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Fresh start

A framework for healthy and sustainable diets in the UK

RECOMMENDATIONS FOR ACTION

Fresh start: A framework for healthy and sustainable diets in the UK — Recommendations for action

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Other reports in this series:

Fresh start: A framework for healthy and sustainable diets in the UK — Policy options review

Fresh start: A framework for healthy and sustainable diets in the UK — Situational analysis

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Contents

Key messages

- Eating patterns in the UK do not meet healthy eating guidelines.
- Diet-related diseases, such as heart disease, stroke, cancer and type II diabetes are the leading cause of illness in the UK.
- Our eating patterns have a major, negative impact on the environment due to climate change, pollution, soil erosion and loss of wildlife and habitats.
- There are areas of alignment between healthy eating and environmental objectives (for example increasing production and consumption of fruit, vegetables and pulses).
- There are areas where there may be less alignment between healthy eating and environmental objectives and trade-offs will have to be made (for example, there are not adequate fish stocks for everyone to eat the recommended amounts).
- Current food and agriculture policies lack an over-arching agenda that aligns healthy eating and environmental protection to deliver sustainable diets in the future.
- A framework of cross-government actions to support a shift towards healthy and sustainable patterns of food production and consumption should be developed within a UK-wide Food and Agriculture Bill.

About this report

This report is intended primarily for policy makers across national government with responsibility for policies for agriculture, health, the environment, business and taxation. It is relevant to food producers and retailers, and to public sector organisations that procure food such as schools, hospitals and prisons. It is also intended for research and civil society organisations that inform and advocate for public health, environmental protection and sustainable development and monitor and evaluate policies.

Much of what is good for our health is also good for the planet, meaning there is significant alignment between solutions to address these issues, as well as some important trade-offs to be managed. **This report outlines a 10-point framework for action, which can help people in the UK shift towards a healthy and sustainable diet.**

This framework for action has been developed based on a detailed situational analysis of our current eating patterns.[1] The analysis examines what we are eating and the different impacts on our health and environment now and in the future. It does this by asking the following questions across the seven food and drink groups of the Government's Eatwell Guide:[2]

- How do current consumption patterns compare to healthy eating recommendations?
- What are the health impacts of over- or under-consumption of different foods and drinks?
- What do we pay for our food?
- Where does it come from?
- What are the environmental impacts of the production and consumption of different foods?

The recommendations for action identified here have been reached through a consultative process involving the project steering group (listed on page 2) and stakeholders. Discussions were informed by the report, *Fresh Start: A framework for healthy and sustainable diets in the UK — Policy options review,* which examines 40 policy options drawn from existing reports and reviews of interventions published by organisations and academics thinking about healthy and sustainable food systems.[3]

To maintain a clear focus on healthy eating patterns, a number of related environmental, health and sustainability issues are not directly addressed in this report. These include biodiversity, animal welfare, farm labour conditions and anti-microbial resistance.

The need for action

Current food and agriculture policies lack an over-arching agenda that aligns healthy eating and environmental protection to deliver sustainable diets in the future. Policy areas from taxation to welfare, from agriculture to trade, all need to be brought together into a coherent plan.

Brexit presents both a necessity and an opportunity to rethink our approach to agriculture and food policy in the UK. Policy makers should use the uniquely disruptive event and the need to develop alternative policy frameworks for agriculture and fisheries as we leave the Common Agricultural Policy (CAP) and Common Fisheries Policy (CFP). The planned UK-wide Food and Agriculture Bill presents an opportunity to redress some of the distortions of the current policies.[4]

There are enormous pressures on our food system to meet rising demand to feed a growing global population, and to manage the weather-related shocks and the impact on harvests, soils and water supplies caused by climate change. It is estimated that global food demand will increase by 60% by 2050, placing significant strain on resources, land, water and people.[5]

Civil society organisations including the New Economics Foundation, Eating Better, Food Ethics Council, Food Research Collaboration, Food Foundation, Eat Foundation, World Cancer Research Fund International and World Wildlife Fund have called for action to reduce the negative impacts of our food system on our health and our environment, and to improve its sustainability.[6–14] But little has been done at a policy level to integrate these recommendations and campaigns into a more joined up approach that fully recognises the co-benefits for health and the environment of policy actions for sustainable diets.

Global policy developments, in particular the UN Sustainable Development Goals and the Paris Declaration on Climate Change,[15,16] have pushed climate change and sustainable development higher up the political agenda and commit governments, including the UK, to take action. It has been shown that all the 17 Sustainable Development Goals are connected in one way or another through our food system, not just those relating to hunger, health, water, energy or climate action.[11]

What are the characteristics of healthy, sustainable eating?

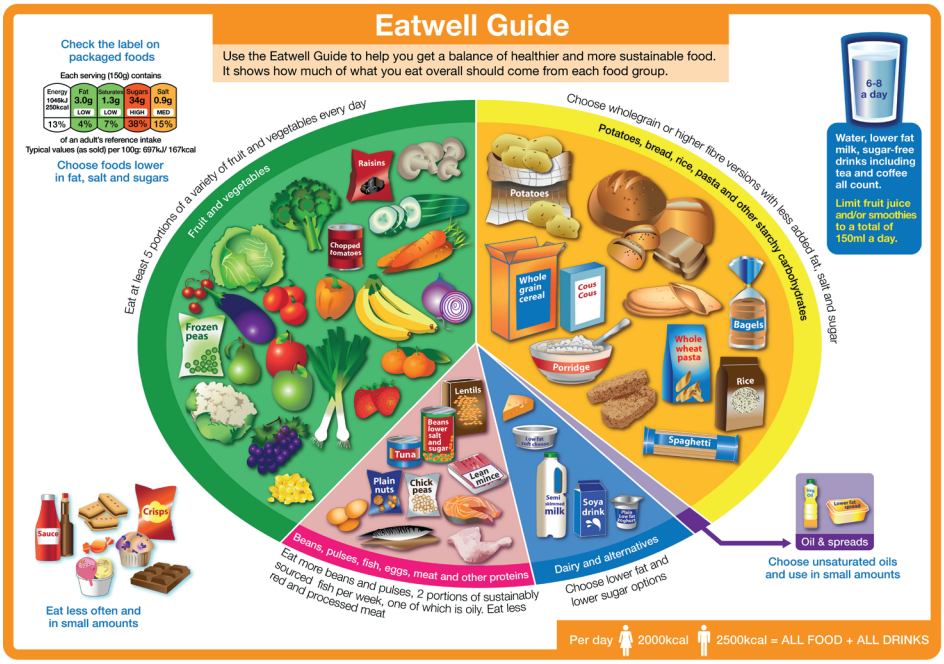
The Food and Agriculture Organization of the UN (FAO) defines the principles of sustainable diets as 'those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations...'[17] It emphasises that sustainable diets are protective of biodiversity, are culturally acceptable, economically fair and nutritionally adequate.

National recommendations for healthy eating are shown in the Eatwell Guide. It shows the relative proportions of what we should eat from the different food groups. (See Box 1).

Recommendations for alcohol consumption are provided in the Chief Medical Officers' Low Risk Drinking Guidelines (Box 2). Based on the latest evidence of the effects of alcohol on health, the guidelines were updated in 2016 and include advice relating to weekly consumption, single occasion drinking and drinking whilst pregnant.

The Eatwell Plate was revised in 2016 to incorporate some sustainability considerations. For example, it included a new strapline, "Use the Eatwell Guide to help you get a balance of healthier and more sustainable food" and emphasised the advice to eat more beans and pulses and eat less red and processed meat. Future revisions could go further to provide more explicit guidance, such as the advice included in guidelines in Sweden and the Netherlands which specify limiting overall meat consumption (processed, red and white meat) to 500 grams per week.[6]

A practical description of healthy and sustainable eating developed from an environmental perspective is shown in Box 3. The description attempts to define more sustainable forms of vegetables and fruits, although this can be a complex process which depends on multiple variables such as geographical location, production method and seasonality.[1]



Box 1: Eatwell Guide

Main food groups:

Fruit and vegetables

Potatoes, bread, rice, pasta and other starchy carbohydrates

Dairy and alternatives

Beans, pulses, fish, eggs, meat and other proteins

Oils and spreads

Additional food and drink groups:

Foods high in fat, salt and sugar

Hydration

Box 2: The UK Chief Medical Officers' Low Risk Weekly Drinking Guidelines

The Chief Medical Officers' guidelines for both men and women are that:

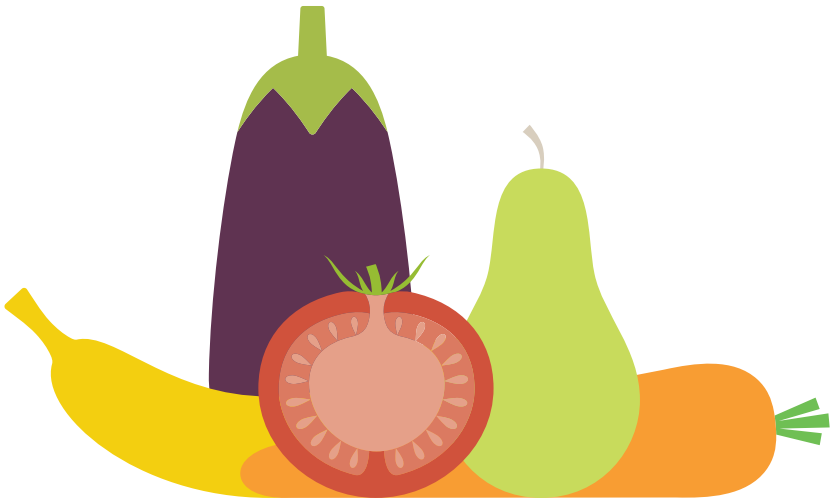
- To keep health risks from alcohol to a low level it is safest not to drink more than 14 units a week on a regular basis.
- If you regularly drink as much as 14 units per week, it is best to spread your drinking evenly over three or more days. If you have one or two heavy drinking episodes a week, you increase your risks of death from long term illness and from accidents and injuries.
- The risk of developing a range of health problems (including cancers of the mouth, throat and breast) increases the more you drink on a regular basis.
- If you wish to cut down the amount you drink, a good way to help achieve this is to have several drink-free days each week.

Box 3: Characteristics of healthier, more sustainable diets

Diets that are good for health and lower in environmental impacts than current eating patterns have the following characteristics:

- Diverse, including a wide variety of foods
- Low in animal products – and all parts eaten
- Fish and fish-related products eaten in moderation
- High in minimally processed, robust, field grown vegetables and fruits (e.g. brassicas, root vegetables and firm fruits such as apples)
- Rich in whole grains, tubers and legumes
- Processed foods high in fat, sugar and salt to be avoided.

Adapted from: Garnett T (2016). *Plating up solutions: Can eating patterns be both healthier and more sustainable?* Science. 353, 6305. 1202-1204



What is wrong with our current eating patterns?

The food we eat today and how it is produced affects both our health and the environment. The reasons for our food and drink choices are complex but are strongly shaped by factors all along the food supply chain, including agricultural policies and practices, international trade, pricing and taxation, retailing, and marketing.

Food surveys show that most people are not meeting the guidelines, with significant impacts on dietary health. (See table 1). Poor diets account for 69% of the disability associated with heart disease and 51% of deaths due to stroke in the UK.[18] Two-thirds of UK adults and a third of children starting secondary school are overweight or obese.[19] At least 12 types of cancer are associated with obesity.[14] Alcohol-related liver disease is increasing and will soon overtake cardiovascular disease as the single biggest cause of death. Thirty-one percent of men and 16% of women drink in excess of the maximum recommended 14 units of alcohol per week.[20]

The external costs of the UK's food system is estimated at £120 billion per year, of which £45 billion is due to food consumption-related health costs from conditions such as heart disease, cancer, obesity and high blood pressure.[21] On current trends, excess alcohol consumption is projected to cost the NHS £17 billion over the next five years.[22] Rising rates of diet- and alcohol-related ill-health and premature death are unsustainable and are contributing to growing health inequalities.

20-30%

of greenhouse gas emissions are created by the global food system

£45bn

per year is spent by the UK economy on food system-related health costs

Where our food comes from, how it is produced and how much we pay for it also has significant impacts on the environment (See Annex 1). The global food system accounts for 20-30% of greenhouse gas emissions (GHG) leading to climate change,[24] and is a major driver of environmental damage including soil degradation, forest clearance and loss of biodiversity and wildlife habitats, and water extraction. The pursuit of cheaper, highly processed foods which are heavily reliant on fossil fuels carries a huge environmental price tag.

For every £1 that UK consumers pay at the checkout, it is estimated that there is another £1 incurred in externalities such as the health costs incurred from unhealthy food consumption and environmental costs incurred from unsustainable food production.[21] The true cost of food needs to be better reflected in purchase prices. It is particularly concerning that those on low incomes are hit hardest by both the cost of food and the burden of poor health associated with the current food system. Whilst this is a hugely complex area, cheap food cannot be the answer.[25,26]

Table 1: Headline food consumption and production trends and their impacts on health and the environment*

	Current consumption	Where does our food come from?	Health impacts	Environmental impacts
Fruit and vegetables	Two thirds of adults eat less than the recommended intake of fruit and vegetables ('5-a-day').	Just over half of vegetables we eat are grown in the UK and only 11% of fruit. Spain is the biggest source of imported fruit and vegetables in the UK.	Fruit and vegetables are an important source of vitamins, minerals and fibre. They provide protection against heart disease, stroke, several cancers, overweight and obesity.[10]	Fruit and vegetables are associated with much lower GHG emissions than other foods, especially red meat. UK-grown fruits and vegetables generally have small water footprints because of the high rainfall levels. However, the water footprints of imported produce are felt elsewhere.
Beans and pulses	Intakes of beans and pulses are very low, and few varieties are eaten other than tinned baked beans.	The fava beans used in baked beans are imported, mostly from North America.	Pulses are a rich source of protein and fibre, as well as other nutrients such as iron and B-vitamins. High fibre intakes protect against colorectal cancer, overweight and obesity.	Pulses can help lower GHG emissions from agriculture by returning nitrogen into the soil. This reduces the need for fertilisers which account for 20-40% of GHG emissions associated with growing crops. Pulses have an average water footprint compared to other crops.
Whole grains and fibre	Most people are not eating enough whole grain and high-fibre starchy foods. Refined cereals such as pasta, rice, pizza and white bread are more commonly consumed.	85% of wheat and 77% of potato supplies are grown in the UK. All rice consumed in the UK is imported, primarily from India, Cambodia and Pakistan.	Adult fibre intakes are 40% lower than the target level. Low fibre intakes are associated with a raised risk of colorectal cancer, overweight and obesity.	GHG emissions of plant-based starchy foods are generally low compared to animal-based foods. Rice has a particularly large water footprint compared to other starchy foods. These impacts are felt elsewhere.
Milk and dairy	Most people meet the Eatwell Guide advice to consume some milk and dairy. While overall intakes of milk and cheese have fallen, intakes of yoghurts and desserts have quadrupled in the last decade.	The UK is self-sufficient in its milk supply. It is a net-importer of cheese, primarily from France, Germany and Ireland.	Milk and milk products are significant sources of calcium and protein. However, they are also major sources of calories, sugar and saturated fat. Intakes of these nutrients are too high and are linked to a raised risk of obesity, heart disease and stroke.	The water footprint and GHG emissions associated with milk and milk products are large. A significant proportion of this impact is felt abroad, in the countries that produce cattle feed.
Meat	Men are eating more red and processed meat than recommended. While there are no target consumption levels for poultry, intakes have risen in the last decade.	Over 80% of the meat and eggs consumed in the UK are produced domestically.	Red and processed meat increase the risk of colorectal cancer, while excessive consumption raises the risk of heart disease, stroke and type 2 diabetes.	Livestock farming is the major source of UK GHG emissions from agriculture. It also has a large water footprint, which is largely amassed from growing feed (particularly soya) in other countries.

Table 1: (continued)*

	Current consumption	Where does our food come from?	Health impacts	Environmental impacts
Fish	Most people do not eat enough fish.	Most of the fish consumed in the UK is imported from a variety of countries including Iceland, China and Mauritius.	Fish, especially oily fish such as salmon, sardines and mackerel, decreases the risk of cardiovascular disease. Oily fish may also be beneficial for foetal development.	The water footprint and GHG emissions associated with fish – including farmed fish – are generally lower than meat sources such as chicken and beef.
Processed foods	Half of all food and drink in the UK is 'ultra-processed' and high in fat, salt and/or sugar. Examples are soft drinks, meat pies, ready meals, biscuits and sugary yoghurts.	The majority of processed foods consumed in the UK come from global food companies.	These foods contribute to high levels of fat, sugar and salt in the diet, which is associated with obesity, heart disease, stroke and some cancers.	Processing, especially concentration, adds to the carbon and water footprints of foods. For example, fruit juices have almost double the water footprint of the equivalent whole fruit, while the water footprint of ketchup is 2.5 times greater than that of unprocessed tomatoes.
Fats and oils	Fats and oils in the UK diet are obtained from a combination of spreads, cooking oils and ultra-processed foods. While the population is meeting target intake levels for total fat, saturated fat intakes are higher than recommended.	Most butter consumed in the UK is produced domestically. Most vegetable oils are imported, such as palm oil from Indonesia and olive oil from Spain.	Fats and oils are very high in calories. Butter, palm oil and processed foods that contain them are major sources of saturated fat. The UK's excess saturated fat consumption is contributing to the high levels of obesity, heart disease and stroke in the population.	Butter production is associated with nearly as much water and GHGs as red and processed meat. Palm oil has several harmful impacts on the environment (e.g. rainforest depletion). Olive oil has a large water footprint compared to other fats and oils.
Alcohol	Alcohol consumption is common, and significant numbers of men (31%) and women (16%) exceed the low risk drinking guidelines.	Most beer consumed in the UK is produced domestically, supplemented by imports from Europe. Wine is mostly imported. The top countries of origin are Australia, US and France.	Alcohol causes many cancers and there is no 'safe' level in relation to the risk of cancer. Other conditions that are linked to alcohol include cardiovascular disease, liver disease and injuries.	GHG emissions from domestically-produced alcohol account for 1.5% of the UK total. Alcohol has an average water footprint compared to other foods: 109 litres of water are used in the production of an average 125ml glass of wine, and 74 litres in a 250ml glass of beer.

*Summarised from the sister document, *Fresh start: A framework for healthy sustainable diets in the UK — Situational analysis*.[1]
Tensions and trade-offs between health and environment impacts of the food system are discussed in Box 4.

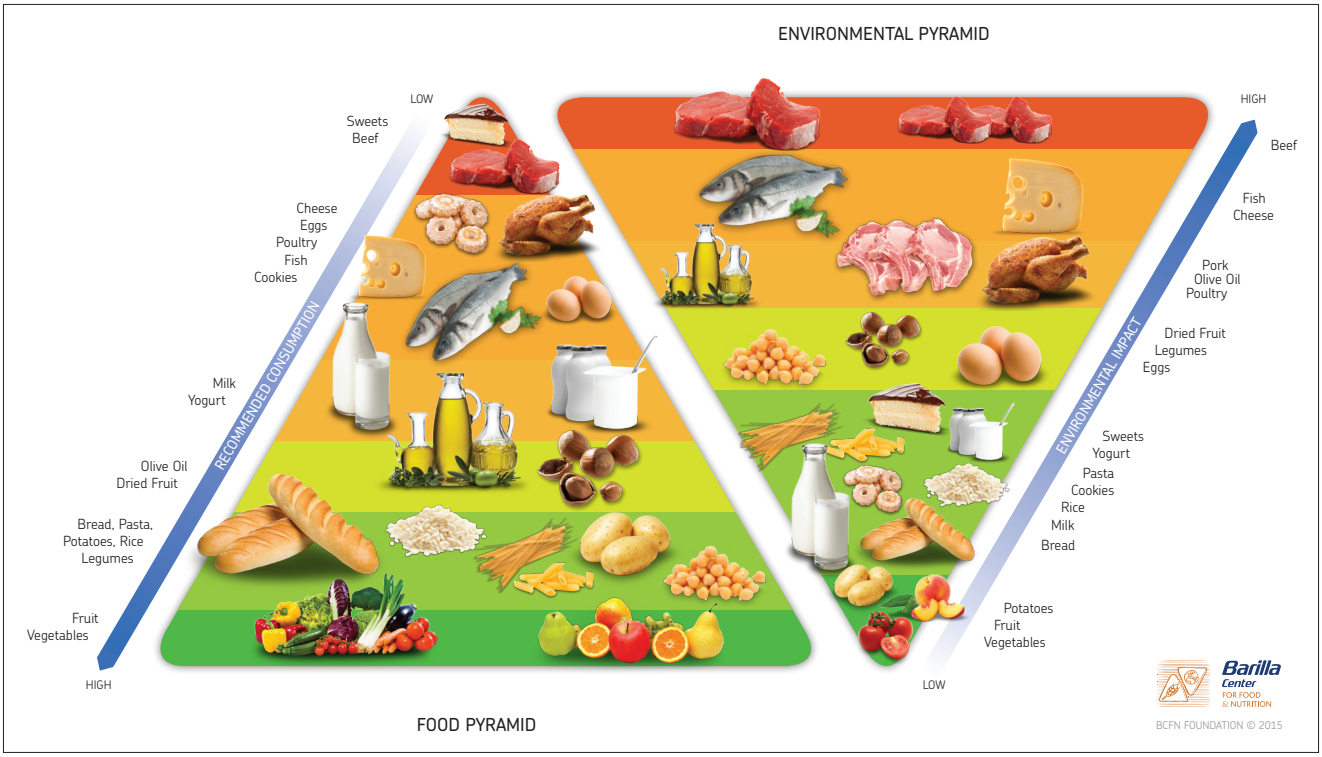
A coherent policy framework to protect health and the environment

Rethinking how we produce our food will not be enough on its own to reduce the global environmental impacts of the food system. We also need to change our food environment[i] and how this shapes what we eat and how much we consume.[27] In many instances policies that support human health are also good for our environment, such as eating fewer animal products and more vegetables, fruit and cereals.[28] The synergies between health and the environment are illustrated in the double pyramid (Figure 1), which shows that foods generally recommended for higher consumption are those with a lower environmental impact and vice versa.

Where there are tensions between health and sustainability or between local impacts and global impacts, it will be more effective to negotiate these trade-offs within a coherent policy framework linking dietary and environmental objectives.

There is recognition that a shift towards healthy and sustainable eating is critically important to meet goals for improving health and protecting the environment. This is reflected in the development and adoption of principles[ii] and guidance (see Box 1). However, it is not supported by official policies linked by a national strategy.

Figure 1: A double food and environmental pyramid



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i The term 'food environment' is here taken to mean the physical, economic, policy and sociocultural surroundings, opportunities and conditions that influence people's food and beverage choices and nutritional status. It doesn't cover parts of the food system to do with production, such as agriculture and fisheries.

ii The principles of healthy and sustainable eating patterns. 2014. Global Food Security Programme. Adopted by DEFRA.

A 10-point framework for action

A range of actions across the food supply chain — from producers to consumers — are needed to shift the balance of the UK's current food supply and eating patterns, so they are healthier and more sustainable. These actions require a comprehensive and supportive policy environment, and could be brought together as a cross-government framework and incorporated within a UK-wide Food and Agriculture Bill and plans in each of the devolved nations. Scotland's Good Food Nation Bill and the Well-being of Future Generations (Wales) Act both provide model approaches to legislating for cross-government action to support sustainable improvements in the health and well-being of people and the planet.

1. Shift agricultural and fisheries production and practices towards healthier and more sustainable crops, livestock and fish
2. Ensure trade agreements support health and sustainability
3. Promote shorter value chains in food production
4. Use fiscal measures and pricing policies to encourage healthy and sustainable food production and consumption
5. Change the balance of food marketing and promotions to support healthy and sustainable diets
6. Ensure that food provided in public sector institutions supports healthy and sustainable eating
7. Make greater use of standards and targets to improve food production, manufacture and retail
8. Deliver public facing communications to build public awareness, encourage demand for healthy and sustainable foods and drinks, and promote responsible alcohol consumption
9. Ensure that low income is not a barrier to people accessing healthy and sustainable diets
10. Set goals and develop metrics and monitoring to encourage and track progress towards more healthy and sustainable food environments and eating patterns

Policy Priorities	Actions	Context and available levers
1. Shift agricultural and fisheries production and practices towards healthier and more sustainable crops, livestock and fish.	a) Adopt a long-term goal for sustainable meat production, focused on less and better meat.	The UK is rated relatively poorly compared to other European countries for its 'sustainable agriculture' impacts.[8] There could be a range of approaches to achieve a shift towards more sustainable agriculture, which may entail significant challenges and trade-offs. Examples include: • de-intensification of livestock farming (raising fewer animals and importing and growing less grain and protein crops for feed) • an 'ecological leftovers' approach, which avoids feed crops and limits livestock production to pasture and by-products that cannot be eaten by people • reducing waste by making better use of the whole of the carcass.
	b) Provide support and incentives to increase fruit and vegetable production.	To ensure that demand determines production, this will need to be complemented by action from retailers and food service providers to help drive consumer demand towards more seasonal fruits and vegetables, and away from imported produce with a higher environmental impact. (See policy priority 9)
	c) Provide support and incentives to increase production of beans and pulses for human consumption.	Consumption of beans and pulses is at a low level and there is a significant challenge to create and scale up consumer demand for foods that are not a familiar part of the British diet. However, some companies have begun to successfully grow and market beans and pulses for human consumption in the UK.[29,30]
	d) Link future financial support targets for reducing agricultural emissions and improving health.[1]	This could be supported by including a post-CAP framework that links financial support to agricultural emissions reduction, increased carbon sequestration and health objectives in the forthcoming Agriculture Bill.[31] The £90m Industrial Strategy Challenge Fund should also be allocated to projects that deliver GHG emissions reductions and health improvements in addition to Government's other stated objectives.[31]
	e) Increase support for, and protect and strengthen, positive reforms to fisheries policy to ensure sustainable management of fish stocks.	Post-Brexit, it will be important to continue coordination between the UK and the EU to support sustainable fisheries management that was started under the 2014 EU Fisheries policy reforms.[9] UK policy should include catch limits to ensure sustainable fish stocks, regulation to protect marine diversity and alternative funding to EU sources[32] to support fishing and aquaculture businesses transition to sustainable production practices.

Policy Priorities	Actions	Context and available levers
2. Ensure trade agreements support health and sustainability.	a) Build capacity within Government to integrate health and sustainability considerations in trade agreements.	Trade arrangements (which govern imports and exports) affect the domestic production, availability and price of foods and the quality of diets. Because UK food exports are dominated by highly processed foods such as chocolate, soft drinks and biscuits, trade arrangements affect consumption patterns and diets in the UK and elsewhere. Imported food products such as oils and tropical fruits have environmental impacts elsewhere. Post-Brexit, future trade agreements must at minimum maintain standards for food production currently enshrined in EU regulation on animal welfare and environmental protection.
	b) Provide support to developing countries that supply food to the UK to minimise food waste and losses in their food systems.	The UK produces 60% of its food and relies on imports for the remainder.[33] It is estimated that 30-50% of food is lost or wasted globally, at some point along the chain. The UK has made progress in raising awareness of food waste issues through initiatives such as 'Love Food, Hate Waste',[34] and household food waste levels have been declining.[35] However, to fully address the UK's actual food loss and food waste impacts, it is important to also consider food loss and food waste in the countries that the UK imports agricultural products from.[8]
	c) Develop and adopt integrated health and sustainability impact assessment tools.	Environment impact assessments are mandated by law, but use of voluntary health impact assessments is limited.

Policy Priorities	Actions	Context and available levers
3. Promote shorter value chains in food production.	a) Support small and medium enterprise food producers to be productive and sustainable.	Shorter value chains can bring a number of benefits, including less processing and greater use of fresh ingredients.[9] This might include support from local authorities and social investment funding for small enterprises. Examples include Squash Nutrition in Liverpool, a social enterprise that brings together food growing, preparation and community engagement.[36] A law in Brazil requires 30% of the school meals budget to be spent on foods sourced from local family farms.[37]

Policy Priorities	Actions	Context and available levers
4. Use fiscal measures and pricing policies to encourage healthy and sustainable food production and consumption.	a) Extend the levy on sugary drinks to other unhealthy food and drinks.	The sugary drinks industry levy has shown an 11% reduction in sugar levels and a shift in sales towards lower sugar drinks in the first year after introduction.[38] Taxes on other food categories high in fat and sugar, such as biscuits and cakes, may also drive reformulation and create incentives for food companies to produce healthier products.
	b) Explore the feasibility of a levy or duty on foods with a high GHG footprint.	Briggs et al modelled the impact of a carbon tax (£28.61/tCO_2e at 2011 prices) on high GHG foods such as red and processed meat. They found that the tax would lead to significant reductions in saturated fat, significant increases in fibre intakes and reductions in related deaths. In addition, associated carbon emissions reduced by 8.5%.[39]
	c) Re-introduce the alcohol duty escalator.	There is strong evidence that an increase in the price of alcohol reduces consumption and harm, especially among heavy drinkers and drinkers under 18.[40] In 2008, HM Treasury implemented a UK alcohol duty escalator, which increased duty by 2% above inflation. Some companies reduced beer strength to avoid higher duties.[41] The alcohol duty escalator lowered affordability by 5% and related deaths fell.[22] Since the escalator was scrapped in 2014, alcohol has become cheaper.[42] In addition, the policy reversal is projected to have reduced income to the Exchequer by £5 billion over five years.[40]
	d) On leaving the EU, tax all drinks according to alcoholic strength, rather than volume.	The current structure of UK alcohol taxes is governed by European directives in a way that means it is not possible to tax wine or cider in proportion to their alcohol content. As a consequence, high-strength white cider (7.5% ABV) can be purchased for as little as 19p a unit.[42]
	e) Introduce a minimum unit price on alcohol products.	Minimum unit pricing is needed to deal with the particular problem of the cheapest, strongest drinks that are favoured by young people and the heaviest drinkers, and is compatible with promoting an alcohol duty structure for other products.[43] A minimum unit price of 50p has been introduced in Scotland and Wales (2018) but plans remain on hold in England.
	f) Use revenues from taxes and levies to support public health interventions to promote healthy, sustainable diets.	There is a precedent for using tax revenues in this way. Monies raised by the Soft Drinks Industry Levy have been earmarked to support school sports.[44] Public support for health-related taxes is likely to be greater where the revenues are invested in this way.[45] Revenues might be ring-fenced for public food procurement to provide additional funding to supply fruit and vegetables in care homes, schools and hospitals (see policy priority 7). Monies might also support public awareness campaigns (see policy priority 9) or invested in the development of integrated certification schemes (see policy priority 8).

Policy Priorities	Actions	Context and available levers
5. Change the balance of food marketing and promotions to support healthy and sustainable diets.	a) Extend controls to restrict marketing of unhealthy foods across all media.	Proposals under the Government's childhood obesity plan will tighten controls on advertising unhealthy foods high in fat, sugar and salt on TV and online and restrict the use of sales promotions. Further action to curb the use of packaging and sponsorship (especially sports sponsorship) to promote unhealthy, processed foods should also be included.[46]
	b) Develop tools that will support regulation in favour of healthy and sustainable food marketing.	The Government's Nutrient Profiling Model is used to score foods and drinks according to their nutritional content. Those which do not meet a threshold for 'healthier foods' cannot be advertised to children under broadcasting regulations.[47] Any future review of the NPM should incorporate sustainability as well as health considerations.
	c) Increase restrictions on alcohol marketing and sponsorship to protect children and young people.	Research shows that 10-15 year-olds are 11% more likely to see alcohol adverts on TV than adults.[48] Exposure to alcohol marketing is associated with earlier drinking initiation and higher alcohol consumption among youth.[49]
	d) Develop incentives for retailers and food service providers to promote healthy foods.	Marketing and promotion of healthy foods such as fruits and vegetables is vastly underpowered compared to marketing for soft drinks and confectionery. Veg Power, a Food Foundation initiative, crowdsources funding to support advertising of vegetables.[50]

Policy Priorities	Actions	Context and available levers
6. Ensure that food provided in public sector institutions supports healthy and sustainable eating.	a) Mandate and monitor wider use of standards for public sector procurement and provision to support healthy sustainable eating objectives.	Government Buying Standards[51] that support sustainable procurement should be mandatory for the wider public sector, not just government departments. Include sustainability criteria in the planned Healthy Schools rating scheme as part of the Government's childhood obesity plan.[46,52] Develop standards for hospital food that are equivalent to the School Food Standards. Resource local authorities to monitor and encourage the adoption of standards.

Policy Priorities	Actions	Context and available levers
7. Make greater use of standards and targets to improve food production, manufacture and retail.	a) Extend reformulation programmes for processed foods to develop targets for increasing plant-based protein and reducing animal-based protein and fat content.	Reformulation programmes have been shown to reduce sugar, calories and salt in processed food and drinks.[53,54] The Food Standards Agency's Salt Reduction programme led to a 20-50% reduction in salt levels in processed foods over 10 years.[55] Several food companies and NGOs are working to increase plant-based components in food retail and manufacturing.[56] Food service chain Pret has three vegetarian shops and is increasing the size of its vegetarian offering in all stores.[57] The Co-op supermarket is expanding its ready meal range to include vegan options.[58] Replacing meat with pulses and vegetables in meals will improve the nutrient content and reduce the environmental impact of some processed foods.[56]
	b) Invest in the development and promotion of production and certification standards and labels which integrate health and sustainability considerations.	Third party verifiable standards and assurance schemes have been implemented in several sectors and can help to drive demand and shift markets. Examples include Marine Stewardship Council certification to promote fish from sustainable sources,[59] and the Food for Life Catering Mark which recognises caterers who meet sustainability goals.[60] Research by the UK consumer group Which? into sustainable food labelling concluded that many labels are unknown, poorly understood and don't really help consumers understand how different aspects of sustainability have been tackled.[61] To be accessible and effective in driving demand, labelling schemes need to be simple, meaningful, transparent, independent, widely implemented and linked to broader Government messaging about healthy, sustainable eating.[62]

Policy Priorities	Actions	Context and available levers
8. Deliver public facing communications to build public awareness, encourage demand for healthy and sustainable foods and drinks, and promote responsible alcohol consumption.	a) Develop central government- and local authority-led social marketing campaigns to promote increased consumption of vegetables, fruits, beans, pulses, and sustainable fish in the population.	There are many discrepancies in people's understanding of what constitutes a sustainable diet (e.g. some consumers associate it with less packaging, and others less meat).[63] Government leadership is needed to build and communicate a consensus on sustainable eating. This will support all parts of the food system to offer consistent and trusted information to consumers.
	b) Commit to regular review and revision of the Eatwell Guide healthy eating guidelines.	A regular review by Public Health England (for example every five years), conducted in a transparent and comprehensive manner will ensure that the guide remains up to date and based on the latest available information. Future reviews could assess the relative environmental footprints of different fruits and vegetables[6] and consider maximum limits for total meat consumption.
	c) Invest in central government- and local authority-led social marketing campaigns to promote responsible alcohol consumption and awareness of the health harms.	Just 8% of adults are aware of the recommended alcohol consumption limits.[64] Awareness of health messages is also low. E.g. only 24% of people understand that alcohol is linked to cancer.
	d) Build skills and knowledge about the links between health and sustainability as well as capacity for inter-sectoral collaboration, across the wider workforce, including those working in the health, environment and related sustainability sectors.[65,66]	Studies have identified a number of barriers to cross-sector action on healthy and sustainable diets. These include low awareness and competing definitions of healthy and sustainable diets, diverse views on what action should entail, dysfunctional relationships between food system actors and lack of organisational attention to the issue.[65,66]

Policy Priorities	Actions	Context and available levers
9. Ensure that low income is not a barrier to people accessing healthy and sustainable diets.	a) Design social policies, including employment and benefits policies, to support all consumers to be able to afford a healthy and sustainable diet.	Poverty reduction policies should ensure those in low paid jobs and in receipt of benefits and tax-credits receive a minimum income which enables them to afford a healthy and sustainable diet.[25,26] This will allow everyone to access food produced to the high standards that are required for a sustainable food system.

Policy Priorities	Actions	Context and available levers
10. Set goals and develop metrics and monitoring to encourage and track progress towards more healthy and sustainable food environments and eating patterns.	a) Develop integrated health and sustainability metrics to inform policy and monitor and track progress in food production, food service and across the wider food environment.	INFORMAS is a global network of public-interest organisations and researchers that monitors and benchmarks public and private sector actions to increase healthy food environments and reduce diet-related disease. The INFORMAS benchmarking tools could be broadened to include wider sustainability criteria.[27] The Food Foundation and the Food Climate Research Network are developing principles and proposals for metrics that could help benchmark practices by food companies and guide the investment community to invest in more sustainable production of healthier foods and drinks.[13]
	b) Strengthen data collection systems to measure progress across the social, environmental and health dimensions of sustainable diets.	For example, the Office of National Statistics (ONS) could develop a new Sustainable Diet basket of measures to accompany existing surveys such as the Living Costs and Food survey to track the affordability of the food basket.[67] This could help track whether progress towards more healthy and sustainable diets is achieved across all social groups, and would reduce inequalities.
	c) Establish a system to monitor food marketing and promotions expenditure and assess the degree to which it is in line with the proportions recommended by the Eatwell Guide.	Knowledge about the balance of food marketing should be used to inform future reviews of advertising rules.
	d) Monitor and report on how well public sector organisations meet standards for healthy and sustainable food procurement.	This could be reported as a league table showing how well organisations perform against agreed criteria year on year. Examples of ranking schemes include the Food Sustainability Index (for countries) and the Coller FAIRR Protein Producer Index which analyses sustainability risks among global meat and fish suppliers.[68,69]

Managing tensions and trade-offs

There are many co-benefits to health and the environment which could be achieved from meeting current dietary recommendations. However, there are also some areas where there is poor alignment between what we should be eating and what can be sustainably produced. This demands some trade-offs in order for tensions to be managed. A particular challenge is with fish consumption (see Box 4).

Other challenges arise if the whole food system is not taken properly into account. For example, if efforts to reduce health and environmental impacts of domestic food production trigger an increase in imports, the burden on the environment and health is not reduced, it is shifted overseas.

Box 4: Fish: a challenge for sustainable consumption

The Eatwell Guide recommends adults consume at least two 140 gram portions of fish a week, including a portion of oily fish. Adults in the UK currently manage less than half of the recommended one portion of oily fish each week. But even at current levels of consumption there are not sufficient fish stocks to allow everyone to meet the recommended intakes, in the UK or globally.

GHG emissions from fish consumed in the UK are about one-third those of beef, in part because of low consumption levels. The average water footprint levels for farmed fish and seafood are approximately 80% smaller than for beef. Aquaculture is not without its environmental challenges however, including conversion of agricultural land to ponds, excessive use of groundwater, contamination, pollution, fish feed requirements, and the risk that producing enough fish for everyone to meet the recommended amounts is likely to raise GHG emissions.

Over-fishing and population growth mean that there is currently no environmentally sustainable solution to support the recommended level of fish consumption for health. To ensure the best chance of having adequate fish stocks in the future, schemes such as the Marine Stewardship Council certification system guides consumers, food retailers and suppliers towards fish sources from fisheries that meet standards designed to leave enough fish to reproduce and to preserve the marine ecosystems that support them.

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Annex 1: The environmental impact of our food system

Producing food impacts the environment in several ways, including through growing, manufacturing, packaging, storing, transporting and preparing food. However, primary food production — in terms of growing crops and raising livestock — is the biggest driver of these environmental impacts, in comparison to later stages such as transport and processing.[70] Three main measures have been developed to assess different aspects of the environmental footprint: the carbon footprint, the water footprint and land use.

Carbon footprint

The carbon footprint is a measure of greenhouse gas emissions,[iii] usually expressed in equivalent tonnes of carbon dioxide (CO_2e). It is a major contributor to global warming. The agriculture sector accounts for around a quarter of global GHGs;[71] two thirds of these emissions are due to the production of animal-based foods, especially the cultivation of crops for animal feed.[71]

GHG emissions are 'imported' and 'exported'. While around half of the food that we eat in the UK is imported, 62% of the GHG emissions associated with our food supply are located abroad.[71] On the other hand, the UK exports some of the food that it produces and manufactures, so giving rise to GHG emissions for foods which are consumed abroad. Thus, when it comes to monitoring progress towards GHG emissions targets, the amount of GHG emissions that are released through food production in the UK will be different to the amount associated with consumption of foods in the UK.

Water footprint

Freshwater is a limited global resource. Just 0.5% of the earth's water is available as fresh water for human use.[72] The water footprint is the amount of fresh water used to produce a product. Agriculture accounts for around 92% of the global annual water footprint,[73] and is a major driver of the international trade in virtual water. The UK is among the top 10 importers of traded water in the world.[73] While we rarely face water shortages in the UK owing to our large amounts of rainfall, 75% of our total water footprint lies overseas. This contributes to water scarcity, depletion and pollution elsewhere.[73]

Land use

Land is a limited global resource which is used for a variety of often-competing purposes such as human homes, agriculture, industry and infrastructure, and protecting natural ecosystems.[74] The land use footprint assesses the area of land required to produce a standard amount of product. Agriculture accounts for around 40% of the total land area globally, with three-quarters of this land dominated by animal-based foods. The global cropland footprint associated with the UK's food supply is rising. It increased by 23% between 1986 and 2009.[71] In 2008, two-thirds of this cropland footprint was located abroad.[71] Land use change (such as when forests are cleared for agricultural use) is a major driver of GHG emissions. For example, global land use change emissions account for 40% of the GHG emissions embedded in UK consumed food.[71]

iii A GHG is any gas in the atmosphere which absorbs and re-emits heat, and thereby keeps the Earth's surface warmer than it would be otherwise, so contributing to global warming. The main GHGs are water vapour, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and ozone.

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