well, in relative terms at least.

The UK scores first or equal first on a number of measures including quality of R&D and innovation, quality of animal welfare regulation¹, the quality of policies to address food losses, initiatives to recycle water for agricultural use, the degree of property rights protection, prevalence of undernourishment (albeit equal with 19 other largely Western countries) and relatively low rates of micronutrient deficiency (vitamin A).

In a number of other areas, the UK is in the top five, including on important indicators like the proportion of the population reaching recommended physical activity per week (the UK came fourth in this key obesity-related measure).

Whilst the UK’s genuine leadership position in some of these areas can perhaps be challenged, it is important to reiterate that scoring well on multiple issues is very welcome. A high overall ranking is important, as is progress up the rankings each year.

A sensible approach might be to aspire to lead in some areas and to be performing – at the very least - well in all other areas. Whilst the UK’s goal should be to become a global leader, it should also ensure that there are no poor performing areas. This could be done by undertaking to ensure the UK does not fall below a particular threshold and/ or in the bottom 25% of countries assessed.

Areas UK is performing badly

In our view, it is unacceptable for a country like the UK to be comprehensively outperformed on several important indicators of food sustainability. However, this is the case in the FSI. Of those indicators, there are three issues that are particularly worrying, and suggest that the UK is on the cusp of a crisis.

Firstly, childhood obesity is growing apace. The UK ranks 20th out of 25 in terms of prevalence of overweight in 2-18 year olds. This matters, because obesity costs. It costs individuals’ health of course, but it also costs the planet (the environmental impacts of eating too
much of the wrong sorts of food – and ‘wasted calories’ are another form of food waste); and it costs the NHS billions of pounds every year. Childhood obesity is particularly worrying, because it is hard to reverse the trend. There is crucially also a social gradient in health, with children aged five and from the poorest income groups twice as likely to be obese as those from the most affluent households, and three times as likely by the time they reach age 11.2

Some claim that the UK is on course to become the most obese country in Europe, with one in three adults expected to be obese by 2030.3 The FSI draws attention to some of the drivers here, with the UK coming 20th in terms of number of hours of fixed screen time per week, 18th on ‘prevalence of sugar in diets’ and 21st in terms of number of people per fast food restaurant. As we say in ‘Fat at Five: the new norm?’4 obesity is not simply the result of people making inappropriate individual choices. It is “the outcome of a dysfunctional food system, which drives food prices as low as possible by promoting cheap food – an approach that is not conducive to good health”.

“There is a worrying lack of diversity in the UK’s food system”

Secondly, participation of youth in farming is desperately low. In fact, alarmingly, the UK comes bottom of the table, 25th out of 25! Although it does not point to an industry in terminal decline, it should still be a serious source of concern, not just for the UK Government and Devolved Administrations, but for those that make a living from food and farming. It is clearly not sustainable to have extremely low youth participation rates in farming. It is impossible to predict what the future of farming will look like, but no matter what form it ends up taking, farming will require the input of people. A thriving farming sector is vitally important, but alongside that, so is a thriving food sector - hence it is important to consider participation of youth across the chain. Surely more concerted and coordinated effort is needed to try to make the UK’s food and farming sectors attractive to the next generations.

As we identified in our Food Makers 20305 report, “the future of farming depends on building high quality jobs that allow people to do great things, rather than on poor quality jobs that are ‘dirty, dull and dangerous’ - and at risk of becoming a fourth ‘D’ - defunct, with the onset of mechanisation”. Many young people are interested in entrepreneurship and technology. Farming and food production can offer opportunities in both these areas, as well as unique opportunities to ‘give back’ to society - but the industry needs to change to embrace these interests and to attract younger generations.

Thirdly, there is a worrying lack of diversity in the UK’s food system. This is at several levels – a lack of diversity in terms of the types and sizes of farming and food businesses that can flourish; a lack of gender diversity (with the UK coming 18th for participation of women in farming for example); and, of course, serious issues about biodiversity loss driven by the UK population’s eating habits. A sustainable food system must be resilient - and diversity is the best route to resilience.

On corporate diversity, whilst there are some welcome ‘checks and balances’ in place to prevent too much concentration of power, and abuse of that power, e.g. the Competition and Markets Authority and the Groceries Code Adjudicator, we would argue that these are nowhere near strong enough, given that unfair trading practices are still endemic. There is huge concentration of economic power, both at the UK supermarket end and at the agri-business end of the chain, meaning that too many get ‘squeezed’ (out) and are too often unfairly treated. That’s why the Food Ethics Council has supported the extension of the remit and powers of the Groceries Code Adjudicator.

Gender diversity has long been a deeply entrenched issue in the UK. I would love it if my six-year old son identified his model farm characters as ‘the farmer and her husband’, not always as ‘the farmer and his wife’. But there are signs that things are beginning to change for the better - albeit slowly - with the UK Government reporting that the numbers of women running farms has steadily increased to just over 25,0006 and several universities and colleges reporting a rise in female students taking agricultural courses. There is a similar lack of gender diversity in the wider food sector, not least evidenced by the low proportion of women on the Boards of many food companies.

Unsustainable food and farming practices – in the UK and abroad – have been a major driver of biodiversity loss in the past few decades. As well as biodiversity in British fields, it is vital to recognise and act on ‘remote’ biodiversity loss driven by food produced beyond the UK’s borders and then imported in to our country.

Sustainable food and farming has been interpreted by the UK Government as being about producing ‘more with less’, i.e. higher yields with less environmental impact. However, this productivist approach, with the best will in the world, can only take the UK so far. The industrial farming system in the UK is heavily dependent on (often fossil-fuel based) resources, as is shown by the UK ranking 18th in terms of levels of fertiliser and pesticide use out of the 25 countries featured in the FSI. A genuinely sustainable farming system should seek to put back in to the environment as much as, or more than, it takes out.

The common thread that links all these issues is that they are serious long-term concerns, where the UK is storing up big trouble for the future, if action is not taken to reverse these trends. The Food Sustainability Index is a marker in the sand. We will do a deeper ethical analysis of how the UK is doing when the next iteration of the FSI is published later in 2017.

Dan Crossley is Executive Director of the Food Ethics Council

1. This is important, but is only one aspect of farm animal welfare, not reflecting animal welfare outcomes in practice, and in our view does not necessarily reflect a ‘true’ position for the UK yet.
3. OECD (2017) Obesity update
Sustainable agriculture
Biodiversity in the UK: Protection across landscapes

Feeding a growing human population while providing sufficient habitat for the other millions of species with which we share this planet is, Martin Harper argues, one of the greatest environmental challenges we face.

The UK appears to fare particularly badly on biodiversity on the Food Sustainability Index, scoring a mere 3.55 out of a possible 100. To understand why I want first to delve in more detail into the indicators used to arrive at the UK’s biodiversity score; to gauge if this is a realistic representation of UK performance and to ask why we rank as we do and what can be done to improve the situation.

Measuring biodiversity

The Food Sustainability Index (FSI) rightly highlights biodiversity as one of the key areas of concern within the environmental sustainability of agriculture and so includes it as an indicator. Low levels of biodiversity and a landscape denuded of nature are a clear sign that our current food system is broken.

Biodiversity is the diversity of life within and between species. It is famously hard to measure: as it depends on what you want to measure it for and is constrained by our relative lack of information about which species we share our planet with. By some estimates we may only have ‘discovered’, in the sense of formally describing scientifically, 10% of the total number of species on our planet. 1

The Food Sustainability Index country ranking for biodiversity is based on the Global Environment Facility (GEF) Benefits Index for Biodiversity. This was developed to help allocate funding for biodiversity conservation globally by ranking countries on a common scale based on several indictors.

To arrive at the biodiversity score, countries are divided up into “ecoregions” within their national boundaries, based on WWF data. 2 These national regions are then given a score according to four characteristics: represented species, threatened species, ecoregion representation, and threatened ecoregions. These figures indicate the number of species and habitats a country contains as a proportion of the global total, with additional weighting given to globally endangered species and their habitats.

Although inevitably an index comparing countries internationally and including such a large range of indicators loses some nuance, the methodology for the GEF index appears sound. There are, though, several problems with the way it has been used by the FSI and what it tells us more broadly about the state of biodiversity in the UK and the sustainability of the UK food system.

The index measures biodiversity potential which, while a useful measure for deciding where in the world to allocate conservation resources to achieve most impact, is not a particularly useful way of measuring the sustainability of a country’s food system.

It is instructive to compare the UK’s score, which puts it 63rd in the world, with Brazil, which sits at the top of the GEF index with a score of 100%. Brazil is a large country with a large variety of species and habitats; a relatively large proportion of the global total; and a high number of globally threatened species. The UK on the other hand is a relatively small country, with limited numbers of species and habitats and a low proportion of total global habitat for those it does have. There are few species that are unique to the UK or that are on the globally threatened list.

Several points flow from this broader fact of what the index is designed to measure. Firstly, the index focuses on relatively pristine habitat, explicitly not taking into account land cleared for agriculture or urban development. 3 It tells us what nature we have in our country, rather than how we have treated it. For this reason, the indicator is hard to change through social or political action at the national level.

Of the over 800 ecoregions in the world defined by WWF, the UK has four, while Brazil has around 50, a fact that is unlikely to change however well we look after our nature. Similarly, the measure is not intrinsically connected to the food system, with no guarantee that making the food system more sustainable will improve the biodiversity score. Overall the index is a poor indicator of short term biodiversity trends which are better measured in other ways.

How does the UK perform on biodiversity?

There is an inherent tension, recognised by the FSI, between focussing on areas of high biodiversity, largely untouched by human activity, and the very real need to protect all nature wherever it exists. Around three quarters of UK land area is farmed but this is not accounted for in the GEF index. What happens to nature on this land is important, both for the species that live there and for the benefits thriving ecosystems bring to humans.

Often the nature on farm land is of more interest at a local or regional level. Ecosystem services, such as crop-pollinating insects or maintaining a clean supply of water from farmland, tend to flow to local people. At the same time the species and habitats may not be globally threatened but may well be under threat at a regional level (not to mention appreciated by local inhabitants). Many UK farmland birds, for example, are on the
UK red list of birds under threat.

Biodiversity, and its conservation, are important across the landscape and at a local level, not just in those places in the world where there is most nature or where it is most under threat. The UN Convention on Biodiversity recognises this fact, calling for biodiversity to be mainstreamed into production. Whilst it is imperative that we protect our most important wildlife habitats we also want to ensure that our farmland continues to offer a home to this wildlife.

Despite the flaws with the measure the FSI use, a more suitable method may arrive at a similar answer. The RSPB, along with other scientists and NGOs, uses many ways of measuring UK biodiversity; tracking how this changes over time; and analysing what causes these changes. From this work, we know that the UK food system does have a direct impact on the UK’s biodiversity.

“We need to improve the way we currently produce food so that it allows space for nature within the system”

The latest State of Nature report from 2016 highlights this. It does not make for encouraging reading, showing that 56% of UK species have declined over the past four decades. It found that, in the period c1970-2012 “the intensification of agriculture has had the biggest impact on wildlife, and this has been overwhelmingly negative.” This was above other drivers of change such as climate change or urbanisation.

Agricultural practices have changed dramatically in recent decades and while the results tend to have produced higher yields and cheaper food, nature has often lost out as a result. Changes include a reduction in mixed farming and the switch from spring to autumn sowing, reducing food and habitat for many species. There has also been a loss of marginal habitats such as ponds and hedgerows, and an increased use of pesticides and fertilisers. The upshot is that species once common across the countryside, such as turtle doves and cornflower, are now rarely seen.

What are the solutions?

So, what is to be done to allow nature to thrive within a sustainable food system? The FSI white paper identifies a range of solutions to feed a growing and more prosperous world population sustainably. Many of these focus on the use of technology as an alternative to having to turn previously un-cultivated land over to agriculture. These include: precision agriculture, synthetic biology, drones, robots and the use of “big data”. The focus is on producing more food on the same amount of land with fewer resources, i.e. increasing production and efficiency of production.

It is important to sustainably maximise the returns from land under cultivation, particularly in highly biodiverse regions full of rare species. We must safeguard important habitats, and the UK should avoid exporting its ecological footprint by importing food produced in these types of region at the cost of the nature that is there.

But there are other solutions which can boost biodiversity within the farmed landscape. Farming in the UK generally takes place on the land between those areas explicitly protected for nature. As Sir John Lawton has identified, these areas are also extremely important for wildlife. We need to take an interest in these areas and to ensure farming is done in sympathy with wildlife, while also remaining productive.

This is certainly achievable and the RSPB and others work closely with farmers to support their efforts to create habitat on their farms, ensuring wildlife has what it needs to thrive. Often these consist of simple changes in management that farmers can easily achieve. The Farm Wildlife partnership of conservation NGOs has developed a one stop shop where farmers can find advice on how to benefit wildlife on their farms. Another important tool is the use of agri-environment schemes, which pay farmers to look after the environment. When well-designed, based on defined outcomes and coupled with high-quality advice, these can successfully promote on-farm biodiversity. These have been instrumental in the recovery of threatened species such as stone curlew, curlew bunting and comракre. There are other mechanisms, including the use of the market to reward food producers who support wildlife, which can help to promote biodiversity.

We need to improve the way we currently produce food so that it allows space for nature within the system as well as outside it; so that our priority species as well as the wildlife we cherish and see every day can thrive. For this reason, the key to improving biodiversity in the food system lies with the actions farmers take on the land and the way society supports and encourages them to help nature. This is particularly pertinent in the current debate about the future of farming policy once we leave the European Union. Currently, under the Common Agriculture Policy, £3 billion of tax payers’ money is spent annually through farm subsidies but only a small portion is used to support the provision of services that benefit the public – such as an attractive countryside rich in wildlife.

To make the case for fundamental reform, the RSPB and others will work hard to bring to life the relationship between the food we eat, the way we farm and the state of our wildlife populations. At the moment biodiversity tends to be an overlooked aspect of debate about a sustainable food system, often mentioned but without detail as to why it is important or what it should look like. Where it is considered, as in the Food Sustainability Index, the focus tends to be on protecting the world’s most wildlife rich habitats from agriculture’s expansion. This is clearly hugely important. But we believe that it is equally important to protect biodiversity across all landscapes – including on agricultural land.

We want to build public momentum for a UK food system rich in wildlife, celebrating the farmers who manage our countryside for nature’s benefit while also producing the food we eat.

Martin Harper is Global Conservation Director of the RSPB

2. WWF Wild Finder – accessible on www.worldwildlife.org/science/wildfinder
4. CBD event: CBD COP 13 Business and Biodiversity Forum: Mainstreaming Biodiversity: Opportunities for Business. 2-3 December 2016, Cancun, Mexico
Farm animal welfare: Is the UK a leader?

As a nation, we pride ourselves on our animal welfare standards. But do we have any right to? asks Philip Lymbery.

The UK came top in the FSI metric on animal welfare policies, and it is often said that the UK is a world leader for animal welfare. Historically, the UK did indeed take a lead on animal welfare, compared to other EU countries. For example, the UK was the first to adopt a total sow stall ban, passing legislation which banned both tethers and sow stalls from the 1st January 1999. The country also prohibited the use of veal crates – cruel cages so small the calves couldn’t even turn around – before most other Member States.

Turning our backs on such cruel farming systems when there was much less awareness and acceptance of animal sentience than today, cemented our place as a world leader for farm animal welfare. However, recent history tells us that the UK government is intent on intensifying agriculture, even with all the negative impacts this entails for animals, the environment and our health. In recent years, other countries have begun overtaking the UK and EU in terms of their national welfare policies.

It is also worth mentioning that the EU has ensured some steps forward for animal welfare are applied across 28 countries, including the UK. For example, many advances for farm animals – such as the ban on the barren battery cage and the Lisbon treaty recognising animal as sentient beings – come from European legislation. However, enforcement can be a problem. We know that a proportion of pig farmers in many EU countries (including the UK) still breach EU law requiring provision on enrichment such as straw, and prohibiting routine tail docking, 13 years after it came into force.

According to the RSPCA, 80% of animal welfare laws originate from the EU. This begs the question: would much of the legislative framework which protects farm animals have been put in place had we not been led forward by this institution? Now, we’re set to leave the EU, and amidst all the uncertainty, we have to ensure that these regulations are maintained and strengthened, not lost.

Watching the UK’s position in the Food Sustainability Index over the next few years will be a good ‘early warning system’ to see in which direction the government is taking us on animal welfare.

What we are seeing more and more is food businesses driving forward change rather than regulatory frameworks. Take, for example, the veritable cage-free revolution we have witnessed in America. With a huge wave of announcements from companies committing to rid cages from their supply chain, the scale of the change is immense. Now, as if that weren’t surprising enough given the country’s reputation for being the birthplace of factory farming, the face of the US broiler industry is also beginning to change. Major companies such as Subway, Aramark and Compass have released policies committing to slower-growing breeds, more space and enrichment for broilers, with specific deadlines.

The UK now risks lagging behind on animal welfare. Despite its reputation, the reality is that the vast majority of animals in the UK are factory farmed. On factory farms, animals are confined indoors, suffer from a wealth of health and welfare problems, and their food is produced elsewhere and shipped to them.

Staggeringly, if grain-fed animals worldwide were restored to pasture and the cereals went to people instead, there would be enough for an extra three billion people. That’s why it can be so frustrating hearing the industry clamour for increased food production to feed a burgeoning population. The truth is, we already produce enough food, but much of it is wasted – and one of the biggest forms of food waste is feeding grain to factory farmed animals.

Leaving the EU, the UK government has the unique opportunity to start with a blank canvas, and redesign our food and farming system. The main aims of the UK’s new food and farming policy should be to produce healthy, nutritious food with high animal welfare standards, which protects the environment. Our new vision should be to farm in ways that restore natural resources and maintain them for future generations.

If the UK is to truly embrace sustainable farming, then we must move away from high-input, grain dependent systems, in favour of pasture. Britain is predominantly an agricultural island with much of its land surface covered by farmland of some sort. Two-thirds of the total farm land is pasture. Animals on pasture convert what we can’t eat – grass – into what we can, such as meat, milk and eggs. Farming in this way reduces the need for pesticides and herbicides, conserving the land for future generations. This, in a sense, is the true meaning of sustainability.

We don’t need to reinvent the wheel. Humane and sustainable farming systems already exist, we just need to enable them to develop. We must start returning animals to the land on mixed, rotational farming systems such as pasture-raised or organic. These systems are not only commercially viable, but provide better animal welfare and enable wildlife to thrive too. However, they require strong government support for the sector to grow.
Due to its high prices for land, labour and chemical inputs, British farming isn’t geared up to compete on price alone. Having so much pasture available means that a post-Brexit Britain really could be a global leader in producing great quality food from animals that are pasture-raised in ways that protect animal welfare and the environment.

Cheap meat is a false economy. If we are to develop an efficient economic system that properly reflects all the costs of producing industrial animal products, its negative externalities must be internalised in the costs of meat and dairy production and thus in the price paid by consumers. In other words, the costs of poor animal welfare, damage to human health and the environment, must be accounted for in the final price of intensively-farmed animal products.

Tax measures and subsidies should be used to reduce the cost of sustainable forms of animal agriculture. This would provide an incentive to farmers to use more humane and sustainable systems. For example, the scheme which replaces the Common Agricultural Policy should provide support for positive externalities. Furthermore, we should be reducing tax liabilities by offering generous capital allowances for investments in sustainable farming with high standards of animal welfare. For the consumer, we could place a lower rate of VAT on sustainable, high welfare food.

A key area of immense opportunity to help deliver on a compassionate food system is labelling. Method of production labelling is already compulsory on shell eggs throughout the EU, so customers can easily see the system used to produce them - whether it be caged, barn, free range, or organic. But the same isn’t true for other animal products such as milk, cheese and meat.

With its significant focus on mechanisation, factory farming is putting the UK farming sector under enormous pressure. There has been a long-term decline in both the numbers of EU farmers and agricultural workers. In 2010, it was announced that employment in the EU agriculture sector fell by 25% between 2000 and 2009. The vitality of local communities suffers at the hands of factory farming.

There is evidence that the consolidation of smaller farms leads to the deterioration of rural communities.

We know that people in the UK care about animals. What’s needed now is action, and with Brexit, the UK must seize the opportunity to strengthen animal welfare regulations, not weaken them. As the UK moves away from the EU and towards our new ‘global’ vision for food and farming, we must hold the government to account. Keeping a close eye on our ranking in the FSI index is one good indicator of our trajectory, and could be used as a lever for change if we were to begin to slip down the list.

We should be proud of our animal welfare record, and build on it, rather than throwing out our rightly-recognised gains. It’s time to sow fresh seeds, and move towards a flourishing food system for farm animals, wildlife, and us.

Philip Lymbery is a naturalist, author and Chief Executive of Compassion in World Farming.

“We should be proud of our animal welfare record and build on it”
Starting with the CAP

For the last 44 years the CAP has supported UK farmers. It has taken many forms, from price maintenance for many commodities, often aided by export subsidies, to direct payments for farmers linked to volumes of production in the early 1990s, to its current form whereby most support to farmers is provided through ‘decoupled’ direct payments - unlinked to present levels of production.

The CAP’s founding objectives included improving productivity, stabilising markets, ensuring that food is available and that prices for consumers are fair. However, ensuring fair incomes for farmers has tended to dominate discussions of CAP reform. As factors such as falling sector prices (e.g. in dairy farming) have increased the proportion of farm incomes which comes from direct payments, political negotiations about reform have become framed by the impact on farm incomes. They lose sight of broad economic principles – particularly those relating to the optimisation of public goods, including many environmental ones – which should underpin any regime of subsidies. This is the trap the UK must extricate itself from as it devises its own arrangements to replace the CAP.

As the National Trust has pointed out, a well-designed package of support for farming (or any other activity) would pay out public money only for providing public goods. Public ‘bads’ (e.g. pollution) should be dealt with through regulation or taxes: the polluter should not be paid to desist from his polluting activity. The design of such a system for agriculture would need to identify the public goods and bads commonly associated with farming, and devise a suitable mix of payments to elicit the former and discourage the latter. Unfortunately, however, their identification is not straightforward.

Unequivocal public bads include air and watercourse pollution from the application of fertilisers; greenhouse gas emissions from farm animals’ digestion systems; and carbon dioxide released when grassland is ploughed. Unequivocal public goods include providing habitats for biodiversity which is associated with certain sorts of farming - for example that which uses less pesticide, allows plants to flower and set seed, leaves unpolluted stubble as a food source for birds in winter etc.

There are also mixed - public and private - goods and bads where the result of a farming activity is good for the farmer and the public, or the opposite. Soil erosion is an example, since the farmer has a private interest in maintaining good soil conditions, while eroded soil will release CO2, may pollute watercourses and stores up a potential problem of land fertility for the future. Some types of biodiversity are also a mixed good, for example beetle banks can help farmers control pests and reduce pesticide use as well as help biodiversity.

One aspect of agricultural production often put forward as a public good is food security. Yet this term cannot mean simply the continuation of current production, since production must be sustainable in the long run. The threats to domestic agriculture’s long-term contribution to UK and global food security include: failures to address excess use of fertiliser and pesticide; excess anti-microbial use and deterioration of the soil. Remedying these may involve lower levels of production, at least in the short term.

Environmental Public Goods

So how does the current CAP framework for the provision of public goods score against our criteria? And how should post-Brexit farm policy in the four UK nations evolve to ensure better delivery of desirable outcomes?

Within the CAP the three main tools for delivering public goods are cross-compliance, green direct payments and the agri-environment climate schemes (AECM) within Rural Development Programmes.

Cross-compliance is a framework under which farmers can lose a portion of their direct payment if they are found not to be compliant with certain rules. Some of these (e.g. animal welfare regulations) are existing regulations whilst other cross compliance rules are set by Member States within a loose framework laid down in the CAP regulation itself. The intended impact is to increase the jeopardy for a farmer who flouts the existing EU laws, and enable Member States to tailor rules

“The overall picture is of a CAP that is less than efficient at securing public goods”
Sustainable food systems: How does the UK measure up?

When strictly payments on the basis of “additional cost or income foregone”. When strictly payments are blamed for this restriction to making rather than make an income. WTO rules should break even from participating, based on the idea that the average farmer is that under the CAP, payments are received in coupled payments back on a different basis. Farmers can choose whether to apply for schemes, receiving payments for a fixed number of years. Cross-compliance and compliance with greening are conditions of receiving the basic, decoupled direct payment. However, there is no connection between the size of that payment and either the cost to the farmer of compliance, or the value to the public wealth of that compliance. Basic direct payments are made per hectare and vary widely according to other factors and in much of Western Europe the amount each farm was receiving in coupled payments back when farmers’ receipts from the CAP were more closely linked to production.

Rural Development Payments for Agri-Environment-Climate measures operate on a different basis. Farmers can choose whether to apply for schemes, receiving payments for a fixed number of years. Member States can tailor schemes closely to the particular environmental outcomes they want, including where they want them. But the drawback of these schemes is that under the CAP, payments are based on the idea that the average farmer should break even from participating, rather than make an income. WTO rules are blamed for this restriction to making payments on the basis of “additional cost or income foregone”. When strictly applied its impact is that most farmers face little financial incentive to provide additional environmental services – which makes it more difficult for Governments to purchase them.

The overall picture is of a CAP that is less than efficient at securing public goods. Most money is still allocated according to historic production intensity, rather than present performance, environmental or other. Cross compliance may increase the penalty for breaking certain regulations, but its soil protection provisions are vague, and soil health is partly a private good anyway. Neither cross-compliance or greening (the financial impact of which will vary according to the size of a farmer’s basic direct payment) nor Rural Development schemes (restricted to marginal costs) are designed to provide exactly the right level of financial incentive for the provision of public goods and environmental services.

When the UK leaves the EU it will be able to design its own replacement subsidy systems. One model of a future CAP that could be adapted to the UK is in a report recently published by the RISE Foundation.

Cross-compliance and greening for environmental services

In this author’s view the key to a successful structure is realising that environmental services are now part of a farmer’s core business. For farmers, this means accepting that a high proportion of income may in future depend directly on the provision of those services, rather than on bringing products to market. And for the UK governments, it means that they need to devise a way of paying for such services which is generous enough to enable farmers to build them into their core business.

This means two things. Firstly, much more of the available budget should be used directly to pay for specific environmental services – rather than being paid with some other rationale such as income support. Farmers produce food and environmental services, customers buy the food, with governments (and possibly others, such as water companies) paying for the environmental services. Farmers will make choices about how they balance their business between the two. And there will continue to be environmental rules which everyone (not simply farmers) must comply with, such as not removing hedgerows or felling trees.

Secondly, there needs to be a functioning market in the provision of environmental services. The key here is governments being able to offer prices that farmers find attractive. As discussed above, the CAP puts constraints on that, by interpreting WTO rules as requiring environmental payments to be classified as “trade distorting” (and thus restricted) if they go beyond the level of additional cost/income foregone. These rules are intended to stop governments from hiding subsidies to their farmers by calling them environmental payments.

As the UK develops its new relationship with other WTO members, careful thought needs to be given to what is actually possible within the rules. It is far from obvious, for example, that they are intended to constrain payments for environmental services offered in a reasonably competitive market. Such a market is already up and running in the Netherlands, where farmer collectives bid for shares of national Rural Development spending. The Dutch scheme does not incorporate pricing above “income foregone” levels, but does offer a useful model for how such a market might work.

This article has dwelt on the flaws in the CAP as a delivery mechanism for public goods, as well as the opportunities for the UK Governments post-Brexit. It goes without saying that the pressure on Ministers and my former colleagues in Defra will be immense, and the temptation very strong to depart relatively little from the status quo. But I hope they will take courage and opt for a new framework which recognises environmental services as a core farming activity and so leads to a fair and efficient payments system for the future.

David Mottershead is Principal Policy Analyst at IEEP

Diversity in farming: Attracting a new generation

The UK is not doing well when it comes to attracting a diverse range of young people into a career in farming. The reasons for this are complex but some of the solutions are already available, argues Minette Batters.

My own route into farming was far from conventional. Neither my family nor school teachers deemed farming a desirable career to aspire to. In truth, I was actively discouraged. I ended up training as a chef and for the past 30 years I’ve run a very successful catering business, specialising in providing bespoke food for celebratory and corporate events.

But my passion in life, and earliest childhood memory was that of wanting to farm in my own right. In some ways, this was no surprise; as a fifth-generation farmer, farming was very much in my blood. For me it was about the inherent and profoundly deep love of the land, and a love of animals, nature, and particularly cows.

My wonderful cows were the inspiration for the campaigning initiative ‘Ladies in Beef’ (LiBs) which I co-founded in 2010 with fellow beef farmer Jilly Greed. We now have over 150 LiBs who are running farming businesses right across the country. Our flagship event is the Great British Beef Week, which champions not only the nutritional value and eating quality of British Red Tractor beef but also the environmental role our grazing herds play, their importance in improving soil health and the role of our grasslands as a carbon sink.

I started farming in my own right twenty years ago by securing a long-term farm business tenancy. Back then, I had just eighteen beef suckler cows to my name. We now have 100 breeding cows, and up to 300 beef animals on farm at any one time, a small flock of pedigree sheep, and an arable rotation. This ensures that we are producing as much of our own feed and bedding as possible, as well as keeping our grass leys in good condition. The business is, and always has been, very diversified. This includes horse liveries, and a converted 17th century tythe barn, in which we have weddings every Saturday throughout the year, and I employ two full time and three part-time staff.

Encouraging new entrants

The food and farming sector is a significant employer, with one in eight people currently working in it. It is our largest manufacturing sector, worth £108 billion to the value of the UK economy, with British farming delivering 61% of the nation’s food, and serving as custodian of 17.1 million hectares, equating to 70% of the UK land area.

However, the average age of a UK farmer is 59, and as an industry we employ 85,000 seasonal workers who come from the EU to pick and pack our fruit, vegetables and flowers. For permanent workers in food processing many employers report figures of between 65% and 85% reliance on EU workers.

If the UK is going to farm sustainably in the future, we need to encourage many more of our young people into food and farming jobs. But before we do that, we need to understand why they are turning their backs on a career in this vital industry.

At its most fundamental, we need to look at what our education system has to offer. I often talk with my own children about whether their education offers more opportunities for a career in the food and farming sector than mine did. Although they learn about basic cooking skills, it has been through the lens of Design and Technology. Their food education has been – it seems to me – unstructured, and, like many schools, is currently delivered on an ad-hoc basis. The stark reality is that our education system is not giving school children a wide or deep enough understanding of food.

The majority of people who work in food and farming got there by default, not design. And yet what’s more important than food? As the Director General of the Food and Drink Federation said recently: “If you can’t feed a country, you haven’t got a country.”

Empowering a new UK workforce is an ethical challenge, of which our Government has only just scratched the surface. Since Tony Blair’s Labour Government, we have had a high achievers’ education policy which has had the effect of dramatically changing the structure of the UK’s workforce. Fewer young people in the UK are now interested in a career in farming, care or construction, leaving these industries largely reliant on foreign workers.

Another problem is the fact that the UK simply doesn’t have enough people currently unemployed in some rural areas to do these jobs. Take seasonal workers in Herefordshire as an example - there are 600 unemployed people in the county but growers in that patch need 3,500 seasonal workers.

Redressing the balance

There needs to be a fundamental shift in how people – especially young people - see a career in food and farming. Farming and food production can be, and often is, an attractive, progressive and profitable career opportunity. Getting that positive message across to young people is key.

This shift in perception has to be accompanied by better training and education in food and farming, and more clearly signposted career paths. That’s
Why, in the run up to the June election, the NFU asked parties of all colours to commit to food and farming being a key part of the school curriculum.

**Brexit: opportunity or threat?**

This isn’t just about jobs; we have a childhood obesity crisis. If children learn and understand about food production, they will also learn to value the food that they eat, and – just as importantly – learn to value the fragile world that they inhabit. Put bluntly, if children don’t learn, how can we expect them to grow up to care about what they eat and the land it is grown on?

There are already great things going on to encourage young people into farming which can be scaled up and adapted as needed. The Brightcrop initiative focuses on signposting young people to exciting career opportunities. The land-based colleges are offering a plethora of different courses. Universities like Harper Adams, Reading and Nottingham, plus many others, are all delivering the very best in educational opportunities for the farmers of tomorrow.

A new addition is the National Land Based College, which is focused on up-skilling people of all ages. In making the case for change they acknowledge that we live in a rapidly changing world in respect to food security, environmental sustainability and public health, and that land-based industries are increasingly significant in meeting these global and UK challenges.

There is such a pressing need for higher skills to improve our industries’ overall quality and productivity. Achieving this will ensure that we can attract and guide a new and diverse range of young people into farming.

The fact that the UK is leaving the EU has made the need for these changes even more urgent. Is Brexit an opportunity or a threat in attracting the farmers of tomorrow? Without doubt we can make it in to an opportunity. But we must be aware that there are threats, and when I hear political commentators, whose farmyards are nothing more than their laptops, lauding Brexit as a great opportunity to import cheaper food, it sets alarm bells ringing.

Food has never been cheaper, currently accounting for 12% of our annual income, compared to the 1970s when our food spend was over 30% of income. Through Red Tractor Assurance the UK consumer has consistent access to a safe, affordable supply of quality British food, which they trust. Since the ‘horsegate’ saga of 2012, the integrity of our raw food ingredients is a high priority for the major retailers, and it certainly should remain so. We should be proud and protective of our short, secure supply chains, that underpin the safest and most traceable food system in the world.

The post Brexit era will offer the UK farming industry the opportunity to present a new deal to society – attracting a diverse range of farmers should be core to that policy. But ultimately, achieving this will be about farming being seen as an attractive career choice that is rewarded fairly by the market for the food that’s produced and the public services that farming provides. Currently for every £1.00 invested in farming it delivers a return of £7.40. Compare this to other sectors and farming is showing a phenomenal return on investment.

Minette Batters is NFU Deputy President and runs a diversified, mixed farming business

“The food and farming sector is a significant employer, with one in eight people currently working in it”
Nutritional challenges
Dietary challenges: Tackling Britain’s nutrition inequalities

One in ten British children starting school are already obese. Anna Taylor asks how we got to this point. What could we have done differently and what can we do now?

These are pressing questions for the UK, not least because the National Health Service now spends 15% of its budget on obesity-related ill health and Type II diabetes and the bill is rising.

The Food Sustainability Index shows the UK scoring red on Levels of overnourishment and Number of people per fast food restaurant – indicating we are among the world’s worst performing countries on this metric – and yellow on the Prevalence of sugar in our diets. We rank fifth worst out of the 25 countries in the Index on the first two indicators and eighth worst for the prevalence of sugar in our diets.

How did we get here?

Figure 1 shows that obesity rates have increased by approximately 10 percentage points every 20 years since 1980.

What’s changed?

Firstly, there have been some major changes to where we get our food from. Today, 70% of our retail food purchases come from just four major supermarkets; highly significant considering how supermarkets can impact on our diets through their locations, what foods are on offer, how much they cost and whether they are tied to promotional activity. These impacts can be positive and negative. For example, in some settings the growth of large out of town stores has pushed smaller retailers out of business leaving people with limited transport living in more deprived settings with reduced access to food, particularly fresh produce. In other settings, they have brought affordable healthy food into new locations thereby increasing access.

More recently Public Health England has reported that in the UK we now buy 40% of our food on promotion (compared to about 20% in Germany, France and Spain) and promotions are skewed towards more unhealthy products.

Another change has been the huge growth in the number of places to eat out. The most recent data shows that in the last 10 years the number of these places has increased by 53% from 60,760 to 93,285. There are now an estimated 1.4 establishments per 1,000 population in the UK and so, not surprisingly, we are eating out more.

Time use survey data show that overall, we spent seven minutes less a day eating, drinking and preparing food over the period 1975 to 2000. The biggest shift was in how we use this time: specifically, an increase in time spent eating out (rising from 11 to 25 minutes) and a concomitant fall in time spent preparing food. We now tend to eat out more frequently and for shorter episodes (in line with the growing significance of fast food) than we did in the Seventies.

As with the retail setting, there have been few real attempts to control the proliferation of unhealthy fast food outlets. Some local authorities have tried to create zones around schools to prevent new outlets from opening, which have had mixed success with planning approval processes. Moreover, there is a growing body of evidence to suggest that fast food outlets – which tend to make less healthy food offers - are most concentrated in areas of deprivation, indicating the growth in eating out has not affected all diets equally.

These two shifts, combined with the huge rise in advertising of processed foods (particularly snack foods) which are now readily available almost everywhere have led to what is now widely recognised to be an obesogenic environment.

Secondly, food prices have in general gone down, but the gap between the cost of healthy and less healthy food has grown. While the financial crisis triggered a substantial rise in 2008, from 2012 food price inflation was, until mid-2016, low or below general inflation levels. In comparison to the rest of the EU, UK households spend one of the smallest proportions of their household expenditure on food, while housing costs are amongst the highest.

Although prices are in general relatively low in the UK, the balance of prices within the food basket is skewed towards unhealthy diets. Calorie for calorie, unhealthy foods are three times...
cheaper than healthy foods and this divergence in price has been growing. Over time, agricultural policy (driven by the EU’s Common Agricultural Policy) has contributed to this balance of prices and there is a body of evidence showing how until recently this policy framework has undermined public health efforts.

Thirdly, while prices are low, levels of income inequality are high and have risen dramatically over this period. The UK has the seventh most unequal spread of incomes among the OECD nations. The Equality Trust reports that the bottom 10% of households have a net income of £9,644 while the top 10% have almost nine times that. Dietary inequality is rife, and low incomes are consistently associated with poorer diets. Children in the most deprived areas have double the rates of obesity than in the least deprived. These children are at least a centimetre shorter than less deprived counterparts by the time they leave primary school. Households in the bottom 10% purchase 3.3 portions of fruit and vegetables a day while those in the top 10% purchase 4.7 portions. Moreover, while lower-income families spend a greater proportion of their total household expenditure on food – 21.4% for households in lowest-income quintile versus 13.7% for households in the highest-income quintile when you include food bought outside the home – many are also facing periods of food insecurity when they struggle to afford the food they need.

Fourthly, the effects of poor diets have been perpetuated across generations. The evidence shows that unless we can tackle poor nutrition in the first 1000 days from conception to a child’s second birthday, the consequences are likely to be life-long. We now know that the nutritional status of parents when they conceive a child has a permanent effect on how their off-spring develop. Whether a baby is exclusively breastfed determines a raft of short and long-term health and development outcomes, and taste preferences are laid down from the age of six months. But in the UK we have a growing problem of maternal obesity; the lowest exclusive breastfeeding rates in the world; and no mandatory standards for food provided in pre-school settings.

Every new generation of children born into these circumstances faces a lifetime of disadvantage and risks passing these disadvantages onto their own children.

What could we have done differently and what can we do now?

In 2016, the Food Foundation convened 73 experts drawn from academia, civil society organisations and professional bodies to review England’s food policies, and make judgements as to whether the policy environment is sufficient to protect people from diet-related disease. This consultation adopted an international method developed by the INFORMAS network, which organises the policy environment into a series of domains, each of which is assigned a good practice statement. Participants were asked to review the strength of England’s food policies in comparison to countries which have applied the good practice statements. In total, there were 48 ratings of specific policy areas made by the experts (see Table 1).

The list where England is doing worst consists of mostly areas where policy intervention would interfere with market forces, and where action by both the public and private sector is necessary.

Where to start?

The Food Foundation then led a consultation exercise with the experts which co-developed action statements for priority areas for policy making. This list of statements represents expert opinion on the areas where government action is most needed to tackle the unhealthy food environment in the UK and therefore prevent obesity and diet related disease.

1. Government to significantly reduce the exposure of children under the age of 16 years to the promotion of foods and drinks that are high in fat, salt or sugar by removing such promotion from: a) broadcast media before 9pm; b) all non-broadcast media (including digital) which have an above average child audience; and c) the sponsorship of cultural and sporting events which appeal to children.

2. Government to implement the levy on sugary drinks by April 2018.

3. Introduce composition standards for processed foods sold through food service in relation to free sugar, saturated fat and salt.

4. The Department of Education to work with Ofsted, the Care Quality Commission and Food Standards Agency to set out a new framework and independent body for inspection and monitoring of school and nursery food standards in England.

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<td>The Expert Panel gave the highest scores (i.e. good adoption of policies) to the following ten policy areas when rated against international examples (starting with the highest score).</td>
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<tr>
<td>1. Monitoring of overweight and obesity</td>
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<td>2. Monitoring of NCD risk factors</td>
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<td>3. Food labelling with regard to nutrient declarations</td>
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<td>4. Access to information and key government documents relating to the food environment</td>
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<td>5. Dietary guidelines established</td>
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<td>6. School food standards</td>
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<td>7. Population intake targets established</td>
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<tr>
<td>8. Labelling with regard to FOP</td>
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<tr>
<td>9. Monitoring of nutrition status</td>
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<td>10. Food composition standards established</td>
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However, this list shows the areas where England is doing worst:

- Platforms between civil society and government for policy development
- Subsidies in favour of healthier foods
- Economic and trade policies that take account of public health nutrition
- Planning policies that favour healthier foods
- Systems based approach to improving food environments
- Advertising of unhealthy foods in child settings
- Coordination mechanisms across different government departments
- Workplace food provision
- Advertising through non-broadcast media
- Comprehensive implementation plan to improve food environments

Sustainable food systems: How does the UK measure up? 23
5. Government to make Buying Standards and application of the balanced scorecard for Food and Catering Services mandatory for all public sector institutions by 2020.

6. Strengthen planning laws to discourage less healthy food offers: Government to support local authorities to develop supplementary planning guidance and provide them with sufficient powers for a simplified mechanism of planning laws to enable them to both promote healthier food options and discourage less healthy offers.

7. Prioritise sustainable health and environment principles within the government’s 25-year Food and Farming Plan.

8. Parliament to adopt a National Food and Nutrition Action Plan, to ensure healthy and sustainable food supplies affordable to all.

9. Government to identify a suite of indicators to monitor the food environment to be included in the public health outcomes framework.

10. Government to outline a plan to evaluate policies related to the food environment and commission independent evaluations of major programmes and policies.

In the UK, we have a long journey to make before our FSI scores on diets improve. There are early signs however that policy makers are willing to act to specifically protect children. The decision to introduce a levy on sugary drinks and the voluntary reformulation programme on sugar among foods eaten by children are important steps, but they remain piecemeal.

Nothing short of a wholesale review of our food system, its impact on our health, the environment and inequality and a systematic effort to develop a coherent policy response is needed. We believe that a firm goal of such a process should be to drive up demand for fruit and vegetables. This necessitates discussions on the future of British horticulture, the retail environment, the quality of snacks and fast food, right through to the advertising environment for children. It could be the first step towards a vision for the future of food which could deliver wins for public health, the environment and the economy. The process of reviewing large swathes of policy following the UK’s decision to leave the European Union provides the political space for this, but whether this opportunity is seized or squandered by our political leadership remains to be seen.

Anna Taylor is Executive Director of the Food Foundation

“...there have been few real attempts to control the proliferation of unhealthy fast food outlets”
The rise of food poverty in the UK

Food poverty — although difficult to measure consistently and precisely — is on the rise in the UK, says Elizabeth Dowler.

Is it an unpleasant but unavoidable modern-day reality that more and more people are increasingly unable to afford to buy enough food in the UK for a healthy life? Or are there specific things government at national and local levels could be doing better to address it? Why is food poverty so much worse now, for so many more people, and what sort of metrics could we use to understand and monitor what is going on?

Why food poverty is on the increase

The main reason for increasing food poverty is the systematic reduction in many households’ security of income. The effects of recent economic austerity have been government policies freezing both public sector pay and spending, and the actual value of social security benefits. Government has also significantly reduced eligibility for benefits, and capped what a household can receive.

Set alongside the unchecked growth in the gig economy and zero-hour contracts for minimal wages, growing numbers have insufficient money to live on, even when in paid work. Worse, those not in work and claiming benefits while they job-hunt, can find themselves left without even this basic safety net if they are ‘sanctioned’: deemed as failing to comply with conditions imposed. So, many households face acute, and chronic, problems affording their basics needs, forced to prioritise expenditures such as rent or fuel, which must be paid to avoid ending up homeless, cut-off or in terrible debt. Under these circumstances, it’s food that is cut back.

As well as having to manage on lower income, people are paying more for food and other basic costs such as transport, energy and childcare, as well as housing (especially in the South East). The Joseph Rowntree Foundation recently showed that the cost of a minimum ‘basket of goods’ has gone up by 27-30% since 2008, whereas average earnings have only increased by half that amount. The authors warn that the cost of living could be 10 per cent higher by 2020.

Average data are misleading: these factors combine to hit some households harder than others, for instance, families with children, or disabilities. Such households have also often lost neighbourhood support and other amenities as local authorities have cut services. These cuts have fallen more severely where deprivation levels are highest. Women, especially lone parents, have borne the brunt of the combined negative effects of different austerity measures, and are usually the ones trying to shop, clothe and feed everyone too.

Measuring food poverty

Food budgets are squeezed by eating less, eating very simply to stave off hunger, going without (especially when you have children), and borrowing from families, neighbours or using local free food sources. These include food banks, community cafes, soup runs and community shops. There has been a lot of research on why and how people use food banks nowadays, linked to low wages and the increasing use of social security sanctions. Often the numbers claiming free parcels of food is used as a proxy for food poverty, but it is a rough and ready indicator which probably deeply underestimates the numbers struggling to put sufficient food on the table.

Government and some media persist in denying food poverty as such exists; they argue people use food banks because they are inefficient at budgeting, shopping and cooking (although there is no evidence to support these ideas, which are based in ideological prejudice).

There has been debate within government as to whether food poverty should be a recognisable, separate condition, or seen simply as a facet of overall ‘poverty’. Food poverty is difficult to assess from national survey data in countries like the UK because food practices (what people buy, where, at what price, and how they prepare and eat it, with whom) are quite complex, and interpreting ‘poor diets’ is not straightforward.

We need to develop consistent definitions and indicators to reduce public slanging matches about whether numbers are going up or down and why, and to be able to track how particular policies interact to affect whether people can afford to eat.

Food security is broadly recognised as the situation where ‘all people, at all times, have physical, economic and social access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.’ In the UK this implies people have enough money to buy what they want to eat, to meet social and nutritional norms; that this money isn’t taken up by other expenditure demands (rent, fuel, debt repayment, etc); that people can reach shops or markets where appropriate food is available at affordable prices, or that they can grow or otherwise obtain food in ways which are dignified and in keeping with social norms. Food poverty can be said to occur where these conditions are not fulfilled.

Trying to assess food poverty using indicators such as % income spent on food is unlikely to give a consistent, accurate picture. This is because firstly, food is eaten by individuals who might share common food purchases and equipment, cooking fuel etc, but can also buy their own food. Secondly, people can meet energy and nutrient needs by eating different foods with different costs, which vary a bit by geography but a lot by shop, so that food expenditure depends not only on what people choose to buy, but also where they are able to shop (and sometimes they have also to pay for transport). Thirdly, in reality, people often cannot afford to buy the food they want and need when other essentials take precedence (fuel, rent, children’s shoes, debts), so it is hard to interpret what people on low incomes actually do spend.
on food, in relation to other purchases. The Food Sustainability Index 2016 uses the UK government definition of absolute poverty. It is a partially relative figure, and refers to those living in households with income below 60% of (inflation-adjusted) median income in a base year (latterly, 2010/11), presented before and after housing costs. This would appear to be a reasonable indicator to use as it can be cited for many countries. However, for the UK it is not an ‘absolute’ poverty indicator as usually understood internationally, because it does not relate to the cost of essential goods. Further, it does not take housing costs into account, which are critical in expenditure demands for lower income households in the UK. In the Food Sustainability Index 2016 the proportion in absolute poverty is cited as 15% (which is the before housing costs figure) for 2013. Note that in 2015/6, 15% were in absolute poverty before housing costs, but 20% after housing costs. Two possible alternative routes are:

i) Use indicators of low income and compare with costs of essentials.

Consensual budget standards, such as the Minimum Income Standard (MIS), provide estimates of the weekly income needed to meet what people decide is essential expenditure for 11 different household types. The methodology is systematic and objective, and the budgets are uprated annually. The budget for food, basic but edible, is cross-checked with a nutritionist so it meets requirements and healthy diet guidelines.

These MIS can be used to test income levels for adequacy. For instance, they are compared annually with the National Minimum Wage, the National Living Wage, and with levels of safety net Social Security benefits. None of these sources of income provides anything like enough money to meet essential expenditure needs (except in pensioner households), a situation that we know from qualitative research often forces people into terrible debt, and to going without food.

Therefore we could use the numbers claiming safety net Social Security benefits (Income Support) or who are paid only the National Minimum Wage (or even the National Living Wage) to indicate those most likely to be at risk of food poverty. Such data should also be examined for different household types, so as not to rely on averages, and to match those used in the MIS work.

ii) Use a regular household survey to ask people about their experience. The United States Department of Agriculture Economic Research Service and the Canadian national public health survey both measure household level food security on an annual basis. They use a validated, subjective measurement of household and individual food insecurity, questioning householders over their concerns about running out of money for food; whether adults skip or cut out meals, and on their ability to adequately and appropriately feed children. In 2003 the Food Standards Agency (FSA) used a previously piloted questionnaire based on the USDA experience to investigate household food security in a UK-wide survey of diet and nutrition in low-income households, and a similar questionnaire was used in 2017 in the 4th wave of Food and You.

The 2003 FSA survey focused on low income households, recognising that income and economic deprivation were key factors in shaping access to the food needed for health. In a booming economy and before social security cuts, it found that 39% of those who lived on low incomes worried their food would run out before they got money to buy more; 22% said they regularly ate less than they wanted or skipped meals altogether because they hadn’t enough money to buy food.

The very recent FSA survey was across the whole population, but still found 17% worried about food running out and 11% who had experienced that happening. However, among those under 25 years, or on low incomes, the proportions doubled to a third. Nearly half those who were unemployed worried about food running out, or had experienced not being able to buy food, or food which was good for their health.

The Food Standards Agency has shown such additional questions could readily be included in regular surveys, and serve as indicators of which types of households, perhaps in which parts of the country or working in what conditions, are doing better or worse. Some local authorities have experimented with very simple questions added to their regular local household surveys, asking people about their experience of running out of money for food.

Food banks are often seen as an unofficial part of society’s response to food poverty, but this should not be the case. Responsibility for both measuring and alleviating food poverty rightly belongs to the state. Adopting better and more standardised tools to assess the levels of food poverty in the UK, which allow us to measure ourselves against other countries, could be a good first step in acknowledging we have a problem – and in fixing it.

Elizabeth Dowler is Emeritus Professor of Food and Social Policy, Department of Sociology at the University of Warwick, and Food Ethics Council member

5. Cooper N., Parcells S., Jackson R (2014) Breadline: the relentless rise of food poverty in Britain
7. There is debate about whether or not to cite as a poverty indicator the figure before or after housing costs (most charities cite After Housing Costs, which is usually a higher proportion of the population).
8. The relative poverty indicators, which are actually indicators of ‘relative low income at high risk of poverty’ were 16% and 22% BHC and AHC respectively – see McGuinness, 2017, for more detail.
9. Produced annually by the Centre for Research in Social Policy (CRSP), Loughborough, and funded by the Joseph Rowntree Foundation.
13. Sustain (2016) Measuring household food insecurity in the UK and why we MUST do it. 4 facts you should know. Food Foundation, Sustain, University of Oxford
Food waste and loss
Food waste metrics: A messy business

The Food Sustainability Index (FSI) is a first attempt to include food waste within a wider mix of food sustainability indicators. Julian Parfitt reviews the application of the FSI to the UK and suggests areas for improvement to the design of its food waste metrics.

Food waste definitions

The term ‘food waste’ carries with it moral baggage and definitional challenges that contribute to the difficulty of creating performance indicators. Discussions around how to standardise food waste definitions has dominated the agenda in recent years, detracting from more urgent priorities, such as the need to conduct more primary measurement of food waste.

Before the era of widely available cheap food in G20 countries, the study of food waste mainly focused on post-harvest losses in developing countries. Losses at this stage related to poor infrastructure, pests and diseases and lack of access to markets for smallholder farmers. Indeed, when the United Nations Food and Agriculture Organization (FAO) was established in 1945, it had the reduction of food losses within its mandate. By 1974 the first World Food Conference identified the reduction of post-harvest losses as part of the solution to addressing world hunger and set an aspirational target to reduce global losses by 50%. However, no systematic measurement programme was put in place to establish a baseline and monitor progress.

In recent decades, as the proportion of disposable household income spent on food has dropped in G20 countries, the quantities of consumer food waste have ballooned. In response, the focus has widened from post-harvest losses to food waste at the consumer stage. This is reflected by the United Nations Sustainable Development Goal 12.3, to halve per capita food waste by 2030. The target includes both supply chain losses and end-user food waste.

However, food waste is not equivalent across these stages in terms of environmental and social impacts, and attempts to standardise food waste definitions have so far failed to fully recognise this fact. Consumers leaving uneaten food on their plates is qualitatively different to rejected inputs at the food processing stage or harvested grain consumed by rodents. The use of ‘rolled-up’ food waste metrics must therefore be treated with caution, although it is easier to comprehend than multiple metrics representing different stages of the food chain.

Against this backdrop, multiple efforts have been made to create a distinction between the umbrella term ‘food loss’ (defined by the FAO as ‘the decrease in quantity or quality of food’) and a narrower sub-set of deliberate ‘food waste’ (defined as ‘food losses that result from food that has been left to spoil or expire as a result of negligence by the actor’). Food loss/waste definitions generally become more challenging further back into the supply chain, and at the agricultural stage there is a blurred boundary between the natural variations that influence crop yield and post-harvest losses.

The FSI approach to food waste

Food waste features in the Index through a combination of six elements that contribute to a composite food waste score. I shall focus on two of the quantitative components: the proportion of food waste in relation to total food production and total food waste per capita. Both of these metrics have associated qualitative measures that record policy responses to each.

The FSI takes as its starting point for production losses the FAO Food Balance Sheet data, which do not include in-field losses. The components contributing to product stage losses are labelled as ‘food loss’, whereas the term ‘food waste’ is applied to all end-user waste. However, the loss/waste distinction is deceptive, as food may be lost through avoidable causes at all stages, and negligence cannot be assumed to be exclusive to end-users. For example, crops may be left unharvested or are ploughed back, due to late cancellation of orders. For that reason the terms food loss and waste should be used interchangeably.
UK’s performance as captured by the FSI

The UK’s performance on food waste is ranked eighth, with France first and the United States sixth. The main areas of weakness identified relate to the UK’s high total per capita food waste (retail, food service and household) and associated policy responses.

Food waste within food production

The FSI metric for the total proportion of food waste relative to food production uses the FAO Food Balance Sheet data to source both food production and food waste data. Countries that are predominantly food importers score the least well (e.g. the United Arab Emirates) compared with those with high levels of food production (e.g. the USA, Australia). This metric is therefore strongly influenced by a country’s food production profile and the uncertainties associated with food loss estimates within the FAO Food Balance Sheet data.

“Food loss/waste definitions generally become more challenging further back into the supply chain”

A more effective measure would be food waste at the production stage as a proportion of total food produced, as illustrated by recent work completed for the Waste and Resources Action Programme (WRAP) in the UK. Wastage rates were estimated for each industry sub-sector using primary fieldwork and data from regulatory sources, and the results indicate considerable variation across food product type. WRAP has carried out a rolling programme of food waste data collection across all segments of the UK food supply chain since 2007. More robust evidence gathering has advantages in developing the FSI, tracking progress and identification of reduction opportunities. The disadvantage is that investment in primary data collection is required.

More comprehensive data can also have perverse consequences for inter-country comparisons. For instance studies of food waste at the production stage across the G20 are mainly limited to measurement of solid waste moved offsite. Few have included food waste contained within pre-treatment sludges or discharged with waste water to sewer within their scope. For household food waste, a comparable issue relates to food and drink discarded to drain. More inclusive measurement may result in outliers that the FSI approach would score less favourably.

In relation to policy responses to food production losses, the UK received the highest rating within the Index. Through the extensive work of WRAP, the UK has an effective track-record of working with the grocery supply chain since 2005 through a series of voluntary agreements (the Courtauld Commitments) linked to formal targets to reduce food waste, including at the consumer stage. A 12% reduction in household food waste was achieved between 2007 and 2012; and a 3% reduction in manufacturing and retail food waste between 2012 and 2015. These reductions have been achieved through many strands of activity, including consumer-facing campaigns that Courtauld signatories have engaged with. Other elements have included whole supply chain studies to identify waste hotspots, work on product life extension, simplification of food date labels and storage advice to consumers. The forward work programme, Courtauld Commitment 2025, is aligned to the SDG 12.3 goal and has the objective to cut the resources needed to supply food and drink by one-fifth over 10 years.

Food waste at end-user level

The FSI’s main quantitative metric relating to food waste at end-user level (kg per capita / year) includes food waste data from retail, wholesale, food service and household sectors. The European G20 countries are within the range 114 to 139 kg per capita. Countries scoring better on this metric are developing countries where the proportion of disposable household income spent on food is high. For instance Ethiopia, where food accounts for 48% of household expenditure, is ranked first of the 25 countries on this metric. In contrast, 11% of UK household disposable income is spent on food (ranked sixteenth).

Responses to end-user food waste within the FSI include a range of policy options and interventions, from national plans for food waste, fiscal incentives to redistribute food surpluses, to regulatory approaches to divert unsold food surplus to human redistribution. A number of key elements are missing from the scorecard whilst others are given too much emphasis. For instance, national and local level consumer facing campaigns are a key component of the most active countries, yet do not feature in the Index. More emphasis in the Index is put on legislative approaches to encourage the redistribution of food surplus, with the French legislative approach to ‘banning food supermarket food waste’. Although this measure has received much publicity, it has so far failed to address the need to develop redistribution infrastructure (such as chill chain), transport and food hygiene and safety training for charities handling food surplus. This highlights the difficulty of distinguishing policy intentions and policy outcomes.

Conclusions

The development of the food waste indicators within the FSI is an important contribution towards the monitoring of greater sustainability within food systems. Food waste is also a waste of water, land, all the inputs to agricultural production, nutrition, and has significant greenhouse gas implications. The FSI approach has integrated food waste alongside sustainable agriculture and nutritional challenges, and is a useful tool for understanding how these facets interact.

However, the development of smarter food waste metrics may be limited by a lack of commitment to primary data collection across the G20 and more widely. For example, for food production losses the tool has adapted datasets that are widely available (e.g. FAO 2011) but not specifically designed to measure food waste. If progress is to be made towards the global benchmarking of food waste under SDG 12.3, and successfully monitored using the FSI approach, more empirically based food waste estimates are required. This important commitment would ensure that the 2030 SDG target does not suffer the same fate as the global target set in the 1970s.

Julian Parfitt is Resource Policy Advisor and Practice Leader at Anthesis Group
How investors are balancing financial returns and food sustainability

The role of institutional investors in moving us to a sustainable food system is easily, and understandably, overlooked. But a growing minority of investors are waking up to the long-term costs of the status quo, say Catherine Howarth and Clare Richards.

Large investors in food companies are seen as motivated overwhelmingly by the pursuit of short-term profit. And in many cases, that is all too true. How else do we find ourselves served by the current food system?

When manufacturers intensify emissions footprints, substitute lesser-quality ingredients, squeeze supply chains and suck up resources to increase market share and inflate corporate dividends, there seems little evidence - on the surface, at least - of investors questioning the longer-term repercussions of such extractive business practices. All in all, it would be easy to assume that investors are at best ignoring anything but short-term financial performance in the food sector; and at worst doing a great deal to aid and abet profoundly unsustainable practices.

However, over the past decade, business and finance world insiders have shown increasing awareness of the case for balancing the interests of people, planet and profit over the long-term. A market that signals to manufacturers and producers that profits at any cost are paramount is one that facilitates the land grabs, food safety scares, animal welfare scandals and public health crises that we see today. It tacitly sanctions the rash of mono-crops, cramped animal crates, resource waste and precarious employment practices that have come to epitomise modern food production.

A growing minority of investors are beginning to understand that over the medium to long-term, these practices degrade the environmental and social capital on which our food systems depend, and, as resources deplete, profits inevitably take a hit.

With the equivalent of more than $2.9 trillion in UK private pension schemes alone, we all have a vested interest in ensuring these assets are deployed into more environmentally and socially sustainable food systems. As citizens and as savers, we will all experience the impacts of ill-advised food production decisions in our finances, health and the atmosphere.

The classic impulse of investment professionals is to drive immediate growth and profits rather than advocate for sustainable business practices on environmental grounds. However, asset managers seeking only to maximize short-term returns can be accused, and increasingly are, of neglecting their true responsibility to savers. An alternative model is slowly emerging, underpinned by a more enlightened conception of investor fiduciary duties. The Business and Sustainable Development Commission has highlighted that there is significant money to be made through investing in sustainable business models for food and agriculture: US$2.3 trillion annually, on their calculations.1 Large institutional investors are starting to take a greater interest in these opportunities and how to pursue them.

When it comes to identifying good practice in the food system, separating the wheat from the chaff can be tricky for investment analysts. In the realm of responsible and ethical investment, food sector firms have largely been cast as benign, with the possible exception of fast food firms. A company that churned out food at cheap enough prices to keep consumers coming back for more was typically considered a solid investment. Food is after all a human right, and, as far as the market was concerned, filling-up on ready-meals and sweet treats was to be encouraged rather than curtailed.
This situation has been changing, with investors increasingly acting on food-related risks to long-term portfolio performance. Given the compelling evidence around the mounting crisis of obesity and other acquired diseases caused or exacerbated by poor diets, the shift in calculation is perhaps not surprising. After all, most institutional investment portfolios will also cover health insurance and other services; meaning that what’s bad for human wellbeing can also have a negative knock-on effect on other financial holdings.

The Global Goals are playing a significant role in catalyzing this change in thinking. Similarly, the prospect of fiscal measures to curtail carbon in the supply chain and sugar on the production line is helping to bring a wider range of risk factors into focus for investors.

So, what does responsible investment in the food system look like, and how can investors drive positive change in their own long-term interest? Large institutional investors, acting on behalf of regular pension savers, have significant leverage with big food companies. Asset managers interact with companies on a regular basis and have the potential to drive and monitor progress on a range of food-related risks. Topics of interest in the investment world now include fat and sugar, as well as farm animal welfare, food additives, illegal and unsustainable fishing, palm oil, soy: once you look beyond the surface there are myriad risks and issues.

However, faced with the task of prioritising which to engage on, it is tempting to settle back into business as usual. For investors to push an area of interest to the point of securing real change, they have to have a solid basis for calculating that it poses a threat to the future performance of the food company concerned. In the investment world, assessing short-term financial prospects is difficult enough; measuring the materiality of environmental and social risks – particularly in the medium or longer term – poses a far greater challenge. So long as a company is compliant with legal obligations, no matter how low the bar, inertia tends to rule in the absence of a compelling investment case for intervention.

Large shareholders have the potential to exert influence over food companies, but the regular savers whose pensions they control must hold them to account and urge them to push for more sustainable practices. To unlock the potential of investors to be a force for good within the food system, marked improvements in corporate disclosure are required. Better data is key. In particular, investors need to know when a food company is showing leadership or lagging behind its competitors. They also need to hear from their own client base that particular issues are important and warrant closer scrutiny.

As well as market data from specialist analyst firms, public benchmarks play an important role in driving investors to act. Whether it is carbon reporting via the Carbon Disclosure Project, farm animal welfare analysis via Business Benchmark...
Sustainable food systems: How does the UK measure up?

In addition to issues around production practices, per capita food consumption has become deeply unsustainable. Over-eating is at least as large a contributor to losses within the food system as consumer waste, and the overconsumption of meat-based protein in particular fuels health problems such as kidney disease and obesity: to say nothing of the squandered carbon and methane emissions when meat is gorged or discarded.

This trend is a symptom of a corporate food system that positively encourages excess. For example, factory farming is hugely emissions-intensive and yet the market continues to endorse an oversupply of cheaply produced meat. Investor engagement to improve production efficiencies is important, but only part of the solution to the gargantuan footprint of our 21st century food system. Promoting behaviour change can be viewed as anathema, yet the irony here is that food businesses are founded on their ability to edit their own in-house engagement in investor coalitions and can help to drive improvements in production practices. From small seeds, sustainable business practices grow.

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Dematerialisation of the economy - more value from each unit of ‘stuff’ - is a well-established trend in developed countries and could make a significant contribution to addressing our environmental problems. After all it is the gathering, processing and transporting of stuff that depletes resources and pollutes. Nonetheless few environmentalists believe that the current pace of change is fast enough. Can business accelerate the trend on its own, or will it take further government intervention? And, in particular, what will food retailing and its supply chain do?

Our starting point at the Centre for Understanding Sustainable Prosperity is this will only happen if it increases profits or at the very least preserves them. Significant change will not result from moral pressure alone. It is true that some major investors are now pressuring the industry to perform against environmental criteria. For example a group of 40 have backed a campaign, coordinated by the FAIRR Initiative and ShareAction, to encourage 16 global food companies to change the way they source protein, the idea being to reduce environmental and health impacts. However they are not relaxing their financial objectives. Strategy has to deliver both.

And some win-win actions are already contributing, for example reducing waste during production and distribution reduces the total amount of stuff needed for a given sales volume. It is also true that rising commodity prices can drive down volumes, and food prices have been rising. But to go beyond efficiency improvements or responding to price movements and aim to reduce sales volume raises trickier strategic issues.

Last night I threw away some fish because the smallest packet I could find in the supermarket was too big. How can setting out to stop this kind of thing, and more generally to sell less food, become part of a strategy that increases profits? What will make it worthwhile? For in the longer run, it is this that is going to produce the biggest environmental benefits.

There are all kinds of ways food retailers and their suppliers could add value and so reduce their dependence on volume, but do they stack up commercially? For example, can food manufacturers and retailers exploit the trends manifest in increased eating out and vegetable growing profitably? Can they help budget conscious shoppers spend less or more wisely and still make money? Can they do these things in an intensely price competitive industry? And, more fundamentally, do the incentives exist for innovation, other than in the kind of high value added niches that tend to be targeted by new entrants? For it is changes in the mass market that will make the difference.

"Can business accelerate the trend on its own, or will it take further government intervention?"

If the answer to these questions is yes, then we may see significant change in the industry, ultimately prompted by industry leaders who believe their industry should contribute to sustainability, and by those investors who are also encouraging strategies that deliver profits consistent with sustainability. However if the answer to these questions is no, then leaders will be constrained and minority investor pressure will not change strategies significantly. If that is the case, then, if we collectively want the industry to shift, we will have to rely on government to introduce the regulatory or fiscal changes needed to incentivise the necessary innovation.

In any industry, there are two incentives for radical innovation: defence against new entrants who might change the rules of the game, and the opportunity to create a first mover advantage over other incumbents (I exclude here incremental cost saving innovations such as automated check outs). At the top of the market the barriers to entry are quite low and there is a whole range of innovative food retailing, preparation and delivery concepts. As for the mass market, Lidl and Aldi are of course new entrants, but both were expansions of overseas chains and their competitive advantage is principally cost. It seems likely that there remain quite significant barriers to entry to the mass market for new value add concepts, which explains Tesco, Morrisons, Sainsbury’s and Asda’s long-term dominance. Arguably M&S and Waitrose are under more threat from some of the new concepts, but it is difficult to see how the big four and the discounters will be, at least for most of their activities. In the mass market at least, significant innovation will probably depend on being able to establish first mover advantage.

This does happen. The use of loyalty cards by Tesco is one of the best known examples. Exploiting developments in IT to radically improve segmentation and merchandising, it took years for rivals to catch up. Could further exploitation of what is now much more advanced IT allow retailers to provide more value to their customers in ways that rivals cannot imitate, or cannot imitate quickly? Could this be linked to helping customer spend less or more wisely on food? Or, for a slightly more prosperous segment,
could it help deliver greater convenience – and thus value – when shopping and preparing, reducing dependence on volume? (Historically the initial benefit of many successful innovations was making existing activities more convenient). Or to helping people enjoy the experience of cooking and eating more? Or to eating more healthily?

Are there opportunities in the shift to on-line retailing? After 20 years of effort, the on-line food and grocery market is predicted to be only 4% of the total by 2018 and only 20% of shoppers do all or most of their grocery shopping on-line.

Accenture report that 82% of millennials (born 1980-2000) – millennials – prefer physical to on-line shopping. Could a retailer create more convenient and enjoyable form of on-line shopping that paid its way – and helped provide the kind of customer benefits just described that could reduce dependence on volume? Given that on-line shopping is not location based and competition no longer depends on getting the best physical site, will there be more opportunity – and need – for brand differentiation amongst the big retailers? If so, could there be an opportunity for at least one mass retailer to build a brand based advantage from delivering more value from less stuff?

However even if on-line grows ten-fold, most food shopping will remain physical. So are there opportunities to improve staff skills in ways that are difficult to imitate? In particular can they be used in combination with IT to improve the shopping experience and the quality of purchasing?

Another way that businesses make money is by linking their brands to active consumption, that is to say consumption involving activity rather than consumption pure and simple. Nike is an obvious example. Perhaps not surprisingly, Google and advertising agency Ogilvy report that “Consumers choose the brands that engage them on their passions and interests 42% more often than they do those that simply urge them to buy the product being advertised.”

When an enthusiasm is growing, there are obvious opportunities and this, of course, is in constant evolution. For example, the gardening products market is reported to have doubled between 1991 and 2006 (but has been somewhat static since).

What scope is there for strongly associating a brand with cooking – not just through advertising but by providing information and training products that complement physical products, and help remove some of the barriers to wider take-up, such as negative self-perception?

Can a food retailer stimulate this trend? Can community based CSR programmes of the kind Kingfisher have run contribute to this?

I am not answering any of these questions in this article. However I am suggesting they – and similar questions – are worth answering. My focus has been mainly retail, but clearly there are similar, related questions for the whole supply chain. There is also a more fundamental question lying behind these questions: does the food industry genuinely want to try and answer questions of this type, so that they become capable of making more profit from selling less food? If the answer to that question is currently no, then what kind of intervention by government would change it to a yes?

The problem cannot be solved without innovation, and innovation has to come from business itself – although sometimes in partnership with publicly funded agencies. The question is: what will stimulate this?

The classic answer is carrot and stick. That is government supports certain kinds of innovation through public agencies and grants, and it incentivises it by taxing and regulating existing products. Innovation to reduce vehicle emissions has been stimulated in this way. In the case of food, taxation is politically difficult – even the sugar tax ran into difficulties. Nonetheless it is possible that some mix of tax and subsidy combined with innovation support would work. Again, I am not presenting an answer but suggesting that an answer to this question may well be needed if food retailing’s potential for contributing to sustainable prosperity is to be fully realised.

In short, the suggestion is that the food industry, academics and NGO address the kinds of question raised in this article so they can shape the agenda in a positive way.

Charles Seaford is the Director of An Economy that Works and a consultant to the World Future Council.
Final word
Sustainable development goals: transforming food systems

The Sustainable Development Goals provide the backbone of our efforts to effectively address the challenges facing global food systems. But measuring them effectively is the key to unlocking their potential, says José Graziano da Silva.

By adopting the 2030 Agenda for Sustainable Development, the 193 Member States of the United Nations committed to a transformative agenda, including deep-seated changes in food systems. In many ways, the transformation of food and farming systems lies at the heart of achieving the shared global vision expressed in the Sustainable Development Goals (SDGs) set by the 2030 Agenda.

Food - the way it is grown, harvested, traded, processed, transported, stored and consumed - forms the fundamental link between people and the planet. Food radiates across multiple dimensions of human experience, including economic, cultural, social and environmental, and cuts across sectors, including energy, industry and infrastructure. Given the universality and multidimensionality of food systems, actions to make them more productive and sustainable are relevant to all 17 SDGs.

The fundamental challenge facing food systems is how to feed more people, while using fewer resources and protecting the natural environment. Can this be achieved in ways that, at the same time, improve the well-being of the world’s poor and enhance the resilience of food systems to the impacts of climate change and other shocks?

Currently, the world produces enough food for all the world’s population, yet nearly 800 million people still suffer from chronic undernourishment. This year, famine was declared in parts of South Sudan and the risk of famine is high in Yemen, Somalia and northeast Nigeria. At the other extreme, we see the prevalence of obesity, and associated health problems rising in all regions of the world.

Effectively addressing the challenges facing the global food system, and the paradoxes that underlie it, requires transforming our current input-heavy, emission-intense and highly unequal food systems towards more inclusive and sustainable systems across the whole chain, from farm to fork. The SDGs, and their shared vision of global development, provide the backbone for both global and local actions to improve food and farming systems.

In order to address these challenges, we need immediate and lasting actions, sustained by strong political will and firm commitments. Below are some examples of key areas of action.

To address the impact of food systems on climate change we need to:

a) incorporate the Paris Agreement into agricultural policies and support countries in implementing their Nationally Determined Contributions (NDCs), in order to maximise climate change adaptation and mitigation in the agricultural sectors;

b) design energy policies, which, while drastically reducing greenhouse gas emissions, do not compete with food production in the use of natural resource and do not exacerbate land concentration to the disadvantage of smallholders; and

c) promote more efficient forms of bio-energy generation, which, while substituting for fossil fuel energy, create income opportunities in rural areas.
Preserving natural resources and biodiversity implies, among other things:

a) increasing crop diversification and the use of improved soil and water management practices;
b) encouraging more judicious and reduced use of chemicals, while discouraging or banning the most aggressive herbicides and pesticides, which threaten food safety, human health and biodiversity;
c) promoting agroecology and other more sustainable and environment-friendly farming systems, and encouraging the production and labelling of organic products; and
d) strengthening cooperation to prevent the outbreak and spread of transboundary pests and diseases, and tackling the issue of antimicrobial resistance through research, integrated pest management, surveillance and early warning.

Making food systems socially and environmentally sustainable requires stronger and improved governance of food systems. This implies for instance:

a) improving the bargaining power of small farmers vis-à-vis big food processing and retail companies, to ensure fair prices and margins for smallholders and family farmers;
b) supporting countries in implementation of the Principles for Responsible Investment in Agriculture and Food Systems (CFS-RAI);
c) Adopting the Voluntary Guidelines on Responsible Governance of Tenure of Land, Fisheries and Forests (VGGTs), to prevent loss of assets by most vulnerable people and unduly and unfair land concentration.

Stronger and more effective international cooperation will be needed to accompany all countries, and particularly low-income countries, in developing their own pathways towards the establishment of sustainable food systems. This could be done, for instance, by giving greater priority to development assistance towards investments in sustainable agriculture and diversification into agro-businesses, investments in entrepreneurial skills of young people in agriculture and in rural areas to increase earning opportunities and prevent distress migrations, and support to social protection programmes particularly in the most vulnerable countries.

In short, major changes in agriculture and our food systems are needed if we want a sustainable and rewarding future for all. These actions should help us steer towards that future.

To guide these actions, we need to improve our instruments for measuring the progress and impact of the efforts made. The SDG monitoring framework already contains an elaborated list of indicators, and FAO is custodian of more than twenty of them. Accordingly, FAO will support governments in developing their capacity to measure progress towards ensuring food security and adequate nutrition for all and the creation of sustainable agriculture and food systems. This should help achieve greater accountability, which in turn is essential in order to realise the future of food and agriculture that we want.

There is no doubt that we can transform our food systems, end hunger and malnutrition and make agriculture more productive and sustainable. Almost no other sector can deliver greater climate, economic, social and environmental co-benefits. However, change has a cost – a cost that poor farmers, pastoralists, fishers, foresters and indigenous communities are unable to shoulder. To achieve true transformative change, we need investments and immediate action.

José Graziano da Silva is Director-General of the Food and Agriculture Organization of the United Nations

“In short, major changes in agriculture and our food systems are needed”
The Food Ethics Council would like to thank the Esmée Fairbairn Foundation for funding our key programmes, including this publication which is part of our Unleashing the power of indexes work programme.

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All views expressed in the articles in this publication are the authors’ own, and do not represent the views of the Food Ethics Council.
How sustainable is the UK’s food system?

In this report, we ask experts to look at the UK’s position in a number of areas in a new index from the Barilla Center for Food and Nutrition Foundation and the Economist Intelligence Unit - the Food Sustainability Index - and give us their views on how the country can do better.

The UK is at a critical juncture in food and farming policy making. Brexit will set the direction of our food system for the next half a century at least. A robust and trustworthy index can help to hold the UK government and devolved administrations to account for their actions, and monitor their progress towards a UK food system fit for future generations.

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