Water stewardship and regeneration in the drinks industry; where next?

Coca-Cola EUROPACIFIC PARTNERS

FOOTPRINT INTELLIGENCE

Contents

Foreword

Julian Hunt
Vice president, public affairs, communications and sustainability, GB & Northern Europe, Coca-Cola Europacific Partners

It is in many ways obvious that water is a critical component for any drinks business – not only forming the largest constituent part of the products we produce, but also vital in many manufacturing and agricultural processes.

Water scarcity has long been a very prominent issue in many areas of the world, and climate change is now meaning that, despite the UK's geography and historically damp climate, businesses need to be prepared for a different future in the way they use water.

That's why this is an extremely timely Report, which highlights how drinks businesses are approaching water stewardship and regeneration, the measures they are taking on water use efficiency, and the strategies for success to take forward to build future resilience.

As the Report makes clear, there are also obvious financial imperatives for businesses to make changes. Yet, this is about more than the bottom line.

At Coca-Cola Europacific Partners (CCEP), we're clear that water is a precious resource that needs to be protected. Crucially it is also a shared resource. The entire watershed, from communities, to businesses, and natural habitats, need access to water and this means that collaboration is essential. An example of this is working with organisations such as the Rivers Trust, who over the past decade, has established 171 wetlands, scrapes, and ponds through projects in partnership with The Coca-Cola Foundation, The Coca-Cola Company and CCEP.

We're not alone in our efforts. This Report showcases the hugely impressive extent of innovation and collaboration taking place across the sector to protect and preserve water sources. The increasing demands on this most precious resource underscore the importance of our industry learning from and challenging each other to not only achieve our own targets, but to support the wider industry supply chain.

That's why I encourage everyone to read and absorb this Report and consider what more we could all be doing to go further.

Julian Hunt
Vice president, public affairs, communications and sustainability, GB & Northern Europe, Coca-Cola Europacific Partners

Why focus on water?

From soft drinks and juice, to beer and whisky, water is a vital resource that powers the drinks industry and the wider hospitality sector in the UK. For many businesses it is the main ingredient in their products and essential to both agricultural production and manufacturing processes.

Consider, for example, the water requirements of the barley and hops used by brewers, of the sugar beet needed by soft drinks manufacturers, and of the grapes used to make wine. Ingredient cultivation is the most water-intensive practice within the supply chain, yet the industry's water footprint for manufacturing processes, such as wet milling, mashing, filtering, bottling, pasteurisation and cleaning, is also significant.

Water is part of everything a drinks business does, so awareness of the current and looming challenges is rising fast.

Water risk

Healthy freshwater ecosystems are a key component of a sustainable food system, yet these are increasingly under threat as a result of over-extraction, unsustainable consumption and climate change.

Water is the primary channel through which most of the world experiences climate change through devastating floods and severe droughts and yet, according to experts, many businesses, governments and individuals have neglected the national and global significance of freshwater ecosystems.

"From what I can see the world's big agri-food businesses make a lot of noise about water risk and assessments but appear to be as, if not more, exposed than they ever were," Jay Famiglietti, global futures professor at Arizona State University and the director of science for the Arizona Water Innovation Initiative, told *Just Food* recently[1].

Despite its maritime climate, the UK is not immune from such water-related challenges. In a 2019 speech to the Waterwise conference, Sir James Bevan, chief executive of the Environment Agency at the time, presented a chart showing two lines across the X/Y axis, with the first predicting water demand over the next several decades and the second showing the water that will be available to supply. The first line goes up (as demand increases) and the second comes down (as

the effects of climate change kick in). About two decades from now the lines cross and that is the point at which, "unless we take action to change things, we will not have enough water to supply our needs", he warned.

Even now, the UK's water infrastructure leaves businesses and households vulnerable to periods of scarcity. An Environment Agency report from October found that while there were no operational drought-related supply issues in England in 2023-2024, had there been a drought some water companies would not have had sufficient supplies available in some areas to meet demand[2]. Leaks are also an ongoing problem with the report finding that 19% of water that was put into supply during the 2023-2024 period was lost as leakage.

There have been similar warnings about exposure to water risk aimed specifically at drinks manufacturers. In May 2023, the Scottish Environment Protection Agency (SEPA) warned that "climate change is bringing hotter, drier summers and is forcing the nation (Scotland) to change its relationship with water". Businesses abstracting water from the environment were told to "plan for possible shortages".

There have already been times where drinks businesses have taken steps to voluntarily halt production as local water levels dropped. This is seen as the right thing to do, despite the challenges it brings for manufacturers.

"I think we're in quite an interesting time globally, not just as a business, in that there's an awareness that water scarcity is going to get worse, particularly because of climate change," says Francesca O'Hanlon, water lead at Coca-Cola Europacific Partners (CCEP). "We're transitioning from a society where perhaps water's value was overlooked, to realising it is a very valuable resource and we need to protect it."

Valuable resource

This past year has provided company executives with plenty of reasons to take water seriously. Extreme weather has rocked almost every part of the food and drink sector, producing a series of worrying harvest reports and severe warnings that show water must be prioritised alongside climate as a key sustainability issue.

In April, for example, the International Organisation of Vine and Wine (OIV) announced that global wine production reached a historic low in 2023 with extreme environmental conditions in no small part to blame. In some countries, a rainy spring caused mildew, flood, damages and losses in vineyards while in southern Europe growers suffered from severe ongoing drought. In the same month, Cava producer Freixenet SA asked the Spanish government to approve the furlough of up to 615 workers after a years-long drought had hit grape yields[3]. The regional government in Catalonia had already declared a state of emergency for water.

Major brewers have also been ringing the alarm bells. Hotter weather may bring a thirst for more refreshing lagers, but Asahi has warned that producing enough could be a problem[4]. Climate change has had a bigger impact on the price of barley than Russia's invasion of Ukraine, the brewer warned last year.

Low harvests

This year, England is braced for historically low harvests. "It's been a year to forget for many farmers, as the recent benign summer has failed to make up for six months of seemingly endless rain over the winter, the effects of which are now becoming apparent," explains Tom Lancaster, land, food and farming analyst at the Energy and Climate Intelligence Unit. The ECIU's September analysis shows this year's harvest for key crops including wheat, winter and spring barley, oats and oilseed rape is set to be among the worst since detailed records began in 1983, just behind 2020 and 2001. "Extreme weather is already feeding through to higher food bills and a greater reliance on imports," Lancaster adds.

Talking economics can help stimulate conversations about conservation. One Trucost study found that if the full cost of water availability and water-quality impairment had to be absorbed by companies, average profits would be cut by 18% for the chemicals industry, 44% for the utilities sector, and 116% for food and beverage companies[5]. And a Barclays' research note warned that the consumer staples sector,

Water use varies from drink to drink and place to place

"The beverage industry uses large amounts of water to produce ingredients and products, but water consumption can significantly differ among companies and varies geographically," said Ceres, the not-for-profit sustainability advocacy organisation, in a 2022 report[9]. For instance, to produce 1 litre of beer it takes 180 litres of water in Tanzania, 155 litres in South Africa, 61 litres in Peru, and 62 litres in Ukraine.

"Growing crops, including wheat and barley, accounts for about 90% or more of the respective water footprints," Ceres continued. "Growing these crops in water-stressed regions can trigger stress and competition between the company and local communities. These conflicts have led to bottling plant closures in India and [the] US."

which includes food and beverage production, is facing a potential $200bn (£150bn) impact from water scarcity risks (that's about three times higher than carbon-related risks)[6].

Pressure on drinks companies to act on water is bubbling to the surface, including from customers. "There's more of a public awareness of the connection between a drinks company and water than there is of the connection between a drinks company and, say, a company that is reliant on data centres, even though you need a lot of water to run a data centre," says O'Hanlon. "I think that public perception has been quite a big factor in drinks' companies being very aware that they need to prioritise water."

Investor pressure

There has also been a significant increase in financial institutions leading the demand for greater transparency on water-related risks in their portfolios, notes CDP director of capital markets Claire Elsdon. "Now we need to see companies responding by reporting this information and working in partnership with the finance community to measure and manage these risks," Elsdon adds.

Drinks companies need to ensure that water-related risks and opportunities are systematically integrated into corporate governance and decision-making from the boardroom and senior management to employees at all levels of the workforce. A minority currently do: of the 123 alcoholic and non-alcoholic drinks companies reporting through CDP, 53 engage with their value chains on water-related issues, while 47 provide c-suite incentives for water action to their employees or board members.

Climate has received the lion's share of investor attention over the past decade, but the launch of initiatives like the Taskforce on Nature-related Financial Disclosures (TNFD) will help businesses develop a stronger understanding of the nature-related dependencies, impacts, risks and opportunities companies (and their investors) are facing.

Co-benefits

Understanding the reliance of your business model on water is worth the effort. "Water is part of everything we do as a business," explains Michelle Norman, director of sustainability and external affairs at Suntory Beverage and Food Europe, so "it's critical that we conserve water as much as we can, that the water we use is sourced in a sustainable way and that we ensure the water that leaves our operations is clean and safe".

What's more, the solutions to water-related problems also tend to be the solutions to companies' wider sustainability commitments, according to Alex Adam, head of water stewardship at The Rivers Trust. Tree planting and peatland restoration for the purposes of carbon removal and storage can have huge benefits in terms of flood reduction, while the creation of habitats that help clean and store the water in the land and recharge aquifers also delivers biodiversity benefits.

"Water is the currency of natural capital," Adam adds. "If we can fix the rivers, we will go a very long way to fixing these other biodiversity and climate crises, or at least we will have created an adaptation pathway so we will have more resilient landscapes and catchments."

Disclosures by drinks companies through CDP

Indicators	No. of companies - beverage industry (alcoholic + non-alcoholic) out of 123
No. of companies that engage with their value chain on water-related issues	53 (43%)
No. of companies that provide C-Suite incentives for water action to their employees or board members	47 (38%)
No. of companies reporting on water policies	71 (58%)
No. of companies exposed to water risk with the potential to have a substantive financial or strategic impact on their business	41 companies reported total financial impact of $9bn

Source: CDP[10]

Water: cheap yet priceless

The price of water does not reflect its true cost, notes S&P Global in a research paper. In many regions of the world, even where fresh water is scarce, water is "underpriced", its analysts wrote, and "does not reflect" the social and environmental costs of water pollution and scarcity[7].

Indeed, WWF's 2023 report, High cost of cheap water, showed that freshwater ecosystems have an economic use value of $58trn, or roughly 60% of global GDP[8]. The direct economic benefits, such as water consumption for households, irrigated agriculture and industries, amount to a minimum of $7.5trn annually, but the unseen benefits – which include purifying water, enhancing soil health, storing carbon, and protecting communities from extreme floods and droughts – are seven times higher at around $50trn annually.

CHAPTER 2

Business engagement on water

The challenges relating to water are both urgent and complex. Despite how water is often portrayed in sustainability data, it is not an issue that can be captured in a single metric like volume. Instead, this is a multifaceted issue encompassing a range of indicators such as scarcity, quality and access to water that is both dynamic through space and time and bounded within a so-called 'Goldilocks zone' (that is, generally speaking, too much is not good; too little is not good). To make matters more complicated, water issues are to some extent confined to geographical areas, making it a very different issue from, for example, greenhouse gas emissions where emissions generated in one part of the world are equivalent to those generated elsewhere.

As WWF noted in a 2022 discussion paper for the sustainability community: "Water is not carbon. It is not a single issue needing to be reduced as quickly as possible. Water is local. Water is multi-dimensional in terms of the issues it covers. Water is also dynamic, both spatially and temporally, and is a shared resource for local communities, the private sector, and nature itself. It represents a fundamental human right."[11]

Drinks companies need to understand the context of each given part of a value chain, as well as each part's financial and water materiality, in order to understand their exposure and response. Thankfully, there is no shortage of support available for businesses looking to get to grips with these issues.

Collaboration

In the UK, the main forum for collaborative industry action is through Wrap's water roadmap[12]. Established in 2021, the roadmap is a key implementation framework for the Courtauld Commitment 2030 target for 50% of the UK's fresh food to be sourced from areas with sustainable water management.

Businesses committing to the roadmap are required to measure water risk in their operations and supply chains, identify hot spots, set water-related targets and report on progress. They are also expected to invest in collective action projects that work on a localised level, dealing directly with water-related issues in key sourcing areas for food and drink both in the UK and overseas.

The Courtauld target, along with the specific water roadmap commitments, has been an important 'North Star' for businesses in focusing their attention on where they need to accelerate action on water both internally and with their suppliers.

Currently, 97 organisations have signed up to the roadmap, including 82 businesses. These include leading drinks suppliers like CCEP, Britvic and Belu alongside most of the main grocery retailers and caterers including Compass and Sodexo.

Many large food and drink businesses are also members of the Alliance for Water Stewardship (AWS), a global collaboration comprising private companies, NGOs and public sector organisations. The AWS has created a universal framework for the sustainable use of water through the International Water Stewardship Standard, which is intended to drive social, environmental and economic benefits at a catchment level.

For businesses wanting to zero in on specific risks within their operations and supply chains, the likes of the World Resources Institute (WRI) and World Wildlife Fund (WWF) have created tools to enable companies to undertake baseline water risk assessments.

WRI's water risk framework, Aqueduct 4.0, is designed "to translate complex hydrological data into intuitive indicators of water-related risk", according to the NGO. It consists of 13 baseline water risk indicators spanning quantity, quality, and reputational concerns, and also offers future projections of water supply, demand, stress, depletion, and variability based on climate projections for three milestone years: 2030, 2050, and 2080.

Similarly, WWF's water risk filter is an online tool that enables businesses to explore physical, regulatory and reputational water risks, both now and in 2030 and 2050, and assess their own water risks across specific operations, value chain and investments.

Growing interest in water

Alongside dedicated water initiatives and resources, water's status as a key sustainability issue is reflected in coverage through more holistic sustainability standards. The Sustainable Restaurant Association (The SRA), for example, assesses hospitality sector businesses on their water policies as part of the environmental pillar of its Food Made Good standard.

Martina Dell, head of projects and consultancy for The SRA, says water "is still something that only those that are quite far down their sustainability journey are looking into", however she believes it is "rising up the agenda" for restaurants and caterers.

The SRA hosts a quarterly working group attended by representatives from businesses like Nando's, Wagamama, Wetherspoons and Young's Pubs. This year, for the first time, water was the key focus for a working group meeting following which The SRA produced a toolkit for businesses to take action on water including guidance on how to carry out a water footprint assessment, engage the supply chain and consider water when designing menus.

Sophie Harrison, who works in Wrap's food systems transformation team on water projects, supports the notion that business engagement on water is growing. "We are seeing more businesses wanting to act on water, and a lot of this probably stemming from more customer interest and increasing reporting requirements," she suggests. "There's also a lot more risk around supply; businesses are waking up to the fact that if we don't have a sustainable water supply we don't have a product."

Still, the raw data shows that the number of businesses signing up to Wrap's water roadmap is considerably lower than for its sister food waste reduction roadmap, another key plank of the Courtauld Commitment 2030 to which signatories now number well over 300.

Business signatories to Wrap Water Roadmap – **82**

Signatories that have undertaken risk mapping – **56%**

Signatories that have set water-related targets – **50%**

Source: Wrap[23]

Second fiddle

Among experts, there is a sense that for a lot of businesses water continues to play second fiddle as a sustainability issue to carbon and waste. Adam at The Rivers Trust says that although some food and drink companies have a genuine commitment to addressing their impact on freshwater ecosystems, many more have yet to identify water as a key issue. "There's been a general lack of awareness of water-related issues, and within that, many businesses haven't really thought through the water footprint of their supply chains or impact on operations," he says.

Even among those businesses signed up to Wrap's water roadmap, as of the end of 2022 just 56% of businesses had undertaken risk mapping against a target of 80% by the end of 2023, and only 50% of businesses had set water-related targets versus a 100% target by the same date. In its latest roadmap update published in October 2023, Wrap expressed the urgent need for more businesses to sign up to address water risk and take steps towards sustainable water management in their supply chain[13].

One suggestion is that water suffers from a sense of being 'out of sight, out of mind' for UK businesses for whom access to water is largely reliable and who don't use it as a direct ingredient in their products. "There are other parts of the globe where droughts and water shortages impacting industry and operations are much more tangible," says The SRA's Dell.

Water overuse and pollution impacts related to the drinks industry have been found globally, and as brands widen their offerings and overall demand continues to grow, the impacts on water availability and pollution from the industry will likely keep escalating, posing a considerable practical and reputational threat to the industry.

Cheap commodity

Water, as discussed in *Chapter One*, is also a relatively cheap commodity operationally compared with the cost of food, for example, meaning businesses haven't yet realised the financial incentive that can often kick-start investment in sustainability. Dell cites food waste as an example of a clear cost saving opportunity that also benefits the environment. "Water does as well, but not to the same degree," she suggests.

Where businesses have engaged with water, the focus tends to be on operational usage that sits within a company's direct control, rather than the supply chain water needed to produce the food and drink sold to customers.

This is slowly starting to change amid growing concern over how future access to water might impact the availability and cost of key ingredients, be it fruits and vegetables coming from water scarce regions of Spain or hops sourced from the west coast of the USA.

"There is increasing awareness of those things, but I think they tend to be quite specific, acute issues in supply chains," Dell suggests. "People are starting with the most material issue to them; so a pizza restaurant will be concerned about tomatoes for their tomato sauce because without that they don't have a business."

Some businesses are working alongside partners to engage farmers in implementing regenerative farming techniques which help retain water on the land, as part of a catchment-level approach to addressing supply chain risk. CCEP, alongside The Rivers Trust, is working with farmers in Norfolk, for example, a key sourcing region for the sugar beet used in making a wide range of soft drinks. Techniques such as cover cropping and wildflower planting can not only help the soil retain more water, they can also reduce farmers' reliance on artificial inputs like nitrogen fertiliser which becomes a major cause of river pollution when it washes off of fields into water courses. "The water quality aspect is a really big one with regards to the runoff of nitrates and phosphates that pollute waterways," says CCEP's O'Hanlon, "That's a big area where we think we can support farmers in reducing the use of fertilisers."

Harrison at Wrap believes awareness of supply chain water risk is growing. Upskilling on water issues is needed outside of corporate sustainability teams, however, so that conversations around social and environmental issues are taking place within procurement and buying roles and through direct engagement with suppliers "who have the first-hand knowledge of what's going on in their particular area".

Some brewers are already looking closer to home to reduce reliance on ingredients sourced from regions experiencing high levels of water stress. "One of the strongest arguments for British hops is that we don't need to irrigate," explains Will Rogers, group technical director at UK hop supplier Charles Faram, which is experimenting with producing hops that carry the tropical flavours offered by New World IPAs and other exotic brews that are increasingly favoured by UK beer drinkers. Asahi UK, which sources hops from Charles Faram, has set the long-term ambition for its Meantime brand to become a 100% British modern craft brand. "We are at the start of this journey and we have a long way to go but we have already taken some great steps: all of our barley is now British grown and one out of three of our core portfolio uses 100% British ingredients so far," says Sam Goodenough, sustainability manager for Asahi UK.

Togetherness

A growing number of businesses are also investing in action on the ground, often via collaborative projects that bring together businesses that source from a particular catchment alongside local stakeholders and communities.

Mineral water and filtration brand Belu is partnering with Wrap to help farmers in South East England through participation in the 'Holistic Water for Horticulture' River Medway project. The river, which runs through Kent, faces challenges related to water quality and sustainability due to various factors, including pollution and overuse. Meanwhile, soft fruit polytunnel-based horticulture is an important economic activity in the county but water resources are increasingly stressed and there are risks to production where levels of resilience to flooding and soil erosion are low.

Holistic Water for Horticulture applies a 'whole system' approach, working with growers, Courtauld 2030 signatories and stakeholders in the Medway catchment to develop measures for sustainable water management around polytunnel systems. "It looks at this vital resource as a whole, at every stage of the process - and that's key because people don't always consider it that way," says Belu director of supply chain operations, Nolan Wright. Working together collaboratively also creates a "ripple effect", he adds. Indeed, Adam notes that funding for local stewardship projects from businesses can often unlock match funding from water companies and local authorities.

Water experts are at pains to stress the importance of collaboration and collective action on water in recognition that water is a shared resource. Wrap water roadmap signatories commit to joining collective action projects in key sourcing areas of the globe where they are active or sourcing from. There are currently eight collective action projects active – four in the UK and four overseas – which aim to bring businesses, stakeholders and resources together to tackle localised water issues on the ground.

"I really hope that businesses can clearly see that by being involved in a collective action programme, whether that be a drinks business or a food business, there's a model there to have a wider impact," says Rebecca Deadman, strategic engagement manager at Wrap. Her colleague Harrison adds that "tackling water on your own would be incredibly expensive [and] you wouldn't be having the same impact. You really need everybody in the catchment to be working together."

Pre-competitive

The Rivers Trust is another organisation leading stewardship projects designed to build resilient river catchments in partnership with businesses. "At a corporate level, I think there is a real recognition and acknowledgement that this is pre-competitive, it has to be," says Adam. He cautions however that "quite quickly, as you move down the levels of operation, it does start to get more of a challenge and become more parochial".

If businesses need further reason to collaborate on water then the clear link between action on water and other priority issues like carbon and biodiversity provides a compelling incentive. Business support for regenerative agriculture, for instance, has to-date tended to be driven through a carbon lens linked to achieving net-zero commitments, yet there are huge potential co-benefits from investing in nature-based solutions at a farm level.

"There is so much attention on regenerative agriculture at the moment but water seems to be the forgotten element," explains Vincent Walsh, the founder and managing director at RegenFarmCo running the "circular and regenerative living lab" Biohub at

Pollution, PFAS and protection

Currently, just 14% of British rivers meet good ecological status, while 0% meet good chemical status[15]. A legally-binding objective for 77% of waterways to achieve 'good ecological status' or 'good ecological potential by 2027 also requires a change in gear[16]. The Office for Environmental Protection has estimated that just 21% of surface waters will be in a good ecological state by that deadline[17]. The law is sound but it's not being implemented effectively, the watchdog warned this year.

Much of the attention for improvements has been aimed at the water companies and regulators, like the Environment Agency. However, the food and drink sector is finding itself under scrutiny too – in particular the livestock and poultry farms that are clustered around polluted river catchments like the River Wye. What happens to animal waste presents a "major threat" to ecosystems, warned Fairr, the global network of investors worth a combined $70trn, in its 2022 report, *'Creating a stink"*[18].

The threats of 'too much, too little and too dirty' water are not only locally severe but widespread according to Ceres' global water assessment in 2022[19]. Many regions in the world, including in South Africa and Jordan, have reported that chemical oxygen demand and bio-chemical oxygen demand concentrations from beverage plant wastewater far exceed standard discharge limits. If left untreated, wastewater discharges containing these pollutants can have a variety of water quality, ecological, and health-related impacts, such as surface water acidification, eutrophication, ecotoxicity, and groundwater contamination.

There are more problems to come. PFAS, commonly referred to as "forever chemicals," are a group of artificial chemicals widely used by industry to create non-stick coatings on cookware, carpets, and in some food and drink packaging. These chemicals are highly persistent and bioaccumulate, becoming a critical toxin in surface and drinking water. Businesses across sectors and throughout supply chains should consider the risk they are exposed to from growing scrutiny of 'forever chemicals', lawyers have warned. This comes amidst increasing commentary about the potential harmful effects and the ongoing drive to restrict their use.

Drinks companies already face a "wave" of PFAS contamination class action in the US, according to lawyers[20]. In Europe there have been several scandals and the identification of at least 17,000 sites contaminated with PFAS across the continent[21]. Five countries (Denmark, Germany, the Netherlands, Norway and Sweden) submitted an ambitious restriction proposal to the European Chemicals Agency in February 2023; its aim is to limit the production and use of thousands of PFAS[22]. The restriction could then enter into force in 2026 or 2027.

CHAPTER TWO BUSINESS ENGAGEMENT ON WATER

Ings Farm in Yorkshire, UK. "And it's not just about water efficiency on landscape because what happens on the land ends up in the water," he adds.

It must not be forgotten that sustainable extraction is just one part of this complex equation. Water pollution through agricultural run-off, and industrial effluent and sewage are making headlines with increasing regularity. There are also growing concerns relating to the chemicals found in waterways. Too much nitrogen and phosphorus in any water runoff can also lead to severe water pollution. This is why, for example, in the UK utilities supplier and Biohub sponsor, Yorkshire Water, has a vested interest in supporting what is happening at Ings Farm.

Regeneration

Adoption of regenerative approaches should unlock a range of benefits where water is concerned. This is because water is "both an input and a contributor to regenerative agriculture, as well as being an outcome of or beneficiary of regenerative agriculture", wrote Bruce Lankford, from the University of East Anglia in the UK, and Stuart Orr, freshwater lead at WWF, based in Switzerland, in a paper for *Frontiers in Sustainable Food Systems*[14]. Knock-on impacts can include a reduced need for chemical inputs, which can in turn reduce levels of pollution. Hedges and trees can act as flood defence systems, while healthier soils can slow water's path and improve crops' resilience to drought.

More businesses are making these kind of connections, as we shall see in *Chapter Three*, however at a sector-wide level progress on water stewardship is far from where it needs to be. Orr has been tracking industry activity for almost three decades now. "I'm not seeing the kind of action and movement I would have hoped or would have thought by now," he said in an interview in October 2023. "We have to do whatever it takes to shake people out of this lethargy around water."

From engagement to action

We've seen just how critical access to safe, secure water is to nature, communities and businesses. So what are businesses doing to reduce their water risk, use water more responsibly and help build future resilience?

Particularly for businesses operating at the customer-facing end of long, often opaque supply chains, conversations around the work they are doing on water sustainability often begin and end with their own direct water use at a site level – turning off taps, fixing leaks and generally encouraging efficient behaviours. Minimising direct water use (and disposing of wastewater responsibly) is important, yet its environmental impact is often dwarfed by the impact of water abstraction and use at source.

This can be hard to navigate for businesses, particularly those whose operations are several steps removed from the origins of the ingredients they sell. The pub group Greene King spoke to this challenge in its latest annual report when it stated that "a drop in water availability would impact every area of our business, but our mitigation strategies are focused on areas that we can impact internally, being the management of water usage within our pubs and breweries"[24].

Stewardship mind-set

The shift from a water management mind-set into a stewardship mind-set is vital if businesses are to successfully help tackle issues of quality and scarcity facing key sourcing regions and river catchments.

An essential starting point is to map your operations and supply chain in order to better understand your specific vulnerabilities. Belu has been through this process which not only helps to flag issues throughout the supply chain but also reassure businesses. "We use telemetrics to assess the water volume we are taking out of the ground, but this mapping process goes much further," says Wright. "It also means we can share robust data with our customers in the hospitality, foodservice and workplace sectors – and they can use it for their own ESG reporting."

CCEP has also been working hard over recent years to understand its water-related risks using WRI's Aqueduct tool, says O'Hanlon. A source vulnerability assessment is conducted at every CCEP site with an external water expert who does an assessment of the whole watershed, identifies potential

vulnerabilities and how these could possibly impact operations, after which the business puts in place a bespoke water management plan.

"Our overall water strategy is in lots of ways a water resilience strategy," O'Hanlon explains. "Because water is a shared resource it's the entire watershed that needs long-term access to water, it's not just our business. There will be no point in trying to secure water just for us, it's not how water works. We need to secure water for the communities and for every stakeholder."

Local focus

Water is a very localised issue and so interventions need to be designed to tackle the issues specific to a particular watershed. "The only way we get happy, healthy rivers is by working at a catchment scale," explains Adam from The Rivers Trust.

That means using the available science and evidence to understand what needs to be done where and find tailored solutions, many of which have already been identified by the local catchment partnership. The Trust uses a methodology called volumetric water benefit accounting that allows businesses to measure the impact of their water stewardship activities across indicators such as average rainfall, soil type, flow rates and water volumes. "Effectively, any kind of land use change gives you a measurable replenish volume," explains Adam.

Through its network of local Trusts, The Rivers Trust works directly with businesses – including the likes of Britvic, Lidl and Sainsbury's – and other key local stakeholders like farmers and community groups to restore freshwater environments and build resilience through nature-based solutions.

CCEP is a key industry partner. Over the past decade The Rivers Trust has established 171 wetlands, scrapes, and ponds through projects part funded by The Coca-Cola Foundation, The Coca-Cola Company and CCEP. These include work with the Northumberland Rivers Trust to improve biodiversity and reduce flooding downstream of the River Wansbeck by creating a series of wetlands and planting trees.

Another project that is ongoing involves the creation of a wetland at Chamber Mead to support the local Hogsmill River in Ewell, Surrey, one of only 210 chalk streams in the world (the UK is home to 160 of them). The Hogsmill River is an important resource for the community living close to the Hogsmill Local Nature Reserve, which is used by residents for general wellbeing and is home to a variety of native plants, trees and species including kingfishers and green woodpeckers. The aim is to divert the Green Lanes stream, which is subject to road run-off and sewage, through a constructed sediment trap and wetlands, before entering back into the Hogsmill river approximately 200m further downstream with a reduction in contaminated sediment resulting in higher water quality.

Adam says delivering these types of project nationally at scale is key to achieving positive sustainability outcomes. "You build one wetland that's great, you build 20 wetlands that starts to get good, you get 100 companies building 1200 wetlands that starts to have a real difference."

Dams for distilleries

Businesses are looking towards nature-based solutions as a means of protecting their own access to water. Researchers from the University of Aberdeen and James Hutton Institute have previously worked with The Glenlivet distillery in Scotland to introduce a number of nature-based measures to protect against the threat of persistent heatwaves which have caused many distilleries to temporarily stop distilling due to water shortages, costing the industry millions of pounds. These include the creation of small dams in the landscape supplying the distillery, designed to capture water during wet periods and to make it available when water is scarce.

Other businesses are stepping up to co-fund projects outside of their direct sphere of operations in key sourcing regions such as Spain and South Africa. CH&Co, for example, is co-funding one of Wrap's collective action projects in southern Spain where over half of water bodies do not meet 'good' ecological status as defined by the EU and from where some of the catering company's fresh produce is sourced.

Scrutiny and standardisation

With some businesses having set ambitious targets around water

Cornish Orchards: preserving a precious commodity

Based at Westnorth Manor Farm in Duloe on the south Cornish coast, Cornish Orchards has come up with a novel solution to using water more responsibly.

Cornwall is a region that suffers from water scarcity and so the business, owned by Asahi UK, wanted to be as efficient as possible with its own water use.

The cider making process leaves behind organic matter meaning wastewater commonly gets sent to a local water treatment plant. Cornish Orchards has instead invested in installing its own water treatment plant onsite. Water from the production process gets channelled into the facility which first filters off any sediment and waste pulp from the apples. This gets taken off site and sent to an anaerobic digestion plant to be turned into biogas.

The remaining water is returned to nature via a wetland that has been created next to the farm which acts as a natural purification system. The water is initially pumped into the first of four ponds where natural features such as reeds, brush and lilies suck the remaining organic matter out of the water. The water is further filtered as it passes through the other three ponds so that by the time it reaches the fourth pond it is of good enough quality to be fed back into the local stream.

The wetland also acts as a habitat for various species of wildlife from dragonflies to nesting ducks. "It's like a little ecological powerhouse that explodes out of the organic material that's in the water," says Sam Goodenough, sustainability manager for Asahi UK.

regeneration (CCEP for instance has set out to achieve 100% 'regenerative water' use across its 13 leadership facilities identified as facing high levels of water stress by 2030) the ability for businesses to robustly evidence impact from their support for nature-based projects is key. "There is so much scrutiny on every sustainability claim that the diligence and rigour in those figures now has to be the same as for any of the financial metrics we put out there in our annual reporting," says Sam Jones, director of sustainability and policy, GB, at CCEP.

Food companies have myriad requirements and standards to deal with in relation to climate (not to mention nature) reporting. A standardised approach to reporting is, slowly but surely, taking shape. As Robert Eccles, visiting professor at Saïd Business School, University of Oxford, writes in the latest issue of *Harvard Business Review*, reporting standards "lay the foundation for ESG transparency[20]. Thirteen years after I co-founded the Sustainability Accounting Standards Board (SASB) with Jean Rogers, a universal set of standards has yet to be agreed upon. But it is coming," he explains. "Financial reporting standards require companies to report both good and bad financial performance. Sustainability reporting standards will do the same."[25]

Companies say they would appreciate more guardrails so that 'apples' are being compared to 'apples' when it comes to risk exposure, measurement and management across metrics like carbon, water and biodiversity. Currently, they are treading carefully. "Whatever we do, we want the data to be valuable for farmers, to us and to our customers, and this means benchmarking our methods against globally recognised standards that can be audited and verified – especially if we are going to be making public claims," explains Ellie Wood, sustainability coordinator at Crisp Malt.

Regenerative techniques

Crisp Malt, like others, is waiting for more details from the SAI (Sustainable Agriculture Initiative) relating to the global framework for regenerative agriculture. That doesn't mean it is standing still: the British malting company is investing in regenerative approaches with producers in its two growing groups – one in Scotland and one in England – and not just for the barley it procures. "Our regenerative framework will look at the whole farm system," Wood explains. "This needs to be a farm-level approach."

According to the company's 2024 sustainability report[26], cover crops like buckwheat, phacelia, linseed, sunflowers, clovers, beans, peas and radishes are already improving the soil, according to growers. With permanent living roots in the ground and a canopy above, some report a "huge difference" to soil health, workability and water infiltration.

Customer communication

Many brands are eager to highlight some of these positive impacts – in particular through adoption of agro-ecological approaches to farming. Some believe that the topic of water and nature restoration can be more relatable to customers than, say, carbon. Whilst they continue to prioritise carbon reduction and follow the PAS 2060 framework throughout all operations, last year Belu moved away from maintaining carbon neutrality through offsetting (the use of remote carbon offsets or credits to claim neutrality has been heavily criticised in recent months, and tighter regulations are on the way in some countries) in favour of investing in measurable projects locally that relate more directly to its business.

"There has been less pushback than we thought in not being certified carbon neutral anymore; in fact, people are really interested in what it is we are doing," Wright explains. The conversations Belu is having with customers are "deeper" he adds, and there is real interest in water quality and stewardship. "We want to make sure that where we invest into a project, it is making a real difference to people and the environment," he adds, "and because they're all UK based and some of them are on our doorstep we can actually take a look at the results ourselves."

Targeting sites

Although businesses are increasingly expected to take an end-to-end approach to water stewardship across their supply chain, ongoing investment in more efficient manufacturing practices and behaviours remains a critical part of an overarching water strategy.

Ribena and Lucozade owner Suntory is aiming to reduce the water intensity of production at its owned factories across Europe by 20% by 2030 (against a 2015 baseline). It has managed just under 16% so far. "We have tailored roadmaps for each of our factories and progress is monitored closely,"

explains the company's director of sustainability in Europe, Michelle Norman. Globally, voluntary standards for wastewater that are equal to or stricter than the legal regulations are in place. Wastewater from Suntory's plants is purified using anaerobic wastewater treatment facilities before being released into sewers and rivers. In this way the company "releases wastewater in a state as close to nature as possible".

Regulations are in place, through for example environmental permitting regimes, to ensure releases from manufacturing sites do not impact local ecosystems. There have been calls for these to be tightened, and with better policing of sites. Responsible businesses ensure they stay within the levels set by permits, even if it means delaying further efficiencies within the plant.

"Steeping is always going to use a lot of water so we are looking at emerging technologies in water reuse and water recycling," explains Wood at Crisp Malt. "The problem is that if you start recycling your steep water more times then the discharge that's left is more concentrated, so we need to find the balance between those efficiencies and keeping within our discharge consent limits."

Efficient brews

Brewing beer is another water intensive process and brewers are having to look across the production process to identify ways to minimise water use. Among the efficiency measures historically taken by Suffolk-based brewer Adnams includes the use of returnable cleaning systems so that the water used to rinse the chemical away is then used to pre-soak the next clean. Adnams has also employed software to improve efficiency of the brew kettle by reducing evaporation while ensuring the flavour profile of the beer remains unaffected. This has the dual benefit of reducing energy use as well as water use.

Adnams production director, Fergus Fitzgerald, says that continuous monitoring of water use is key to delivering efficiency gains, coupled with the ability to manually or automatically pinpoint usage that is abnormal and move quickly to fix issues. He also advises businesses to "have as many sub-meters as you can afford to really understand what bit of the process is driving the water use, and allow targeting of each process for reduction".

Brewers investing in new manufacturing facilities are increasingly doing so with water and energy efficiency in mind. Greene King recently announced a £40m investment in a new state-of-the-art brewery in Bury St Edmunds which will target a 50% reduction in water usage per pint in the brewing process.

In May, Diageo announced plans to invest over €100m (£84m) in its historic St. James's Gate site in Dublin where Guinness has been brewed for 264 years to make it one of the most efficient breweries in the world. This includes the ability to generate biogas within a new water recovery facility, while the site will also have a focus on improving water use efficiency with a target to reduce the water used to brew Guinness by 30%.

Pubs, hotels and restaurants too are targeting water efficiency for improvement. In 2023, Greene King ran a water efficiency trial which involved installing automatic meter reading (AMR) loggers at 50 of its sites. The AMRs enabled the pub group to take readings of water usage at 15 minute intervals, allowing the early identification of leaks and coordination of repairs and maintenance activities. Over 16,700m^3 of water savings were identified in the trial, which has since been extended to a further 50 sites. Greene King also has an ongoing trial to use low flow showerheads and toilet flow regulators at two of its hotels and one of its larger pubs to understand the impact on water savings and customer experience.

Future innovation

More novel solutions to the challenge of water efficiency continue to emerge too thanks to the application of next-generation technologies. Artificial intelligence, for example, is already being employed to more precisely target irrigation of individual crops or pockets of land in regions where water is scarce. CCEP has a Ventures arm with the remit of unearthing innovations that can help the business achieve its sustainability ambitions. It has recently invested in a start-up company formed out of the University of Nottingham called Pipeline Organics, which is using enzymatic fuel cells to leverage the glucose in wastewater to generate renewable electricity. Laboratory models suggest the plug-and-play

Whisky wastewater breakthrough

Wastewater from the distilling industry could be used to produce green hydrogen fuels thanks to materials developed by scientists at Heriot-Watt University, Scotland.

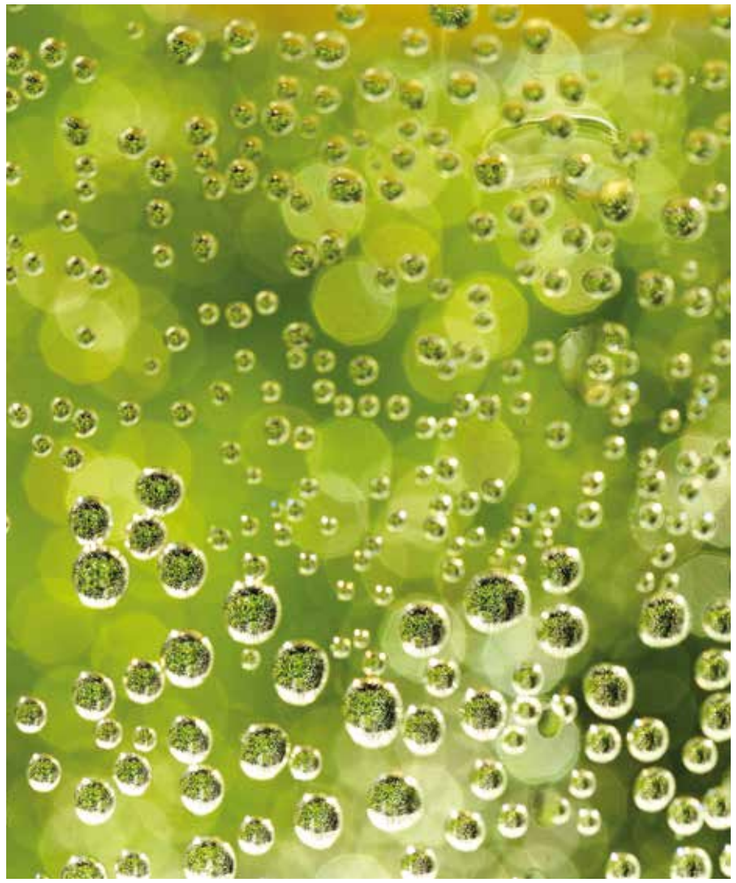
Around 1 million litres of wastewater from the whisky distilling process is produced every year in Scotland (globally the figure is thought to be closer to 1 billion litres). Researchers at Heriot-Watt have recently developed a nanoscale material – a particle that is one in 10,000th the diameter of a human hair – to allow this distillery wastewater to replace fresh water in the green hydrogen production process.

The nanoparticle, called a nickel selenide, removes waste materials present in the water allowing it to be used for green hydrogen production. In the team's research, using the nanoparticle produced similar or slightly higher quantities of green hydrogen from the wastewater, compared to the results from fresh water.

The results of the research have been published in the Royal Society of Chemistry journal, *Sustainable Energy & Fuels.*

"Using industry wastewater means we can reduce the extensive freshwater footprint associated with green hydrogen production," said Sudhagar Pitchaimuthu, a materials scientist in the university's school of engineering and physical sciences.

The next steps for the research team include developing their own electrolyser prototype and scaling up production of their nickel selenide nanoparticles. They will also be analysing the distillery wastewater to discover whether other materials of value could be salvaged from it, alongside hydrogen and oxygen.



technology, which requires no significant infrastructure, could generate around half the water needed to power an entire drinks manufacturing facility. The plan is to pilot the technology early in 2025 at one of CCEP's factories.

"If this is successful, water that would otherwise just be sent back to municipal treatment plants would become a renewable source of energy. That's very exciting," says Craig Twyford, co-founder of CCEP Ventures.

Another drinks industry giant, Diageo, is openly calling for innovations that can lessen and more effectively manage the water used across its global supply chain through the Diageo Sustainable Solutions programme. The innovation challenge addresses five different points across Diageo's supply chain where the company would benefit from innovation and new technology:

- improving water efficiency in Diageo's own operations and those of its manufacturing suppliers;
- maximising the value of waste streams;
- minimising the climate and water risks of the ingredients Diageo sources and uses;
- improving water efficiency in agricultural operations;
- improving water use across the hospitality sector.

The five workstreams neatly summarise the range of actions drinks businesses will need to take to deal with what many experts predict is an impending water crisis. We are not there yet, but water is finally starting to get the serious business attention it deserves.

Five priority actions to take on water

1. Ensure that water becomes a boardroom issue with the same level of focus as carbon, waste and other key sustainability issues.

2. Make understanding your exposure to water risk a business priority using tools like WRI's Aqueduct 4.0 and WWF's water risk filter. The risks and solutions are found throughout your supply chain, and not just inside the walls of your manufacturing sites.

3. Use industry-wide commitments and targets like Courtauld 2030 as a 'North Star' for prioritising action on water, both internally and with suppliers.

4. Be prepared to collaborate with other businesses, including those from other sectors and water companies, to address specific catchment-level risks and invest in nature-based solutions.

5. Seek to continuously improve the water efficiency of your manufacturing processes by investing in operational improvements, encouraging positive behaviours and harnessing the power of technology.

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About Footprint Intelligence

FOOTPRINT INTELLIGENCE

The ever-shifting sustainability debate makes it vital for businesses to have accurate intelligence to make informed decisions. Footprint Intelligence is Footprint Media Group's research and analysis division, helping companies develop successful strategies in the context of responsible business practices. Footprint Intelligence aims to drive, promote and share best practice by helping industry resolve pressing sustainability issues. It asks tough questions and finds answers. It uses research and industry insight to bring businesses together to identify solutions, opportunities, trends and challenges.

Report team

Research and writing:
Nick Hughes & David Burrows
Design:
Trevor Marshall

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