smart**water**

a prosperous future for the food and drink supply chain

BUSINESS IN THE COMMUNITY

THE PRINCE'S RESPONSIBLE BUSINESS NETWORK

Water on wheat
(Maarten Takens / flickr)

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Why this report is needed and what businesses can do

Water is a national concern in the UK: Water scarcity, water quality, population growth and climate change make for a challenging future.

Feeding the nation: The UK food supply chain employs 3.7m people, produces 60% of our food and contributes 7% of GDP.

An essential ingredient: Water is vital to food and drink, including growing, cleaning, cooling and processing.

Water risks and the food and drink supply chain: Activities in the food and drink supply chain can reduce water availability in areas of need and pollute water sources.

Why should businesses take action?

- Act responsibly
- Protect reputation
- Ensure a social licence to operate
- Reduce water costs and improve economic performance
- Develop resilience to water scarcity
- Develop resilience to flooding
- Respond to investor expectations
- Support government policy, comply with legislation and be prepared for future changes
- Reduce energy use and carbon emissions
- Ensure long-term resilience through valuing water as a natural capital

STEP 1 **Understand your relationship with water**

Understand the nature of your water use and disposal, where it occurs in the value chain, the characteristics of water sources, your impacts, and associated risks and opportunities.

STEP 2 **Create a plan of action**

Prioritise areas where you can have most impact and decide on a plan framed in a water policy with targets, and mechanisms for monitoring progress and publicly disclosing information. The policy should be forward looking and address water quality and quantity in operations, agricultural supply chains and catchments.

STEP 3 **Manage water sustainably in your operations**

Identify where water efficiencies can be made and invest in new production processes/technologies. Use alternative water sources and involve staff in water management.

STEP 4 **Work with your agricultural suppliers**

Collaborate with agricultural suppliers, including: providing advice and information; sharing your water sustainability practices, tools and lessons learnt; encouraging suppliers to develop sustainable water management strategies; and providing incentives for action such as procurement standards, supplier scorecards, premium prices and longer-term contracts.

STEP 5 **Build resilience to flooding and water shortages**

Put risk management plans in place for your operations and supply chains to increase resilience to extreme weather and ensure you are prepared to respond quickly. Support farmers in developing parallel plans.

STEP 6 **Collaborate on sustainable water management**

Develop an understanding of catchment-level risks and opportunities associated with water at your operating sites and in your supply chain. Look for opportunities to engage locally, with catchment partnerships, and nationally, with Government and industry initiatives.

Rory Stewart

Foreword

Water is central to our lives: for drinking, to sustain wildlife, for farming and for irrigation. Safeguarding the quantity and quality of our water is vital for our health, wellbeing and our economy. We are moving into a century with increasing drought and floods.

Food and drink companies and farmers are central to overcoming our water challenges. We would like every business in England, from a small family farm to a large food manufacturing company, to have access to the water resources they need to run their businesses and grow in a way that protects the environment.

I hope that this report will open up new conversations with businesses in the food and farming sector about managing water sustainably in their operations, supply chains and catchments in which they operate. We are deeply grateful to His Royal Highness, The Prince of Wales and Business in the Community for the work they have done.

Rory Stewart
Parliamentary Under Secretary of State
for Environment and Rural Affairs

Introduction

Water is our most precious resource, however the global demand for safe, fresh water continues to increase, with the Water Resources Group currently forecasting that by 2030, water withdrawals will exceed water renewals, if no action is taken.

We believe that effective and responsible water stewardship is critical to ensure the safe and resilient supply of our current and future global requirements.

At Nestlé, we are determined to play our role in helping conserve and preserve the UK's water resources. We have focused on improving the water efficiency across our operations and have already delivered a 45% reduction in absolute water usage, against an ambitious target of 50% by 2020 (compared to 2006).

We recognise however, that to optimise our impact on water stewardship, we must both take and promote a catchment level approach considering where we source our materials, our factory locations and where our consumers and local communities live. Working together with our employees, partner organisations and society we can help educate and engage, to identify new and innovative opportunities to address these ongoing challenges.

We are all facing this urgent challenge and need to find ways in which we can not only drive efficient use and effective treatment of our water and waste water, but work collaboratively at a catchment level to implement interventions where they can be most efficient and sustainable.

By working better together on a pre-competitive basis and sharing best practices across water security, water supply, sanitation and treatment we can accelerate our collective, positive impact on the water challenges we face.

Dame Fiona Kendrick
Chairman and CEO, Nestlé UK & Ireland

Dame Fiona Kendrick
(Nestlé)

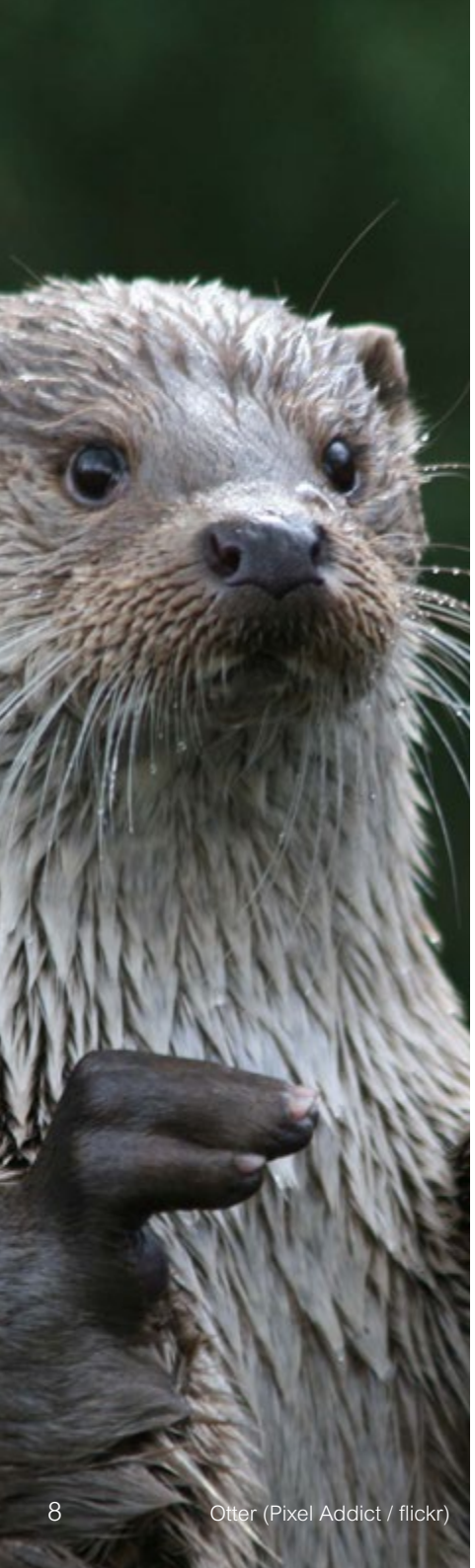
Why this report?

(Ben Sandbrook)

Why this report?

This report is intended as a practical resource for food and drink manufacturers, caterers and retailers operating in the UK. Plenty of tools and resources exist to help businesses, but it can be difficult to know where to start – and where responsibilities end. This report brings these into one place. It explains why looking after water matters, and the business drivers for having a food and drink supply chain resilient to risks associated with water. It provides guidance framed in 'Six Steps' for companies to work through. To inspire action, it draws on examples of what companies are already doing independently, with their agricultural supply chains and through collective action. At the end of the report, useful tools, initiatives and information sources are listed.

(Photos from top left: Matthew Power / Anglian Water, Adnams, Darkday / flickr, David Salafia / flickr, Anglian Water)



Otter (Pixel Addict / flickr)

Water: a national concern

Our national freshwater resources, and the ecological biodiversity they contain, face a number of threats and a stable supply of good quality freshwater can no longer be guaranteed in many parts of the UK.

Several parts of the UK face problems of water scarcity. This is particularly so in the East and South East, due to a high demand for water, coupled with relatively low rainfall. Water scarcity is reflected in reduced river flows, lowered reservoir and groundwater levels, and a drying up of wetlands – all of which can have a critical impact upon aquatic ecosystems.[1]

In many catchments, where water is fully committed and abstraction cannot be increased without causing environmental harm, businesses may face limits on the amount of water available for abstraction at their sites.[2]

Water quality is also an issue. Despite significant improvements in the health of many of our rivers, more needs to be done. Currently only 17% of water bodies in England meet 'good ecological status', as defined by the Water Framework Directive.[3] A key concern is 'diffuse' pollution from many sources, including agriculture. This matters to all of us – with potential economic as well as environmental consequences.

Water scarcity also worsens water quality through a diminished ability to dilute pollutants, and by increasing the risk of low oxygen levels.

Only 17% of water bodies in England meet 'good ecological status'

Population growth is increasing the demands on water resources. The UK population is forecast to grow by around 10 million by 2035. Over 40% will be in the relatively water-scarce South East.

Climate change will be felt throughout the country. Overall, the UK can expect warmer wetter winters and hotter drier summers, with the South East getting drier, and Scotland and the North West of England getting wetter.[4]

Droughts may become more commonplace; and changing rainfall patterns could affect river flows and make it harder for groundwater reserves to be recharged. At the same time, more intense rainfall is likely to increase the frequency of surface water flooding as experienced in a catalogue of major floods in 2007, 2009, 2013 and 2015.

Water: an essential ingredient

From farm to factory, water is an essential ingredient in producing food and drink. It is a main ingredient in the manufacturing and processing stage and is an indispensable element in many steps, such as washing, boiling, steaming, cooling and cleaning.[5] The cleaning of processing equipment/plants and food products accounts for up to 70% of a factory's usage and generates significant wastewater. Other parts of the supply chain, such as the hospitality and food service sectors also use significant amounts of water in food preparation and in cleaning preparation areas. Retailers too use water in their stores, for cleaning and personal use. At an operational level, key risks relate to water use and scarcity.

Farmers too depend on water resources to grow crops and feed animals, as well as on the ecosystems' services, such as pollination and good quality soil that are supported by healthy water. In the UK, agriculture accounts for 2-3% of water withdrawals from mains supplies. Drinking water for livestock accounts for 41% of this, followed closely by irrigation (38%). Farmers also use water for machinery washing.[6]

The 'water footprint' of the UK's food and drink sector is highly complex. Over 50% of our water consumption is 'embedded' in imported products (i.e. water that is used overseas to produce the food and drink that we import) with sometimes long and complex supply chains.[7]

"Everything we do in food is totally reliant on water. We need to treat water based on its true value, arguably the most valuable commodity to the food industry as without it everything else simply stops."

Andrew Edlin,
Group Sustainability Director,
2 Sisters Food Group

Cleaning lettuce (WRAP)

River pollution from pig farming (Waterkeeper Alliance / flickr)

Water risks and opportunities in agriculture

Food and drink companies have largely focused on reducing water risks in their direct operations. However, they also need to understand the risks to water sources from agricultural activities in their supply chains and the opportunities to work with farmers to help protect water in the environment.

Good farming practices can play a vital role in protecting water sources, wildlife and farm profitability. Much progress has been made, for example, in helping to reduce the risk of run-off from inputs, restoring wetland areas and peat bogs, and tackling over-grazing. 70% of farmland is now in some form of environmental stewardship.[8] A number of water-related risks in the food and drink supply chain are, however, associated with agriculture. There remains much that can be done to mitigate these impacts and promote more sustainable and resilient farms.

Agricultural water use can reduce water availability in rivers, aquifers and lakes. This can result in the degradation of downstream aquatic ecosystems, including detrimental effects on fisheries. Although the abstraction licensing regime regulates the water that they can abstract, farmers tend to need water at times of higher demand and lower availability, and this can exacerbate water availability problems.

"We hope that food and drink companies will recognise the risks to water resources from activities in their agricultural supply chains and will take action to help farmers improve their contribution to protecting water in the environment."

Christine Tuckett, Deputy Director - Agriculture, Groundwater and Land Management, Environment Agency

Agricultural activities can pollute water sources. Pollution can originate from either a point source, such as a slurry store, or diffusely, such as run-off from farmland carrying valuable nutrients, pesticides and soil. Not only are such losses a waste for the farming business, they can impact on water quality through:

- The release of nutrients, particularly phosphates and nitrates from poor soil management and from fertiliser application, contributing to eutrophication and the need for costly drinking water treatment. In the UK, around 60% of nitrates and 25% of phosphorus in water bodies are estimated to have farming origins.[9]
- The release of other chemicals, such as pesticides, into the water environment which can also be harmful to aquatic life and impact on public water supply.
- Microbial contamination from manure and effluent, impacting on bathing and shellfish waters. Over a quarter of failures to meet the standards of the Bathing and Shellfish Waters Directives are due to faecal contamination from livestock.[10]
- Soil being eroded and washed off farmland into watercourses. This reduces the quality of raw drinking water and causes sedimentation of spawning gravels. Sedimentation also increases the risk of flooding through blocking pipes and culverts and promoting the growth of aquatic vegetation.[11]

Ten reasons why businesses should take action

The stuff of life
(David Salafia / flickr)

Apple washing (WRAP)

Ten reasons why businesses should take action

1 Act responsibly

Businesses very simply have a responsibility for and interest in managing water sustainably and protecting natural resources in the areas they operate in, buy from and sell to. This will help secure resources for their long-term use.

2 Protect reputation

A water-related incident, such as pollution from effluent discharges or poor agricultural practices, could have significant reputational impacts both directly and for brands and retailers further up the supply chain.

3 Ensure a social licence to operate

At catchment level, companies need ensure that they are not taking an unfair share of water, or polluting local ecosystems, and potentially creating grievances.

"Transforming business-as-usual operational approaches to water management into strategic water stewardship efforts across the entire value chain reduces risk, elevates strategic preparedness, improves investor appeal and enhances businesses' resilience."

Paul Simpson,
Chief Executive Officer, CDP

4 Reduce costs and improve economic performance

For food and drink companies, managing water sustainably reduces the cost of water consumption and disposal, and associated heating, cooling and treatment. In 2014, signatories of the Federation House Commitment (see page 23) collectively saved £2 million through a range of water management initiatives. For farmers, actions to improve water quality can bring broader economic benefits through, for example, reduced fertiliser costs, flood mitigation, improved air quality and improved animal health.

5 Develop resilience to water scarcity

An inability to access sufficient good quality water in the UK arguably poses a strategic risk to the sector. Globally, food and farming businesses are already affected by disruptions to operations, increased operating costs, decreases in agricultural productivity and limits on growth driven by water shortages.[12] When buyer contracts are lost through disruption to supply they can be difficult to regain.

6 Develop resilience to flooding

Flooding is a particular concern for farmers: 58% of the most productive English farmland is situated within the floodplain and around 30,000 hectares of high-quality arable and horticultural land floods each year. Following the floods of 2014 affecting 50,000ha of farmland, the National Farmers Union estimated that the cost of flooding for farmers could hit £100 million. Disruption to food production also impacts on businesses further up the supply chain.

7 Respond to investor expectations

Investors are increasingly concerned about the threats that poorly understood and managed water risks pose to the future performance of their investments. Through CDP, a large and growing number of institutional investors are holding companies accountable and are asking how they are addressing their water impacts and associated risks and opportunities.[13]

8 Support government policy, comply with legislation and be prepared for future changes

Key pieces of legislation and policy include the EU Water Framework Directive (requiring a more holistic approach to the management of water quality), the 2014 Water Act (which sets out proposals for changes to charging and abstraction regimes) and the EU Bathing Water Directive (requiring that local authorities display information on the cleanliness of beach water).

9 Reduce energy use and carbon emissions

By improving water efficiency, businesses can cut energy use and reduce carbon emissions associated with heating or chilling water. Moreover, using less water creates less wastewater, leading to further energy savings.

10 Ensure long-term resilience through valuing water as a natural capital

A business that puts a value on the services it draws from water will be able to make more informed investment decisions. Nestlé and Unilever use a 'true cost' or shadow price for water to analyse the return on investment of water-efficiency investments. Valuing water resources will also help farmers to become more resilient and avoid environmental damage and fines, as well as reducing rehabilitation and construction costs.

"The case for action to manage and protect this precious resource is very clear if we are to build resilience to meet future demand. Food and Drink Federation members have achieved much in terms of reducing water use within their manufacturing operations and we recognise the need to build on this success by working with our customers and suppliers to deliver sustainable water management across our supply chains."

Ian Wright,
Director General, Food and Drink Federation

Six steps towards sustainable water management

Peak District river crossing
(Steve p2008 / flickr)

By following the steps set out below, businesses can work towards sustainable water management. The steps complement other guidance, including WWF's Water Stewardship Steps, the CEO Water Mandate's Water Stewardship Progression and CDP's annual water questionnaire. They are interconnected, and include direct actions (which tend to be easiest to implement) as well as engagement with the supply chain and other organisations (which can be more complex but are often more impactful). The steps may be followed sequentially, in a different order or all at the same time.

This guidance provides a framework: there is no fixed formula for action. Individual and collaborative efforts are needed to address challenges and water policies should be tailored to suit each company and the needs of the catchment.

STEP 1 Understand your relationship with water

Develop an understanding of the specific water challenges for different products, operations and locations.

- **Use** – Where and for what in your value chain do you use water? How much do you use and when? What is your projected use?
- **Source** – Where do you source your water? Which other users do you share sources with? Where is your wastewater going? What are the characteristics of the water catchments (e.g. physical risks, existing initiatives)?
- **Impact** – What is the impact of your water use? How can negative impacts (e.g. on availability, quality) be reduced? How much water do you reuse? Can you have a positive impact (e.g. wastewater treatment, staff clean-up activities)? Are you legally compliant?
- **Risks** – Which water-related risks (physical, regulatory, reputational, other) is your company exposed to across the value chain now and in the future? What are the catchment-level risks in areas where you operate?
- **Opportunities** – Can you identify water-related opportunities (e.g. new markets, improved reputation) across the value chain?

Drain outflow into a river (Darkday / flickr)

Reed beds helping to filter water in a sustainable drainage system (Nestlé)

STEP 2 Create a plan of action

Prioritise areas where you can have most impact and decide on a plan of action reflecting local conditions in the water catchments you buy from, sell to or operate in.

- **Develop a water policy** – The plan of action should be framed in a water policy that is integrated into your business strategy.
- **Include targets and monitoring** – The plan should include ambitious and time-bound targets for water efficiency and pollution reduction as well as clear mechanisms for monitoring progress and publicly disclosing information.
- **Include direct operations and consider risks in the agricultural supply chain and water catchments.**
- **Look ahead** – Plans need to be forward looking, taking into account how economic growth and environmental change will impact on production and water use.

STEP 3 Manage water sustainably in your operations

It is important to ensure that you are managing water sustainably in your operations to improve your direct impacts and the integrity of your 'ask' to suppliers.

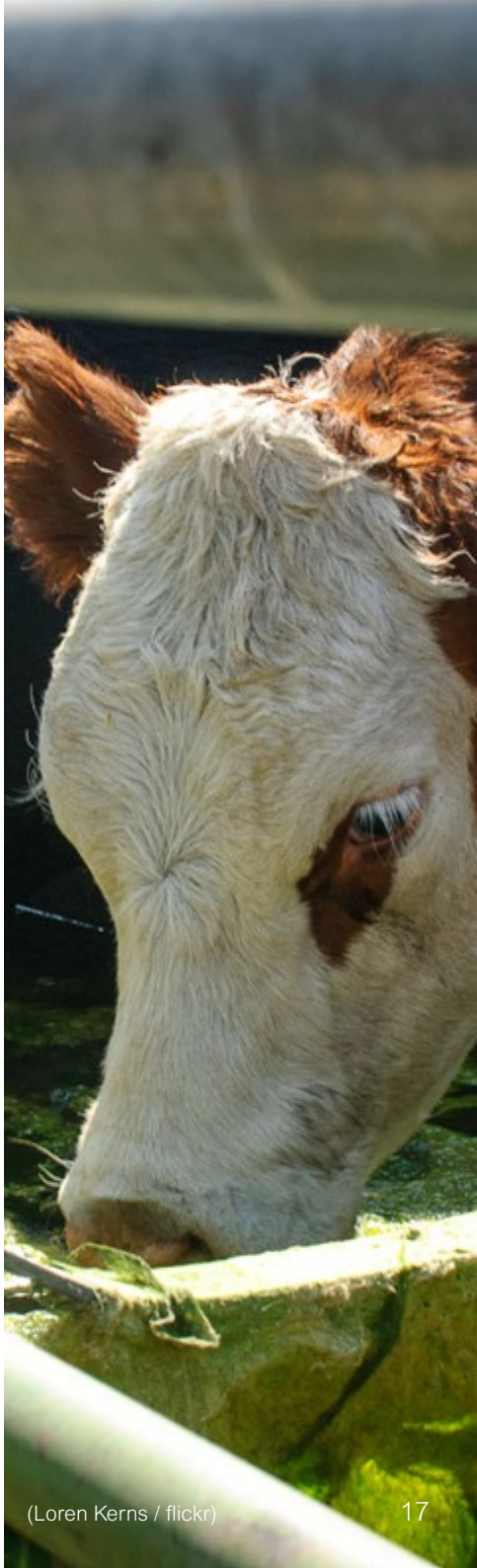
- **Identify where water efficiencies can be made in your operations** – Look for opportunities to reduce wastage, address leakages and install low- or no-cost water efficiency devices.
- **Identify reporting schemes** – Enquire whether your trade association runs a water use reporting scheme, such as those operated by the Food and Drink Federation and Dairy UK, and consider joining.
- **Invest in new production processes/technologies** – Look at how your production processes can be adapted to use less water.
- **Identify opportunities to reuse waste and surface water.**
- **Identify alternative water sources** – Look at introducing e.g. rainwater harvesting.
- **Manage surface water issues** – Minimize the risk of pollution incidents, ensure water discharged into local rivers is adequately treated and look at introducing sustainable drainage systems.
- **Engage your employees** – Raise awareness, ensure employees have the skills and knowledge they need and provide incentives for staff to get involved in sustainable water management.

STEP 4 Work with your agricultural suppliers

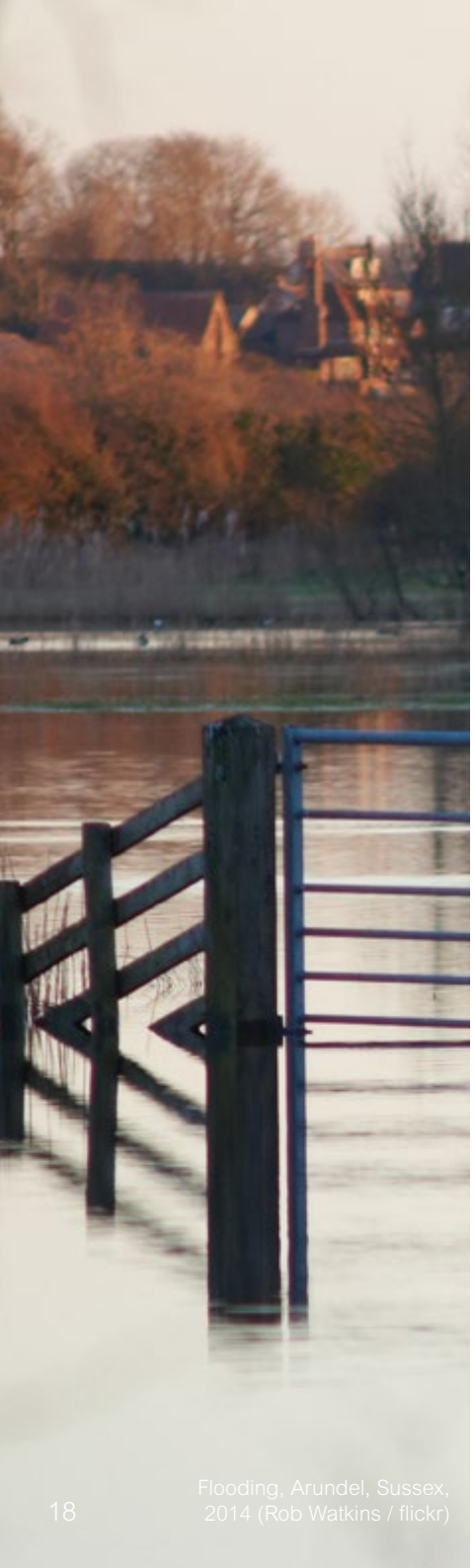
It is important to demonstrate leadership and work with agricultural suppliers to reduce water-related risks in your supply chain.

- **Identify key agricultural suppliers** – Ask them what they are doing about sustainable water management.
- **Provide advice and information to raise awareness of the risks and opportunities** – e.g. associated with sensitive catchments and with specific products. Help suppliers to be aware of the support available e.g. from Catchment Sensitive Farming (CSF), Rivers Trusts and water companies.
- **Share your water sustainability practices, tools and lessons learnt** – Where appropriate involve suppliers in developing your water policy and new tools.
- **Encourage suppliers to develop sustainable water management strategies** – To track changes in water use and quality over time and to report regularly on progress.
- **Provide incentives for action** – Such as procurement standards, supplier scorecards, premium prices and longer-term contracts.
- **Encourage suppliers to sign up to farm assurance schemes** – Such as the Leaf Marque, Red Tractor or Conservation Grade.
- **Train procurement teams** – Ensure they can engage with suppliers on sustainable water management and understand best practice and relevant legislation.
- **Support suppliers to implement capital-intensive mitigation measures** (such as on-farm slurry storage) – This might include longer-term contracts, facilitating low cost loans and signposting to funding sources such as Countryside Stewardship Grants.
- **Create peer-to-peer knowledge sharing networks** – Use existing supplier forums, e.g. ASDA's Sustain & Save Exchange and Tesco's Supplier Network, and signpost to networks such as The Water Network and The Water Action Hub.
- **Collaborate with other businesses** – Work with those in your supply chain, or sourcing from the same area, to achieve influence and share lessons.
- **Partner with initiatives supporting farmers** – Such as CSF, the Campaign for the Farmed Environment and catchment partnerships.

Effective engagement should be founded on long-term relationships to foster trust, allow for capital investment and enable long-term measures to be delivered. It can also be helpful to employ a trusted intermediary to act in an advisory role.



(Loren Kerns / flickr)



Flooding, Arundel, Sussex, 2014 (Rob Watkins / flickr)

STEP 5 Build resilience to flooding and water shortages

Prepare for the increase in extreme weather events.

- **Be prepared for periods of too much water** – Plan for and reduce flood risk.
- **Be prepared for periods of water scarcity** – Understand and mitigate against possible impacts on production and water quality. Identify the potential to increase water storage capacity and alternative water sources, whilst ensuring that actions do not impact negatively on other users and the environment. Link up with other abstractors in the area.
- **Identify less water stressed areas** – Investigate alternative sources of ingredient supply from less water stressed areas.
- **Working at catchment level** – Consider what interventions can be made at catchment level and talk to regulators, river basin management authorities and water utilities.

STEP 6 Collaborate on sustainable water management

Collaboration is critical given the scale of the challenges and the nature of shared water risks.

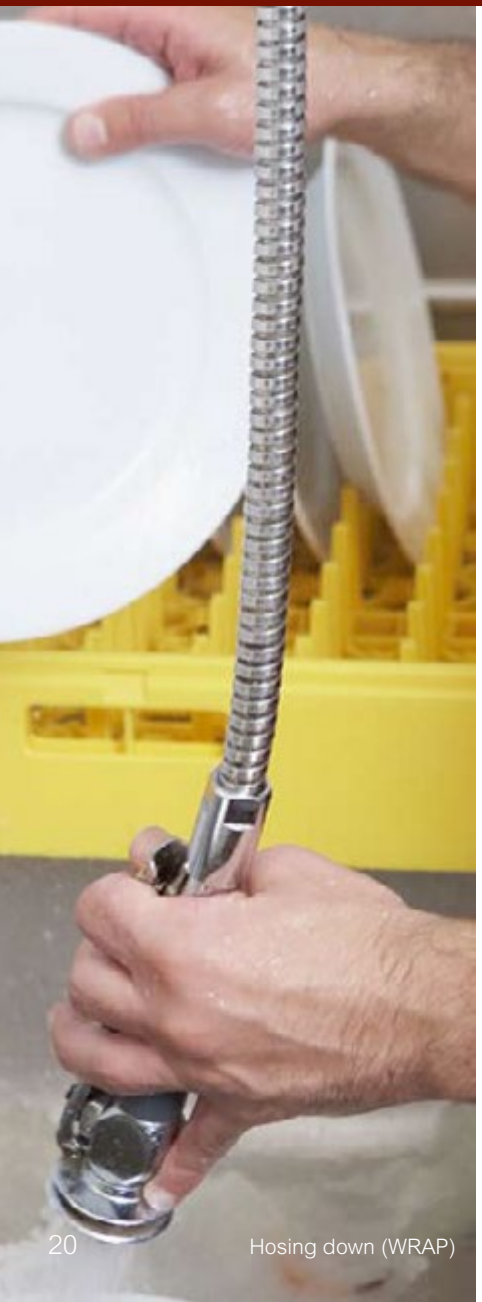
- **Advance sustainable water management at catchment level** – Collaborate to ensure that water scarcity and poor water quality do not impact negatively on the local environment, community and economy. Ensure your plans and policies are in line with the River Basin Management Plans in place to achieve the goals of the Water Framework Directive. Look for opportunities to engage with and use the expertise of catchment partnerships and other local initiatives.
- **Support government schemes aimed at encouraging better water management practices** – Including the Catchment Based Approach, CSF and Countryside Stewardship. Encourage knowledge exchanges and consider private sector match funding.
- **Share knowledge and good practice** – Innovate, try new approaches and partnerships, and share learning. Ask water companies and government to support you by providing accessible information on key water issues.
- **Influence governance** – Look for opportunities to engage in long-term planning for sustainable water management. Work with government and other stakeholders to ensure that sustainable water management is supported by regulatory and policy frameworks and voluntary initiatives at catchment, national and international level.

What the food and drink sector is already doing

Freshwater trout
(Will Thomas / flickr)

STEP 1

Understanding your relationship with water



Hosing down (WRAP)

Understanding the nature of your water use and risks to water quality, and where effort needs to be focused, is the first step in being able to manage water more sustainably. Food and drink companies need to understand the water risks associated with their direct operations, their agricultural supply chains and the catchments within which they operate and source from.

Several water footprinting tools and frameworks are available, including those run by the Water Footprint Network and Carbon Trust, to help companies understand the water input to their products as well as associated risks and where in the supply chain these occur. These tend, however, to focus more on water use rather than water quality.

Measuring and mapping water risk is a critical way in which companies can assess water-related risks for their own operations, suppliers or growth plans. Useful tools include WWF-DEG's Water Risk Filter, the World Business Council for Sustainable Development's (WBCSD) Global Water Tool and the WRI Aqueduct Tool. The results provide companies with guidance on where to focus, including actions that can be initiated with suppliers or other companies. Risk mapping can also inform strategic long-term choices on a company's supply chain. It is important to know about sensitive uses in the catchments where you operate, such as drinking and bathing waters. The Environment Agency's What's In Your Backyard tool helps with this.

- **Kellogg's** used the WBCSD Global Water Tool to assess current and future water-related risks at its global facility locations and evaluated key ingredient supplies, overlaying its supply source locations against global water stress maps and renewable water supply projections. Physical risks relating to declining water quality, flooding and increased water scarcity were identified as well as regulatory risks relating to mandatory water efficiency and conservation measures. The findings have helped Kellogg's to prioritise risks, monitor trends and evaluate regional conditions, and to improve water efficiency and put in place contingency plans in its operations and supply chain.[14]

- **Marks & Spencer** is working in partnership with WWF-UK to assess and mitigate the water risk across its food business. In earlier phases of their partnership WWF and M&S have worked on water issues on the ground in Kenya and South Africa. During the current phase of the partnership, the physical, reputational and regulatory water risks across M&S's food supply chains have been assessed, down to farm level, using the WWF Water Risk Filter. Key locations of water risk have been identified and prioritised considering the volume sourced by M&S and the respective value to the business. The next stage of the work is to develop mitigation strategies for the hotspots, focused on supporting collective action to develop integrated solutions. The long term aim will be to influence the governance to help secure sustainable water management in these basins to address risk over the long term.

The five-year Water Resource Management Plans produced by water companies also provide a useful resource, showing the projected needs of public water demand in specific areas.

Some businesses undertake their own water assessments, often as part of broader sustainability initiatives.

- **Waitrose** introduced the 'Waitrose Farm Assessment' in 2011 to survey its fresh produce farms to understand how continuous improvement towards sustainability is being implemented and the challenges faced. Waitrose uses trained assessors to engage with each farmer bi-annually.[15]
- As part of its 20 x 20 Sustainability Plan, **Sainsbury's** is working with farmers and growers for its own brand products to collect data on how they source their water and how much they use. Sainsbury's has made a commitment to map water usage for its top 30 commodities and introduce supply risk management where necessary, and is developing plans to monitor water use in the most sensitive sourcing zones in collaboration with other stakeholders.[16]

27%

of companies

reported UK water risks that could lead to a substantive change in business, operations, revenue or expenditure through CDP's 2015 water information request.[18]

Adnams undertakes a full lifecycle analysis of water

Adnams is based in Southwold and faces risks associated with water scarcity and quality. Climate change is threatening the availability of water in the region: rainfall patterns are changing and saline intrusion is making local boreholes unusable. The company is particularly mindful of its reliance on water, using over 75 million litres per year in manufacturing beer and spirits.

Adnams strives to reduce or reuse as much of the water it uses as possible and has one of the lowest production ratios in the UK. The next step is a full lifecycle analysis of water, much the same as it did with carbon, leading to a reduction of around 1,000 tonnes of CO2 every year. Adnams sees water is slightly different: it's about stewardship as much as usage. Adnams anticipates that it will see some best practice in the agricultural stages of the lifecycle, but that there might also be the greatest opportunities for reduction or management here too. Being able to capitalise on these will help its suppliers while exercising Adnams' responsibility to the region. In turn, this will improve the resilience of its business as weather patterns continue to change.[17]

Dry Martini (Adnams)

STEP 2 Creating a plan of action

Reed bed, Hampshire (Anguskirk / flickr)

Creating a plan of action is the next step. Most company water policies focus on operational water efficiency and should be broadened to address water quality and quantity in operations, agricultural supply chains and catchments.

Companies do not need to work it all out themselves. There are numerous sources of support and advice available, including: the Water Footprint Network, WWF's water stewardship work, the Carbon Trust, Waterwise, WRAP's Rippleffect (for SMEs), the Environment Agency, water companies and private consultancies. CDP's annual water information request provides a useful framework for companies to address their water-related impacts and associated risks and opportunities, whilst communicating clearly and meaningfully with a large and growing number of critical stakeholders.

Companies can also show commitment and achieve recognition through seeking certification (e.g. Alliance for Water Stewardship (AWS) Standard, European Water Stewardship (EWS) Standard, ISO14046 and Carbon Trust Standard for Water), achieving an A-rating in CDP's water questionnaire, or entering awards (e.g. the UK Water Efficiency Awards or BITC's Responsible Business Awards). The AWS and EWS are the two leading certification schemes: both promote a catchment approach and offer a progressive level of certification, providing a useful structure and framework for achieving good water stewardship.

Several companies in the food and drink sector, including **General Mills** and **Nestlé**, are committed to the AWS Standard and others been awarded the Carbon Trust Standard for Water (focused on water efficiency rather than broader stewardship) including **Sainsbury's**, **Coca-Cola Enterprises** and **Whitbread**.

Diageo's Water Blueprint

Launched in 2015, Diageo's Water Blueprint focuses on four core areas – the sourcing of raw materials, its operations, the communities in which it operates, and local and global advocacy for best practice in water stewardship. Targets include:

- Reducing water use by 50% through efficiency measures;
- Returning 100% of wastewater to the environment safely;
- Replenishing water stressed areas with the equivalent amount of water used in production, through reforestation, farming and other projects; and
- Equipping suppliers with tools to protect water resources in water stressed areas.[19]

InterContinental Hotels Group (IHG®) is working with the Water Footprint Network to develop a global water stewardship programme for IHG. This includes understanding, managing and reducing IHG's local-level water usage. IHG helps its hotels to manage water use through an online tool, IHG Green Engage™ system.[20]

At its beef processing facility in Ireland, **ABP Food Group** undertook a gap assessment against the EWS Standard. This has helped the site to introduce a holistic approach to water management and to prioritise investments. An in-depth sub metering system has been introduced at the site and water-related targets identified.[21]

STEP 3 Managing water sustainably in your operations

Identifying water efficiencies

Water efficiency can be an important first step in managing direct water use. To deliver environmental benefits companies should aim for reductions in absolute consumption, particularly in the water-stressed catchments of the South and East.

Work undertaken by WRAP identified the main ways of reducing water use in food manufacture processes in the UK as the reuse of cooling water, fixing water flow and leaks, automatic shut-off, control of overflows and optimising supply pressure.[22] For food and factory cleaning, optimising cleaning routines and controlling effluent concentration to minimise wastewater production can reduce water use without significant investment.[23]

For wholesalers and retailers simple actions such as installing metering and low- or no-cost water efficiency devices like efficient taps, urinal controls, waterless urinals and 'point of use' water machines can contribute to significant savings.

The **Federation House Commitment**, managed by WRAP in partnership with the Food and Drink Federation ran from 2008 to 2014 and has been the biggest collaborative effort in the UK to reduce water use in the food and drink sector. This set out a process for companies to improve water efficiency within their operations. 70 companies signed up, between them representing a quarter of water use for the sector.

From 2007 to 2014, signatories collectively made a 15% reduction in water use and a 22.9% reduction in water intensity, representing an annual saving of around £0.4 million. From 2015, water use data are collected via FDF, Dairy UK and other trade associations.[24]

2 Sisters develops water control systems for potato processing

2 Sisters Food Group faced a challenge in potato processing at its Carlisle factory, with water for cooling products being supplied in greater quantities than needed and creating excess effluent, which was costly to treat.

To establish the optimum flow required, sub-metering was installed on equipment and water use monitored. The 2 Sisters team then developed a control system to deliver the exact quantity of water needed. The system was so successful that four more were introduced to cover similar equipment on site. These five systems reduced water use and effluent production by 25.6% per tonne of finished product. The system is now installed as standard on any new equipment requiring a specified volume of water.

Internal staff played an important role in assessment and design. Key to success was the engagement and involvement of people who maintain and operate the site.[25]

MyFresh improves water efficiency by 20%

MyFresh Prepared, a William Jackson Food Group company, supplies prepared vegetable ingredients. Water is used in factory operations for cleaning crops before processes, and for transporting and cooling.

A two-year campaign saw MyFresh cut water consumption by 20% through reducing incoming water pressure, simplifying effluent streams and installing more efficient pumps. Upgrading the treatment process also enabled a significant reduction in effluent water storage. A water awareness initiative was launched to improve understanding amongst colleagues.[26]

Potatoes
(Olivier Bacquet / flickr)

Sustainable drainage system at Tutbury coffee manufacturing plant (Nestlé)

Reusing wastewater through new production processes

Many food and drink manufacturers have invested in new production technology to improve water efficiency and effluent quality. Where hygiene requirements allow it, technologies for water reuse and recycling are being introduced in an effort to produce more with less. On-site treatment of wastewater effluent is in part being driven by higher prices levied by water utility companies and tougher discharge consents to surface water by the Environment Agency.

Several food and drink manufacturers, including **Kellogg's**, **Müller Wiseman Dairies** and **Kraft Foods**, have introduced reverse osmosis in manufacturing plants to treat water destined for sewer and reuse it in 'grey water' applications within factories, such as in wet scrubbers and cooling operations. Reverse osmosis can result in significant savings in water use, as well as effluent disposal and water treatment chemical costs.

Some manufacturers are also making use of wastewater as part of feedstock for on-site anaerobic digestion power plants.

- **Arla Foods** processes 500m^3 water per day at its Aylesbury site, providing treated water of better than potable quality and producing biogas which is used to fuel the on-site power plant.[27]
- **McCain Foods** has invested over £16 million in renewable energy at its Whittlesey site, near Peterborough. An anaerobic lagoon digests starchy wastewater from its process to generate biogas, which alongside its three 120m wind turbines, generate on average 70% of the site's electrical needs. The installation of a reverse osmosis plant at Whittlesey also allows higher levels of water recycling, which has seen water usage reduce by 25%.[28]

Using alternative water sources

Companies are looking for opportunities to use alternative sources of water to mains water. Where there is a high level of embedded water in food inputs, such as potatoes and sugar beet, many companies extract this water to use in the production process.

- **PepsiCo** has introduced thermodynamic technology (stack heat) to extract water from potatoes, which are fried for crisps, and reuse it throughout its plants. It aims to take UK factories off the water grid by 2018 and to reduce the water impact of crops grown in water-stressed areas by 50%.[29]
- **British Sugar** purchases around 7.5 million tonnes of UK sugar beet annually – a large proportion of this (over 5.5 million tonnes) is actually embedded water. The company extracts this water and where possible uses it in its factories for process duties such as cleaning, heating, cooling and transportation. In total, around 80% of the water coming into sites is from beet.[30]
- **Greenvale** has a water recycling and treatment system for its potato packing and processing operations called Cascade. In addition to treating used water for reuse, the process recovers the sand and soil from the water so that this too can be reused and sold on, eliminating sludge disposal costs. The system has reduced the cost of energy to chill the water by 50%. Using recycled clean, chilled water also reduces the risk of bacterial cross-contamination and improves product quality, increasing its shelf life and improving the appearance of the potatoes.[31]

Several retailers, including **Sainsbury's** and **Marks & Spencer**, have introduced rainwater harvesting systems at their stores to provide an alternative and free source of water for toilet facilities, car washing or irrigation for green walls.

Managing surface water

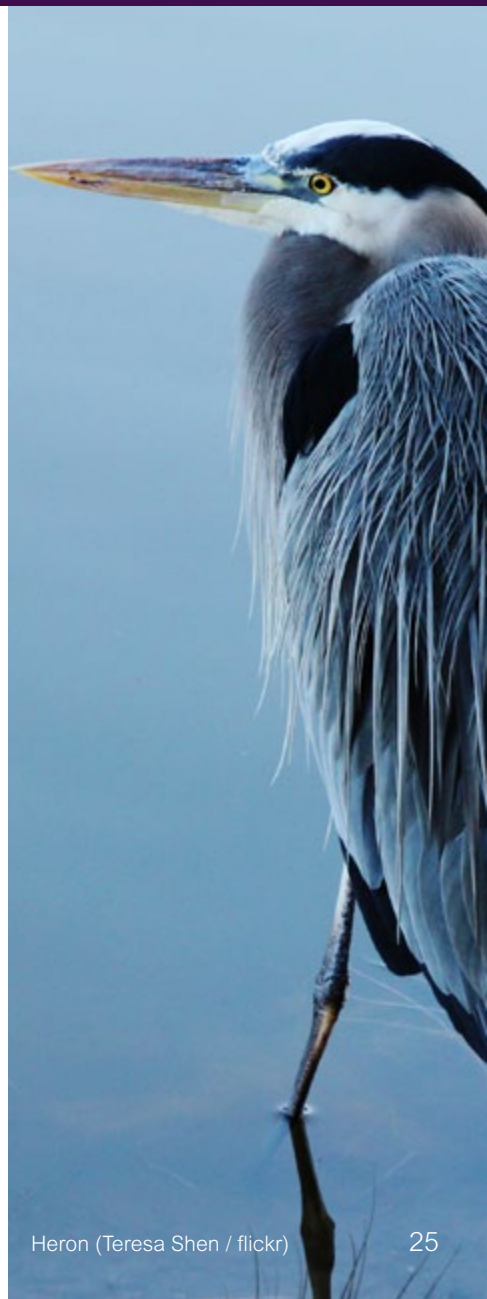
Some companies are introducing sustainable drainage systems as a more environmentally friendly way to treat wastewater than traditional chemical treatment plants.

- **Natures Way Foods**, a leader in fresh salad and fruit produce, has created reed beds at sites in West Sussex to provide a wetland ecosystem that cleanses wastewater using natural microbes, the soil, sand or gravel at the base, and the reeds themselves. At one of these sites, the reed bed treats the wastewater, which is stored in a reservoir and used by a third party to irrigate lettuce crops that come back to the company. At another site, treated water is used to create wildlife ponds planted with lilies, rushes and natural seeds.[32]

- **Westons**, a rural family-owned cider-making company, treats all liquid waste on site through a number of steps including dissolved air flotation, activated sludge, and membrane biological reactor (MBR). The water then passes through a reed bed before entering Weston's wetland/reservoir and being used to irrigate the orchards or discharged directly to the brook.[33]

Engaging employees

Engaging employees is a fundamental part of sustainable water management – from raising awareness about conserving water and preventing pollution, training on water saving devices, responsibility for monitoring activities, to employee involvement in clean-up activities. Employees should be encouraged to come up with ideas and equipped with the skills they need, and management should be incentivised to take action. **Molson Coors**, for example, holds an annual Water Stewardship Month in which employees get involved in water clean-up projects and 'Lunch and Learn' sessions.



Heron (Teresa Shen / flickr)

STEP 4 Working with agricultural suppliers

Ladybird on barley
(Jamie Henderson / flickr)

Some food and drink businesses are working with farmers and other suppliers on water-related issues on their land and in their catchment - either as part of broader sustainability initiatives or in response to specific water challenges. But much more needs to be done.

Good farm management in practice

There are many excellent examples of good farm management practice to build on, with farmers acting independently and in collaboration with food and drink businesses, water companies and other organisations.

Billockby Farms installs rainwater harvesting

Billockby Farms in Norfolk supplies milk to ASDA. With each cow drinking between 90 and 190 litres of water per day (depending on their stage of lactation), water use is a key business cost. Water is also used in the parlour for washing down and cleaning out.

To improve water efficiency and reduce costs, the farm installed rainwater harvesting facilities as part of the expansion of its dairy. An estimated 1,188 m^3 of rainwater will be collected annually for parlour and yard washing. To help cover the costs of nearly £20,000, the farm secured a 50% grant from the Norfolk Coast and Broads Local Action Group.[34]

Jepco installs EnviroSCAN probes to improve irrigation

In East Anglia, lettuce producer Jepco has installed EnviroSCAN probes that detect electrical conductivity resistance to measure soil moisture during the entire growing period. The data can be monitored via computer or smartphone, and is then fed through into the mobile boom used for irrigation.[35]

Overbury Farms creates a silt trap and reed bed to improve water quality

Overbury Farms in Gloucestershire supplies Molson Coors with malting barley. It is an accredited LEAF Marque farm and has implemented the six steps described in 'Simply Sustainable Water'. It is protecting nearby water sources through a range of measures including:

- Establishing grass and pollen/nectar rich buffer strips to help intercept pesticides and fertilisers before they meet watercourses and to create ecologically rich habitats.
- Planting catch cover crops to intercept rainfall, locking up nutrients within the soil structure of the field so that they cannot be washed away, and reducing soil erosion, potential silting, and nutrient and pesticide pollution of the nearby water course.
- Creating a silt trap and reed bed in a ditch line to slow down the water flow so that particles potentially carrying pesticides and fertilisers drop out and lie as silt that can later be dug out and returned to the fields.[36]

Sources of support and guidance

Businesses can work with, and signpost to, the different organisations and initiatives already providing tools, training, guidance and grants such as the Catchment Based Approach and Catchment Sensitive Farming (both described in detail in Step 6), the Campaign for the Farmed Environment, Rivers Trusts, LEAF (Linking Environment and Farming), Tried and Tested, the Environment Agency, and catchment management schemes run by water companies, as well as independent advisors.

A number of food and drink companies have partnered with organisations to produce guidance for suppliers on sustainable water management. **Molson Coors** and **ASDA** worked with LEAF to develop the 'Simply Sustainable Water' booklet providing actions to enhance water management.[37] The **Food and Drink Federation's water working group** including companies like Nestlé, Coca-Cola Enterprises and Kellogg's, came together to produce 'Every Last Drop', a guide to saving water along the food supply chain.[38] **Marks & Spencer** worked with WWF to produce 'Good Water Stewardship' guidance for its global network of agricultural producers.

Management tools such as the LEAF Audit, Integrated Pest Management Plans and Nutrient Management Plans will also support farmers in improving water quality and protecting their water sources.

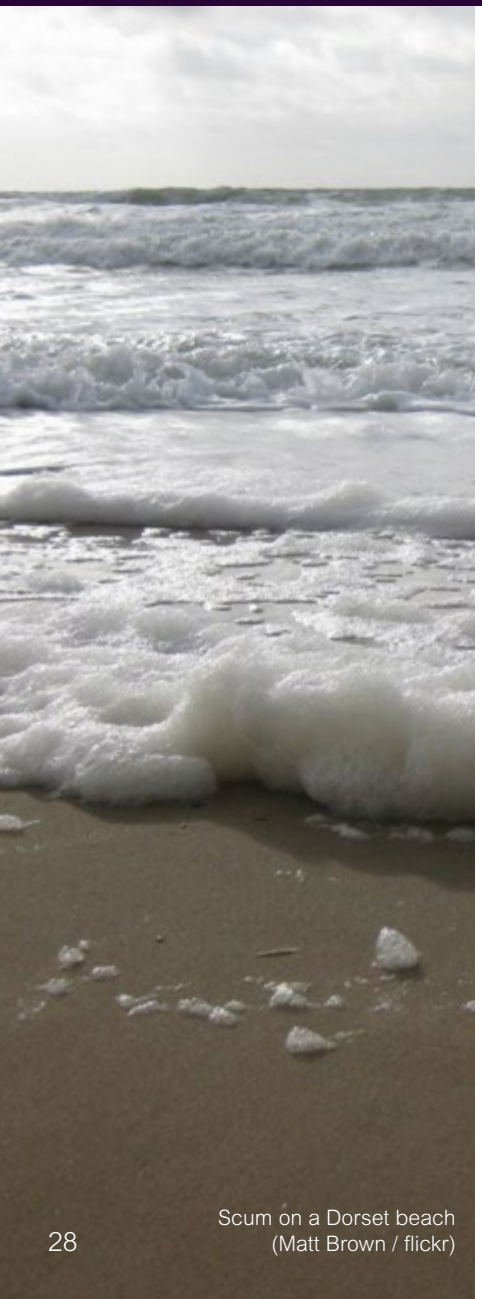
Water management: key actions for farmers

The Environment Agency's 'Water management: key actions for farmers' sets out the actions that farmers can take, and the potential economic and environmental benefits. It includes messages on:

1. **Managing nutrients well** – e.g. fertilizing at the best time for the crop, checking growing conditions, avoiding spreading slurry at certain times, and creating buffer strips alongside water courses.
2. **Managing soil sustainably** – e.g. carrying out soil tests, choosing crop rotations to manage risks to soil structure, planting cover crops and constructing sustainable drainage systems.
3. **Managing your water use effectively and planning your longer-term water management** – e.g. checking for leaks, recording water use and using more effective irrigation techniques; planting drought tolerate crops, harvesting rainwater or developing a high flow storage reservoir.
4. **Managing your land to reduce flood risk** – e.g. finding out if your land is at risk of flooding, slowing down water flow, monitoring and maintaining field drains and ditches.
5. **Managing livestock so they do not freely access water courses** – e.g. providing an alternative water supply, establishing hedges or woodland alongside water courses, and fencing along the margins of fields adjacent to water courses in catchments where there are sensitive bathing and shellfish waters.
6. **Using pesticides efficiently and disposing of them carefully** – e.g. completing a Crop Protection Management Plan, ensuring stores and handling areas are proofed against any potential loss, and ensuring sprayers are routinely maintained.

The Environment Agency has also developed a useful resource '**What's in Your Back Yard**' that gives farmers an idea of the environmental state of water bodies, the proximity of protected areas (such as those protecting drinking waters) around their land, and whether agriculture is believed to be contributing to water quality issues.[39]

Potatoes
(Andrew / flickr)



Scum on a Dorset beach
(Matt Brown / flickr)

Food and drink companies could look for opportunities to partner with water companies in the work they are doing with farmers to reduce the impact of pesticides and fertilisers on water quality. **Anglian Water** and **Yorkshire Water**, for example, are working with farmers to reduce the levels of the slug control pesticide Metaldehyde in waters. Anglian Water is providing advice as well as substitute products and is running a 'pesticide amnesty' in target areas where it will collect and safely dispose of pesticides. **Thames Water** is working with farmers to reduce the levels of nutrients running off their land and entering rivers through measures such as fertiliser spreading improvements and constructing buffer strips.

Campaign for the Farmed Environment (CFE)

CFE was launched in 2009, as the industry-led voluntary approach to encourage farmers and land managers to protect and enhance the environmental value of farmland, through measures that sit alongside productive agriculture.

CFE is a partnership approach, supported by many organisations committed to agriculture and the environment. It promotes best practice and tools, locally targeted uptake of incentivised management, and CFE Voluntary Measures aimed at protecting water resources and meeting WFD objectives including buffer strips, winter cover crops and overwintered stubbles.

CFE has, for example, helped an arable farmer in the East of England to introduce six-metre buffer strips for two miles alongside a river to protect against nutrient and pesticide loss.

It is also involved in the Frome and Piddle Catchment in Dorset to find practical ways of reducing agricultural nitrate impacting on Poole Harbour. CFE is helping farmers take ownership by ensuring that they are central to the process of delivery. It is working with the Wessex Water Catchment Initiative, CSF, CaBA, the Environment Agency and Natural England to ensure that farmers in the area have access to tailored advice so that catchment solutions are farmer-friendly.[40]

Incentivising action through certification and standards

Many companies require their suppliers to be accredited with recognised schemes such as LEAF Marque, Red Tractor and Conservation Grade, to incentivise action and to certify that they are using responsible farming methods that minimise water pollution and protect the environment.

Some companies have introduced their own codes of conduct, goals and scorecards to ensure that suppliers meet sustainability standards. Many of these include water but tend to be limited to water efficiency.

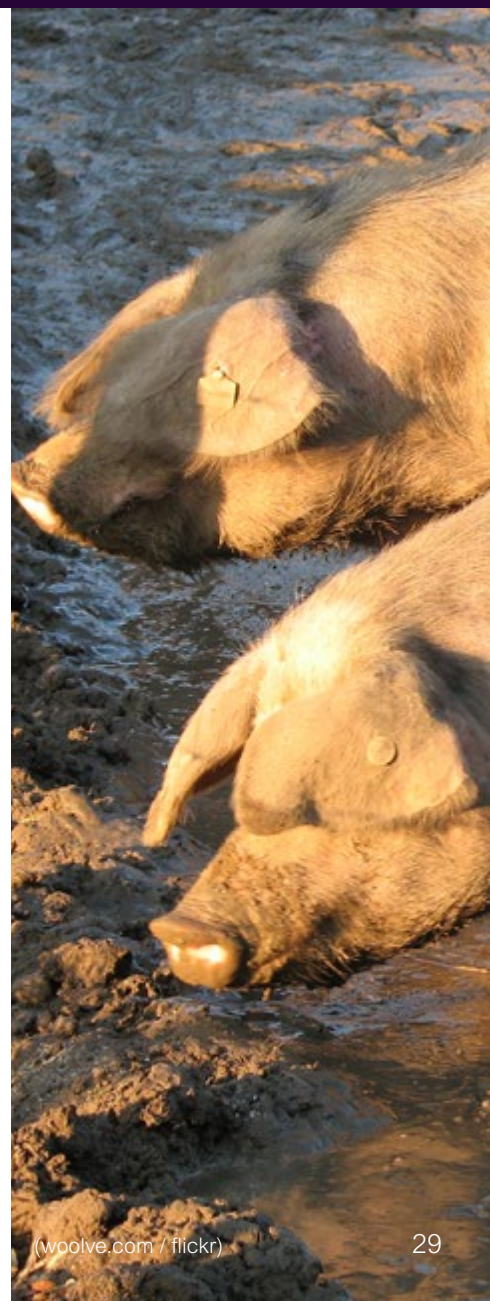
- **General Mills and Campbell Soup** ask suppliers to complete supplier scorecards that include water use sections.
- **Unilever** has an Agricultural Code of Conduct that includes an entire section focused on water use and pollution and defines practices with which agricultural producers are expected to comply.
- **Marks & Spencer** has a 'Supplier Sustainability Scorecard' programme that measures the environmental, ethical and lean performance of its suppliers, and forms part of the overall commercial scorecard. Suppliers are scored at Bronze, Silver or Gold level, with Silver being the minimum target for all suppliers. Over 90% of suppliers are participating in the programme, and together they have saved over 8.5 million m^3 of water.
- **The Co-operative**'s foundation farms are independently audited annually against five pillars of achievement to determine premium payments. To be rated silver or gold, farms need to demonstrate that they are meeting required environmental and sustainability training.[41]

The LEAF Marque

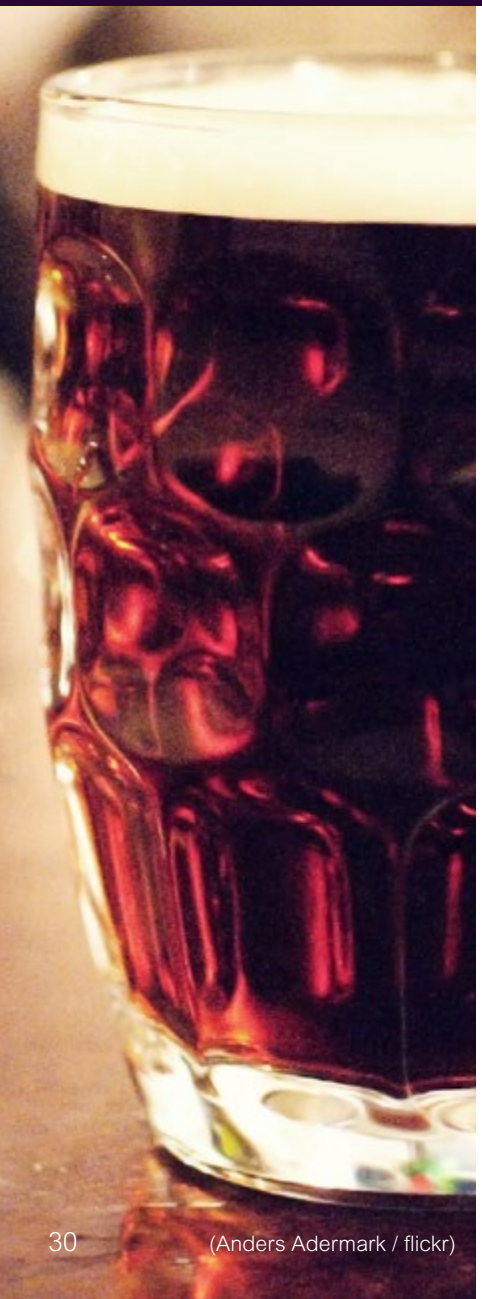
The LEAF Marque is an assurance system that gives farmers recognition for their environmental commitment and offers consumers the opportunity to buy responsibly produced food identified by the LEAF Marque logo. All farms certified to the LEAF Marque standard care for the environment through a range of activities including:

- Improving water efficiency and quality;
- Using crop rotations to keep the soil in good health;
- Implementing a plan to create and enhance habitats to increase biodiversity;
- Using pesticides and fertilisers only when absolutely necessary; and
- Assessing the environmental impact of, and continually improving, farming practices.[42]

- **Coca-Cola**, **General Mills**, and **Kellogg's** have all set time-bound goals to source the majority of their agricultural inputs from farmers using sustainable water management practices.
- In 2010, the **Weetabix** Growers Club was formed to supply Weetabix with wheat from within a 50 mile radius of their Burton Latimer factory and rewards farmers with additional premiums for producing quality crops under a sustainable regime.



(woolve.com / flickr)



(Anders Adermark / flickr)

Business initiatives and programmes

Some industry level sustainability initiatives also address water risks. The Dairy Roadmap, for example, unites Britain's dairy industry including farmers, dairy manufacturers, retailers, government and industry partners. Together, the supply chain defines targets and produces regular reports on progress that the industry is making on environmental matters. Water targets include reductions in water brought on to site by dairy manufacturers, and for farmers active nutrient management, uptake of water efficiency measures, and declining trends in serious pollution incidents on-farm.

Several businesses have developed their own programmes and employ independent advisors to work with their farmers.

- **McCain** has strong relationships with over 300 potato growers in the UK and provides advice through the McCain Good Agricultural Practices (GAP) programme and its dedicated agronomists.
- In 2012, **McDonald's** launched a long-term programme called Farm Forward to support the farming industry across the UK and Ireland. This includes promoting environmental improvements and knowledge sharing between farmers.
- **AB Sustain** has developed think.water to help farmers measure their water use, identify potential areas for improvement and benchmark their position relative to other farmers.[43]
- **Dairy Crest** has introduced Waterwell to provide advice on on-farm water efficiency. It is working with White Gold Advisors who have established relationships with farmers.

Jordans Cereals encourages good supplier practices

Jordans Cereals developed the Conservation Grade (CG) in 2000 to encourage their suppliers to deliver the highest levels of on-farm wildlife with a premium paid of around 10% in return for meeting the CG Protocol. A number of other brands, including Allinson and Burgan breads, have since signed up. A key business benefit is the positive market differentiation, with a brand that is recognisable to the consumer.

To meet the requirements of CG, the farmer must satisfy criteria including committing at least 10% of the farm to wildlife habitats, completing a farm environment plan, participating in training and passing an annual audit. Water is a key priority and specific actions include introducing buffer strips, meeting standards for water quality relating to pesticides and application of manure and fertiliser, and having strategies in place to optimise water usage on the farm and to minimise water waste.[44]

"Strong and trusted supply chain relationships give farmers longer-term security and stimulate investment in supply chain improvements. There are some very good examples of retailers and processors working closely with farmers and growers on water, and other environmental concerns, in a supportive and collaborative way. For British agriculture to face the challenges of the future, we need to do more to strengthen these relationships and build confidence in the supply chain."

Diane Mitchell,
Chief Environmental Advisor, National Farmers Union

Seeing is Believing: BITC members finding out about Dairy Crest's collaboration with Priory Farm, Gloucestershire (Alastair Fyfe / BITC)

STEP 5 Building resilience to flooding and water shortages

Flooding, York, 2015
(Alan Harris / flickr)

While extreme weather patterns have consequences for businesses across the supply chain, the most significant impact is on farmers. Severe weather can affect soil, choice of crop, growing conditions and yield, amount and quality, harvesting and planting conditions, storage and transport logistics. It can also have a knock on effect on water quality through, for example, the leaching of nutrients, as well as a loss of soil and organic matter. In periods of lower rainfall, water abstraction restrictions may be imposed on farms and food manufacturers.

Reduced crop production hits the revenues of farmers, and also pushes up input prices for others. In 2013, for example, the National Farmer's Union's livestock board reported that many farmers were struggling to deal with a spike in feed prices resulting from bad weather. Weetabix was forced to reduce production of Oatibix Bites and Weetabix Minis due to a lack of available grain after the poor harvest.[45]

Food and drink companies need to ensure they have risk management plans in place for their operations and supply chains to increase resilience to extreme weather, including contingency plans for any unplanned and/or natural events. As part of this, they need to support farmers in developing parallel plans.

Preparing for periods of too much water

At an organisational level, businesses need to build resilience to flood events and ensure that they are prepared to respond quickly. This might involve simple measures such as protecting premises from the risk of flooding and moving essential kit such as emergency generators and business records above flood lines. Businesses should consider what contribution they can make to managing the flow of water – for example laying sustainable drainage systems, such as permeable surfaces in car parks, to attenuate and treat site runoff at times of excessive rainfall.

- **Nestlé** uses a sustainable drainage system at its coffee manufacturing facility in Tutbury to manage the quantity and quality of water flowing back into the local water system. In 2012, Nestlé donated £1.65 million to help the Environment Agency and local partners develop a flood defence system for the lower reaches of the River Dove in this area. The scheme has reduced flood risk for over 1,600 properties and has improved the potential for wildlife.

Farmers should be supported to take proactive risk management measures to reduce the impacts on production and recovery time. Simple measures can help, such as planting trees and hedgerows to provide shelter and reduce surface water run off, creating flood storage areas on less productive parts of parts of the farm, and contour ploughing. The longer-term consequences of more extreme weather must also be considered. The need to cope with wetter harvests means farmers may have to consider potential damage to soils, investing in infrastructure assets, such as grain drying equipment, or switching to alternative crops.

Preparing for periods of water scarcity

Water scarcity is already a reality in some parts of the UK and has been exacerbated in periods of low rainfall. In 2011, following a summer drought, around 200 farmers across central and eastern England could not abstract water because of conditions on their licences, impacting crop production.[46] In 2012, water abstraction restrictions were imposed on many farmers and hosepipe bans were introduced for the public in many areas. Before the drought broke in the spring, restrictions for commercial customers of water companies (such as food and drink manufacturers) were also a real possibility.[47]

The food and drink sector needs to ensure that it is resilient to the risk of such periods of water scarcity. In addition to general water efficiencies, businesses are building resilience to water shortages through identifying alternative water sources and developing increased capacity for water storage. **Elveden Estate**, a large mixed farm in Thetford, abstracts water under license from the aquifer and stores it in two reservoirs on the estate to manage its availability.

New partnerships at a catchment level are also being explored to achieve long-term resilience to water scarcity through taking a more integrated planning and financing approach towards water investment and management. For example, in collaboration with the Cambridge Institute for Sustainability Leadership and other organisations including Nestlé and ASDA, **Anglian Water** developed a report *Sink or Swim* looking at strategies to develop models for more integrated water resource systems that have multi-sector involvement and financing to deliver wider multi-sector benefits. This has led to **Water Resource East Anglia**, a partnership to develop a robust long-term water resources strategy for the whole Anglian region, which will increase the resilience of their systems.

Farmers coming together to form water abstractor groups (WAGs) can help. It is increasingly important for the farming community to be actively involved in discussions about local water management and to play a key role in finding and implementing solutions.

From a sustainable sourcing perspective, having alternative sources of supply of ingredients from less water stressed regions might be a useful preparatory measure.

Cracked Earth, Cambridge (James Bowe / flickr)

STEP 6 Collaborating on sustainable water management

River restoration, Norfolk (Anglian Water)

Collaborating at catchment level

All businesses operating in a catchment can potentially impact on the quality of water and on other water users. No matter how sustainably one business manages its water use and minimises its impact in a water catchment area, it is dependant on the other users in the catchment doing the same. Businesses therefore need to understand the catchment-level risks and opportunities associated with water at their operating sites and in their supply chain. This includes protecting the quality of water in the river catchments, the needs of other users, and the ways in which their water use impacts on the broader environment and economy.

Companies then need to work with local basin stakeholders such as river basin management authorities, water suppliers, farmers, NGOs and other stakeholders to address shared water challenges, particularly in hot spots of water risk or where the company's input is likely to have the most impact. To increase the effectiveness of their actions, companies may work with other key buyers of the same products, and/or with a national NGO if they source from a number of catchments.

The UK Government launched the **Catchment Based Approach (CaBA)** in 2013 to decentralise management of the water environment, enable more people to get involved in making environmental improvements to rivers and estuaries, and encourage collaborative action at a catchment-level, particularly in tackling diffuse pollution to help meet the requirements of the WFD.

Throughout England, CaBA Partnerships have come together to agree collectively on the priorities for the local water environment. Many are developing catchment action plans which will guide the work of the partnerships and help to inform the larger-scale strategic river basin management plans that the Environment Agency is implementing for each of the 11 River Basins Districts in England & Wales under the WFD. (These river basin management plans will facilitate UK reporting on its progress in delivering WFD improvements and provide a better understanding of the condition of England's rivers.)

There are active CaBA groups in all of the 100+ catchments in England and they include over 1,500 different organisations. CaBA Partnerships are generally hosted by environmental organisations, particularly the Rivers Trusts and the Wildlife Trusts and include water companies, Campaign for the Farmed Environment, local farming groups and other landowners, local authorities, recreational groups and academics. Most of the rural CaBA partnerships engage with local farmers and provide support and guidance.

The CaBA provides a strong foundation for collective action and a platform by which corporate business can engage. Examples of CaBA partnerships include:

- **The Cam and Ely Ouse (CamEO) Catchment Partnership** between Anglian Water and The Rivers Trust has brought stakeholders together from local businesses, environmental professionals and communities to create a strategy of sustainable catchment management for the Cam & Ely Ouse rivers. CamEO is supported by the WWF-UK and Coca-Cola Freshwater partnership. Various food and drink businesses are members of the partnership including Produce World Group, Hutchinsons (agronomy services), Elveden Farms and ABSugar.[48]

- West Cumbria Rivers Trust is delivering a pilot scheme in the **Ellen Catchment** for United Utilities' Catchment Wise Programme in partnership with the Environment Agency and Natural England. The project brings together farmers, landowners, local communities and others to reduce phosphorus and bacteriological inputs to streams to improve bathing water quality in Allonby Bay. It is providing advice and looking at a range of activities including grazing regimes, livestock housing, and fencing and planting.[49]

When working with farmers at catchment level, a key organisation that food and drink businesses should support and signpost towards in England is Catchment Sensitive Farming (CSF).

For example, CSF has joined with Essex & Suffolk Water and the Environment Agency to form the **Chelmer and Blackwater Catchment Partnership** in a 1,000km^2 river catchment. The Partnership is working with farmers to reduce diffuse pollution through providing advice on the storage, handling and application of pesticides, fertilisers and manure; soil management; watercourse protection and environmental stewardship. The collaboration enables a pooling of resources, avoids a duplication of activities and provides a coherent message to farmers.[51]

These types of partnerships and collaborations are the main mechanism for bringing together national tools to tackle local and catchment problems. Companies have much to contribute through know-how, capacity, financial and business administration, and networking and should support local partnerships in areas where they have a high density of farmers or processors.

Catchment Sensitive Farming (CSF)

CSF is an initiative run by Natural England in partnership with the Environment Agency and Defra, offering free advice and training to farmers and land managers on how to improve farm practice and reduce the impact of diffuse water pollution on our rivers and lakes. It works in targeted areas within 87 catchments to help meet the requirements of the WFD and improve freshwater Sites of Special Scientific Interest (SSSIs), where pollution from farming practices impacts significantly on water quality and aquatic habitats.

CSF officers and their partners work with farmers through workshops, seminars, farm demonstrations, self-help groups and farm visits. They can also help with Countryside Stewardship applications. This includes Water Capital Grants worth up to £10,000 per holding, available as part of the government's wider Countryside Stewardship Scheme for infrastructure works to reduce water pollution from agriculture. CSF has engaged over 9,000 farmers who farm over 1.3 million hectares.[50]

Lee Estuary
(Lars Ploughmann / flickr)

(Ben Watkin / flickr)

Some companies in the UK have taken the initiative to develop their own catchment approaches or join existing ones. These examples demonstrate the effectiveness of collective action in achieving sustainable water management objectives.

Molson Coors supports collective action in two catchments in the UK

Conserving water and protecting water resources is a central part of Molson Coors brewery's sustainability strategy, Our Beer Print. For Molson Coors, water is important because the quality of its beer is directly affected by the quality of the water used to produce it.

In the UK, Molson Coors is involved in collective action in two catchments: the Wharfe in Tadcaster and the Wey in Alton. This has involved setting up community user groups, sponsoring community events and supporting local restoration groups to clear banks and restore bankside habitat to improve the river flows.

The projects have helped the development of strong relationships with key stakeholders including the Environment Agency, have raised awareness of water risks with staff and improve links and trust with the local community.[53]

Dairy Crest supports Bude Cleaner Seas Project

In Bude, the Cleaner Seas project (delivered by Volunteer Cornwall on behalf of the Environment Agency) aims to raise awareness among local businesses of bathing water quality and actions they can take to improve it. Dairy Crest has worked with Cleaner Seas and individual farmers to look at how they can reduce diffuse pollution, for example through dealing with slurry, and to help in accessing grants. Many farmers in the area also have tourism interests so have a clear incentive to act.[54]

First Milk works with farmers to offset nutrient loadings in the Cleddau catchment

First Milk is a farmer owned dairy co-operative with over 2,000 member dairy farmers.

In Pembrokeshire, First Milk is investing in a new effluent plant at their Haverfordwest Creamery, which processes 250 million litres of milk sourced from over 300 local farms. The plant is required to release treatment capacity for new housing developments. The treated effluent will discharge into the Western Cleddau which flows into the Cleddau Rivers Special Area of Conservation.

Natural Resources Wales have assisted First Milk to develop an innovative approach with its local dairy farmers, to reduce nutrients leaving their farms to offset any additional nutrient loadings from the new plant to the Cleddau catchment. Best practice workshops, 1-2-1 consultancy advice, soil sampling and fertiliser calibration demonstrations have been provided and bespoke nutrient management plans created for participating farmers. Resulting reductions in nitrate, phosphate and sediment losses are forecast to offset the entire outflow of the new effluent plant.

As a farmer-owned business, First Milk is uniquely placed to deliver sustainable practices along the supply chain: First Milk and its farmers are mutually dependent on each other and good water stewardship is in everyone's interests.[55]

Southern Water's Integrated Water Cycle Management (IWCM)

Southern Water is developing IWCM, a collaborative, holistic approach that includes securing supplies, protecting the environment and reducing the risk of flooding. Building strong working relationships with all water users (including other water companies, businesses and farmers), developing a shared vision and agreeing desired outcomes are key to this approach.[56]

Coca-Cola, WWF-UK Freshwater Partnership and the Norfolk Rivers Trust work together to improve the health of the River Nar

Coca-Cola and WWF-UK Freshwater Partnership has worked with the Norfolk Rivers Trust to improve the health of the River Nar. The Nar flows through an area dense in sugar beet – an essential ingredient in some of Coca-Cola's portfolio of drinks. (Coca-Cola sources 80% of the sugar used in its UK beverages from sugar beet grown in the UK). It is a Site of Special Scientific Interest and in its healthiest stretches is teeming with wildlife. But the majority of the Nar is suffering from high levels of abstraction for domestic water supplies and agriculture, and from pollution from local farms.

The work of the partnership helped to restore the river to its natural, meandering state in places where over time it had been artificially changed to flow in straight trenches. This helps the river and surrounding meadows work more harmoniously together in times of flood, and makes the river attractive to wildlife.

The partnership worked with farmers to improve water quality by introducing more sustainable farming methods such as leaving buffer strips around fields to help capture pollution running off the fields before it enters the river.[52]

A key part of the Freshwater Partnership has been to influence governance of the water environment so that improvements seen on the ground could be replicated elsewhere and issues that cannot be overcome at the catchment scale can be resolved through improved policy and legislation. Activities included: co-hosting a roundtable for business and government representatives; undertaking sessions at party conferences in the run up to the Water Bill passing through parliament; river visits for politicians and sharing experiences from the catchment projects.

WWF-UK and Coca-Cola are currently working on the CamEO (see page 35) and Broadlands catchments, adjacent to the Nar.

Collaborating at regional, national and international level

There are many multi-stakeholder partnerships and voluntary industry initiatives that food and drink companies are or could become involved in at regional, national and international level. These partnerships are broad ranging and aim to advance thinking, develop and test new technologies, share knowledge and good practice, engage in long-term planning and strengthen policy and regulatory frameworks. Key initiatives are listed at the end of this report.

River Nar, Norfolk (Nick Ford / flickr)

Useful tools, guidance and initiatives

STEP 1 Understanding your relationship with water

WRI's Aqueduct Tool – Online global database of local-level water risk indicators and a global standard for measuring and reporting geographic water risk. www.wri.org/our-work/project/aqueduct

WWF From Risk to Resilience – A comprehensive guide on the water risks and opportunities for UK businesses, and how they should respond. www.wwf.org.uk/what_we_do/rivers_and_lakes/how_we_work/from_risk_to_resilience.cfm

UN Global Compact CEO Water Mandate – A public-private initiative designed to assist companies in the development, implementation and disclosure of water sustainability policies and practices. www.unglobalcompact.org

WBCSD Global Water Tool – Online resource for identifying corporate water risks and opportunities. www.wbcsd.org/work-program/sector-projects/water.aspx

GEMI Local Water Tool™ (LWT) – Tool to evaluate the external impacts, business risks, opportunities, and management plans related to water use and discharge at a specific site or operation. Developed to be compatible with the WBCSD Global Water Tool. www.gemi.org/localwatertool

Environment Agency's What's In Your Backyard tool (WIYBY) – Online tool providing access to environmental data for England at a local level, helping businesses to understand local water-related risks. apps.environment-agency.gov.uk/wiyby/default.aspx

STEP 2 Creating a plan of action

WFN's Water Footprint Assessment Tool – Online application that helps users define their water footprint in a particular river basin or around a product, determine the impacts of that water footprint, and identify ways to reduce it. http://waterfootprint.org/en/resources/interactive-tools/water-footprint-assessment-tool

ISO14046 – Specifies principles, requirements and guidelines related to water footprint assessment of products, processes and organizations based on life cycle assessment. www.iso.org/iso/catalogue_detail?csnumber=43263

The Alliance for Water Stewardship's (AWS) Standard – An international standard that defines a set of water stewardship criteria and indicators for how water should be stewarded at a site and catchment level. www.allianceforwaterstewardship.org

European Water Stewardship (EWS) Standard – A regional initiative of the AWS that promotes a catchment approach to water stewardship. www.ewp.eu

The Carbon Trust Standard for Water – Provides a framework for certifying organisations that measure, manage and reduce water use year on year. www.carbontrust.com/client-services/footprinting/footprint-certification/carbon-trust-water-standard

CDP Water Program – Provides a framework for companies to address their water-related impacts, risks and opportunities. The questionnaire supports companies along their journey towards better water stewardship in addition to communicating with investors and large purchasing organizations. www.cdp.net

STEP 3 Managing water sustainably in your operations

Beverage Industry Environmental Roundtable (BIER) – A coalition of global beverage companies working together to advance environmental sustainability. BIER has produced a range of tools and guidance for companies from water accounting to water stewardship. www.bieroundtable.com

British Retail Consortium's (BRC) A Better Retailing Climate – A voluntary initiative that sets out the collective environmental ambitions of a group of BRC members and includes targets on water reduction. www.brc.org.uk

The Food and Drink Federation's Five-fold Environmental Ambition – A voluntary initiative that sets out the collective environmental ambitions of FDF members and which includes the manufacturing water use data reporting initiative. www.fdf.org.uk/priorities_sus_comp.aspx

WRAP, Rippleffect – Online water efficiency advice and tools. www.wrap.org.uk/content/rippleffect

Waterwise – Provides information and assistance to businesses and other stakeholders on water efficiency. www.waterwise.org.uk

Water sampling (USDA / flickr)

STEP 4 Working with agricultural suppliers

Catchment Sensitive Farming (CSF) – Run by Natural England in partnership with the Environment Agency and Defra. Offers practical training to farmers and land managers on how to reduce diffuse water pollution. www.gov.uk/guidance/catchment-sensitive-farming-reduce-agricultural-water-pollution

Campaign for the Farmed Environment (CFE) – An industry-led initiative to help farming businesses support the environment by signposting to best practice in soil management, crop nutrition and pesticide use. www.cfeonline.org.uk

Agricultural Industry-led Approach to Water Quality – A partnership between the National Farmers Union, Country Land and Business Association and the Agricultural Industries Confederation proposing a new approach to partnering on water quality challenges through the CFE, professional on-farm advisers, and partner-led activity.

The Dairy Road Map – A taskforce, comprising more than 25 organisations from across Britain's dairy industry, to define targets and report on progress the industry is making on sustainability in the supply chain, including water efficiency. www.dairyroadmap.com

LEAF (Linking Environment And Farming) – Promotes sustainable agriculture, food and farming. Provides guidance and offers LEAF Marque logo for products produced to high environmental standards. www.leafuk.org

Sustainable Agriculture Initiative (SAI) Platform – Produced a series of reports aiming to identify the best indicators and tools to help farmers monitor the sustainability of their farms. www.saiplatform.org

The Rivers Trust – Provides farm advice, working with farmers to enhance environmental protection and improve resource management, yielding benefits to farm business. www.theriverstrust.org

Tried & Tested – An agricultural industry initiative aiming to help farmers to improve nutrient and manure management planning through a toolkit, publications and other guidance. www.nutrientmanagement.org

Voluntary Initiative (VI) – An industry-led partnership to promote the responsible use of agricultural pesticides. VI provides a UK-wide framework for promoting best practice at a local scale. www.voluntaryinitiative.org.uk

Agriculture and Horticulture Development Board (AHDB) – A statutory levy board, funded by farmers, growers and others in the supply chain, providing independent evidence-based information and tools. www.ahdb.org.uk

Several industry associations also have initiatives, tools and advice for their members including the Agricultural Industries Confederation, Irrigation UK, DairyUK and the Soil Association .

STEP 5 Building resilience to flooding and water shortages

The Environment Agency (EA) – Useful information on preparing for and responding to floods. www.environment-agency.gov.uk

National Flood Forum – The National Flood Forum sets out a step-by-step process and links to a wide range of other information sources, which list a range of flood products and service providers. www.nationalfloodforum.org.uk

Business Emergency Resilience Group (BERG) – An initiative of His Royal Highness The Prince of Wales, BERG helps businesses and communities across the UK to prepare for, respond to and recover from emergencies such as flooding, cyber-attacks and civil unrest. www.bitc.org.uk/programmes/business-emergency-resilience-group-berg

STEP 6 Collaborating on sustainable water management

The Catchment Based Approach (CaBA) – Embeds partnership working at a river catchment scale across the whole of England. A number of CaBA partnerships work closely with farmers and other rural landowners to improve land management. www.catchmentbasedapproach.org

The Courtauld Commitment 2025 – A ten-year voluntary agreement that will bring together organisations from farm to fork, working towards over-arching goals for water, carbon and waste reduction. The agreement will include a programme of work to identify priorities, develop solutions and implement changes at scale. www.wrap.org.uk/courtauld2025

River Basin Management Plans (RBMPs) – Set the framework for how organisations, stakeholders and communities will work together to holistically improve the water environment. www.gov.uk/government/collections/river-basin-management-plans-2015

Blueprint for Water – A coalition of 16 organisations, working together to develop solutions to the water issues facing England including using water wisely, protecting and restoring wildlife, stopping pollution, managing floods and joining up water management. www.blueprintforwater.org.uk

Water Resource Management Plans (WRMPs) – Water companies' water resource management plans set out how the public water supply will remain secure over the longer term. For further detail on management of water resources in catchments: www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process

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River Blyth, Suffolk
(Nick Rowland / flickr)

Water and the food and drink supply chains project

This report is part of a project on water in the food and drink supply chain funded by the Department for Environment, Food and Rural Affairs (Defra) and convened at Business in the Community.

The project has been led by Gudrun Cartwright, Environment Director, and managed by Nick Nevett. It has been steered by a group of experts from a range of organisations, including:

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- Simon West, Defra
- Christine Tuckett, Environment Agency
- David Bellamy, Food and Drink Federation
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- David Burton, Natural England
- Diane Mitchell, National Farmers' Union
- Rob Collins, The Rivers Trust
- Karen Fisher, WRAP
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The project is part of the work of Business in the Community's Water Taskforce, a group of companies, chaired by Steve Mogford, Chief Executive of United Utilities. The Taskforce has come together to demonstrate leadership through practical collaborative projects that contribute to the delivery of resilience, stewardship and innovation around water.

For more information visit
www.bitc.org.uk/programmes/water-programme

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