

# Why care about water?

A guide to responsible water use in foodservice



**FOOTPRINT**  
INTELLIGENCE



The clean solution



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## Foreword

### **Water, water everywhere... but for how much longer?**

Water is often taken for granted in the UK. It feels as if we have enough rain so there can't be a problem can there? But as you will read in this report, this is just not the case. We are short of water and this will only get worse! There will be shortages unless we start using water more wisely, so don't you think we need to agitate, to shake things up and get right up people's noses, to make sustainability the status quo?



This report is aimed at foodservice managers – all of you – and your staff. We can do something, many things, to make our business world more sustainable, just like we are doing at home.

This report clearly makes us aware of the need for the foodservice industry to change and shows some small steps that we can all take to make a difference. If it gives you motivation and in turn stimulates your team, then that is a great first step. That is why I am so proud to be part of this fantastic report and the start of a change in the way the foodservice sector looks at water usage.

Responsible use makes for good business sense because water costs can be between 1-2% of a UK-based company's turnover. For operational foodservice staff, it's easy to say, "it's not my bill" and leave the lights on, or the tap leaking and shrug off the consequences as "not my problem." For warewasher manufacturers – and we have included comments from major European ones here – it's about cleaner solutions, not just clean plates. We need to look at the bigger picture and the steps we can all take to make a difference.

Yet as business leaders, this is where we can and must do more, not just for the bottom line for the business (although this is a great incentive), but so we are also doing our bit for the planet.

**Paul Anderson**  
Managing Director  
Meiko UK

## Money down the drain



Foodservice has taken huge strides to tackle its environmental impact, in areas such as supply chains, animal welfare, workers' rights, food waste and energy conservation.

Yet foodservice kitchens and their use of water – to cook, wash food and dishes, and clean – can be blind spots. Most efforts, where there are any, tend to be focused in washrooms.

Water is a valuable and increasingly scarce resource. Poor water management – including inefficient use, improperly maintained equipment, poor staff practices, sewer blockages and leakages – can cost foodservice significant sums. It can also contribute to water scarcity. This in turn impacts on the sustainability of foodservice operations locally, such as when a business competes for water with its neighbours. Poor practices in the supply chain can also impact foodservice operations even when water scarcity issues occur further afield – such as when impacts on food production and availability.

“Responsible water use is about interest in making this planet a better place,” according to Paul Anderson, Managing Director, Meiko UK. “For users, it’s about savings on the bottom line: water costs can be between [1-2%](#) of a UK-based company’s turnover, according to Business in the Community. For warewasher manufacturers, it’s about better solutions. Every manufacturer should do the same. We need to agitate, to shake things up and to make sustainability the status quo.”

Implementing best practice now will save money, conserve water, build resilience, protect brand value and help future-proof operations and expansion; insulating against potential environmental legislation.

This report provides a best practice guide for foodservice operators who wish to improve their water management.

It sets out the business case and ethical case for responsible water management. And it provides a guide to implementing responsible practices in foodservice kitchens.

Ensuring water is used wisely and without wastage or contamination is a moral and business imperative.

There is no longer an excuse. Now is the time to take action on water.

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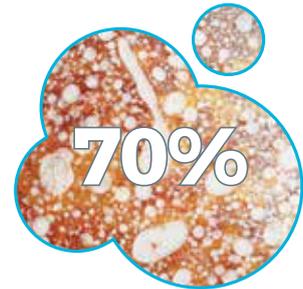
## Why get on board?



Save 30-50% from no-cost and low-cost water interventions



Half of UK's food at risk of disruption from water scarcity



FFOG is a major contributor to 70% of sewer blockages

The 2018 World Economic Forum Global Risks [Report](#) puts water crisis as one of the top five most impactful risks to the economy. Foodservice must play its part in using water responsibly. The report concluded that scarcity jeopardises food production and puts the food industry at loggerheads with others competing for [water](#).

Despite the UK's reputation for having plenty of rain, scarcity is a problem. Parts of the country are already water-stressed. And it is a particular issue for foodservice and the food industry. [69%](#) of the UK's water footprint is related to food production, according to the WWF, an international NGO focused on sustainability and conservation. Sustainability specialist WRAP estimates that the supply chains that deliver more than half the UK's food are at risk from water [scarcity](#).

Quality is also an issue. Water courses and their catchments are sensitive environments, at risk from run-off and contaminants. Contaminants can come from agriculture but the food, fats, oils and grease (FFOG) and chemicals that foodservice sends down drains cause pollution, blockages and ecological damage.

Yet foodservice has not focused on responsible water management. Among restaurants, pubs, hotels, food-to-go outlets and public service providers, data on waste is common, but there is comparatively little on water. What efforts there are tend to be focused on washrooms and front of house.

Statements and sustainability reports by major foodservice providers often make only token references to water. This is the case even when these providers are making efforts to improve water management; such as by working with Origin Green, the Irish Food Board's sustainability program, or by funding wells in developing countries to help their suppliers have a sustainable future. Commercial kitchen water use is rarely mentioned. As was demonstrated by a review of many of the major foodservice

"Your brand is stronger if it's sustainable and ecofriendly."

**Paul Anderson,**  
Managing Director,  
Meiko UK

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companies' websites for this research, it is near impossible to find references to warewashing, waste water or other kitchen-specific use.

One operator's answer to a query about its conservation efforts was, "Water? We're not doing anything on water." This typified reactions in general. In this instance, it turned out the opposite was true, illustrating that even when efforts are undertaken, they may not be visible to the rest of the business.

"People wouldn't deliberately buy something and put it in the bin, but they'll leave a tap running."

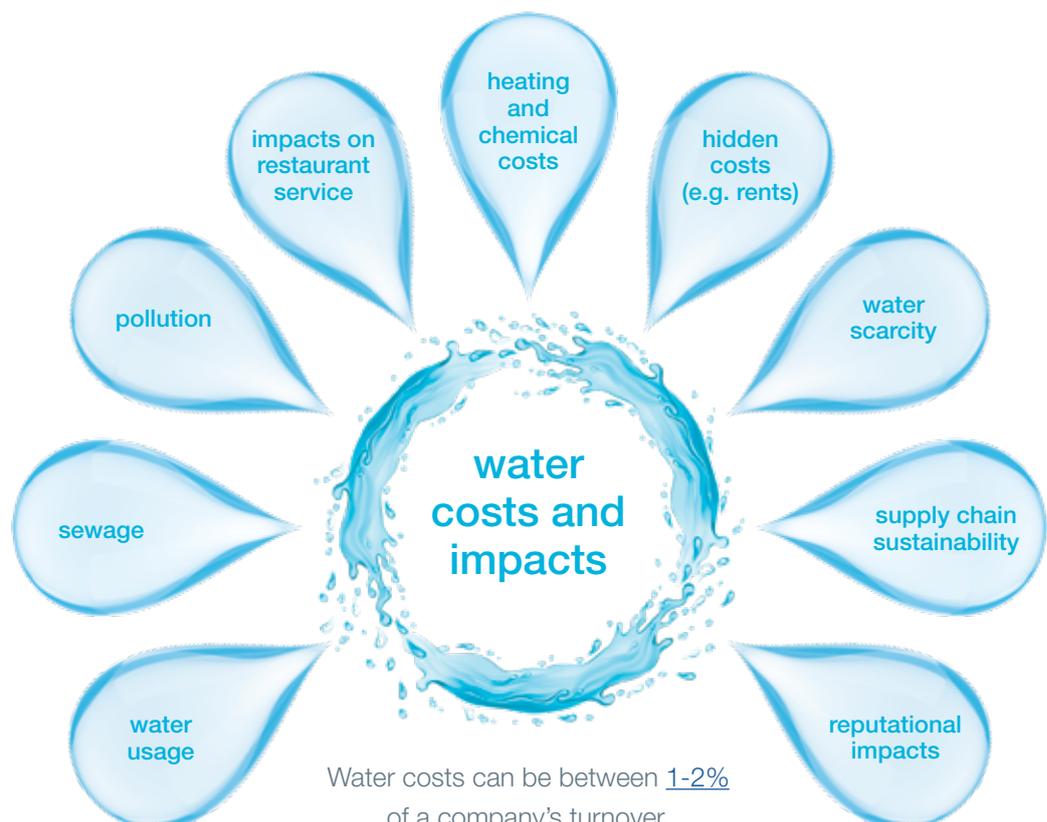
**Mike Hanson,**  
Head of  
Sustainable Business,  
BaxterStorey

Another national chain admitted the "reason we're not doing anything [on water] is because it's hard to do – I don't know any sites that have water metering. There is a lack of understanding around water."

Yet site-level water use has a significant impact on business and it plays a part in wider water stewardship. "Any business that depends on water, directly or indirectly," observes the [WWF](#), "should be aware of the associated risks in their supply chains and operations and mitigate against them."

The business case for these costs and impacts is set out below.

## Costs and impacts



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## You pay for water usage

The higher the usage, the higher the bill. [Business in the Community](#) calculates that savings of 30-50% can be achieved by investing in no-cost and low-cost water reduction techniques and technologies. Measures such as water-saving products, infrared technology and staff training can help foodservice outlets save an average of [£1,068 per year](#). Multiply these savings over years and sites: they soon stack up.



## You pay for sewage

This is typically charged at 92.5% of the water coming into the site. So wasting water costs money twice: once when it comes out of the tap and again when it goes down the drain. Reducing usage therefore makes two lots of savings.



## You pay for pollution

Sewage can cause expensive blockages that need to be cleared and that can lead to fines. [Water UK](#), the organisation that represents the country's water and wastewater utilities, reports that there are approximately 366,000 sewer blockages every year. Up to 70% of those are caused by FFOG (food, fats, oils and grease) and other material not intended for disposal via the sewer.

Clearing blockages and cleaning properties affected by the consequent floods and pollution costs the UK in excess of £80 million each year. Suppliers such as Southern Water are increasingly looking to fine offenders who pollute or cause blockages. But more detrimental is the reputational damage for anyone identified as responsible. Pumping station failures and a decrease in the efficiency of treatment works resulting from FFOG also have a cost impact.

All of these costs are ultimately reflected in water bills. Businesses also risk blocking their own drainage systems, leading to on-site floods, smells and impacts on service. This is a particular risk when foodservice operations are concentrated in one area and share a sewer network.



## You pay when water-related issues impact on service

For example, if a poorly maintained or unreliable dishwasher fails, it will impact on the dishes available for service and thus the number of covers served. Pulling waiting staff onto manual dishwashing duty can have an impact on morale, prompting staff turnover and absenteeism.

Blockages and floods can cause smells, closures or even site shutdowns, dramatically impacting on a business's ability to function. Knock-on costs from site closures (including repairs, food wastage and staff overheads) can also be significant.

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## You pay heating and chemical costs

Heating or cooling water for cooking, and dosing it with chemicals for cleaning and clearing blockages, costs money. If water is wasted, these costs increase.



## You pay hidden costs

Some businesses – such as contract caterers or outlets in retail centres – may not see the cost of their water use, because bills go to the landlords of the sites on which they operate. Ultimately, however, costs will be passed on to the businesses via rent.



## You pay for water scarcity

If restrictions are imposed on water use, or new developments and expansion are refused because of a lack of water, businesses pay the price. Businesses are also part of their community. If water restrictions are imposed on that community and businesses are seen to use more than their fair share, operating licenses can be jeopardised. Reputational damage and grassroots opposition are also likely.



## You pay for supply chain sustainability

The WWF reports that 69% of the UK's water footprint is related to food production. The supply chains that deliver more than half the UK's food are at risk of disruption from water scarcity. Supply chain sustainability is compromised when water scarcity causes products to become exhausted, harder to source or more expensive.



## You pay for reputational impacts

Supply chain responsibility is a new business reality and being associated with poor water practice is a huge reputational risk. This is becoming more pressing as food increasingly competes for water with local communities, ecosystems and other businesses.

Retailers – notes Karen Fisher, Special Advisor at WRAP – typically have “water issues high on their agenda. Their supply chains are often shorter than foodservice, bringing them closer to the reputational and business risks that they could face. This has prompted them to be proactive, helping to safeguard against business risks, ranging from physical security of supply, to reputational damage. Take the example of press reporting that, in some areas, water resources are being diverted away from domestic supplies to avocado production for export markets, so that local communities are left short. If a major supermarket is sourcing from there and is linked to that kind of poor practice, it's a big deal. Leading businesses are being proactive

“Every chef or operator is in business to make money. Sustainability adds value to the bottom line. Those that recognise that, prioritise it.”

**Paul Crowley,**  
Marketing Development  
Manager,  
Winterhalter UK

in trying to understand potential issues like this and in working together with their suppliers and other water users to help improve how water is managed.”

Fragmented supply chains have sometimes distanced foodservice from these impacts, but awareness of water as an issue is growing. This has yet to translate into much concrete, on-the-ground action. But as customer expectations grow, so does the imperative for action.



### You pay if you don't meet increased industry pressure

Water stewardship is “becoming more of a hot topic,” one of the biggest hospitality providers confided, “particularly with the parched earth [seen in summer 2018] and reservoirs dropping.” Water is slowly but surely rising up the agenda.

“As a business owner, cook, managing director, you have to mitigate these issues,” notes John Campbell, newspaper recipe contributor, *MasterChef* guest and restaurateur at Newbury’s The Woodspeen. “What will harm our business, our brand, our legality? Part of that is wasting energy and wasting water.”

Foodservice giants including Compass, Sodexo, OCS, Bidfood and ISS have signed up to the WRAP Courtauld Commitment 2025. This aims to reduce the resources needed to provide food and drink in the UK by 20% in ten years. The Water Ambition component of Courtauld was launched in spring 2018 with the backing of signatories including Bidfood and ABP Food Group. It specifies that:

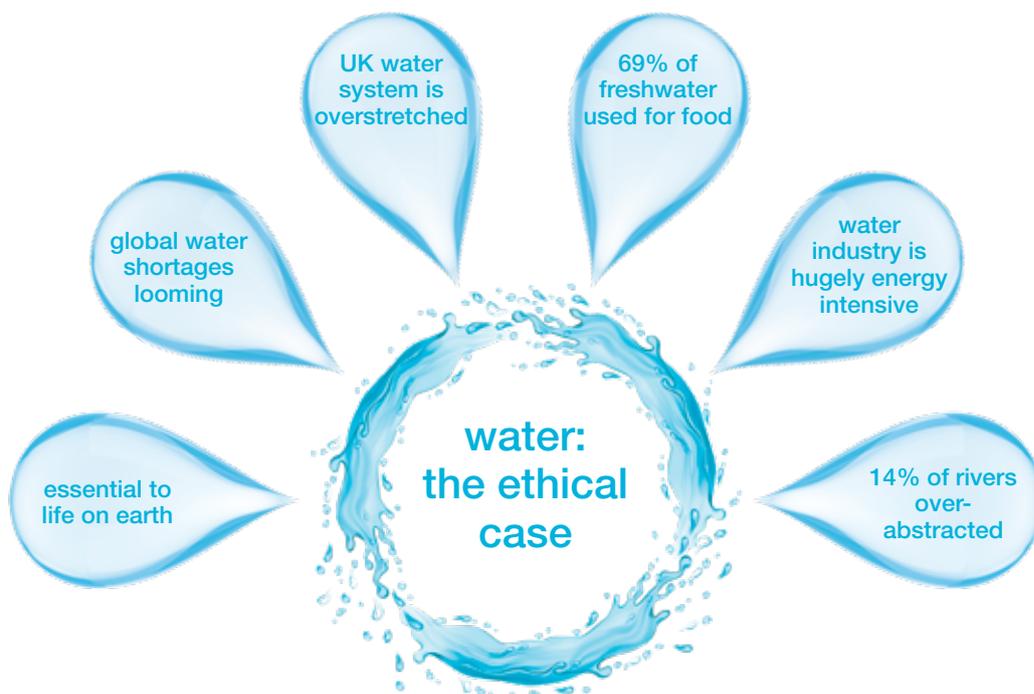
1. Business signatories are monitoring water use in their own operations and have improved efficiency.
2. Business signatories are participating in collective action to improve the quality and availability of water in key sourcing areas.

With other signatories including Boots, Coca-Cola, M&S and Tesco, pressure from within industry to tackle water and to commit to Courtauld is growing.

“Saving our planet and advancing economic growth... these are one and the same fight. We must connect the dots between climate change, water scarcity, energy shortages and global health. It is our common goal to better ourselves and ensure a cleaner and more sustainable environment is enjoyed by all.”

**Paul Anderson, Managing Director, Meiko UK**

## The ethical case

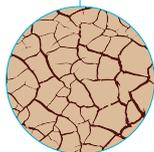


Water is essential to life. It has practical, cultural and even spiritual significance. Highlighting the value of this precious resource and our shared responsibility for managing it wisely can reawaken people's connection with water and be a powerful motivator.



### **Water is essential to life on earth**

Without it, our society and systems would not function. It is vital for growing food, for production, processing, hygiene and health. It provides power and controls fire.



### **Global water shortages are looming**

The [United Nations](#) predicts that global demand for fresh water will exceed supply by 40% in 2030 due to climate change, human action and population growth.



### **Our water system is overstretched**

Despite its reputation, the UK has less rainfall per person than Northern Europe, and London is drier than Istanbul. Water scarcity is already a reality and, if action is not taken, it will get worse. According to the Environment Agency, people in England will face shortages by [2050](#) unless we start using water wisely.

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## **69% of freshwater is used to produce the food we eat...**

...according to research by the WWF. This means water shortages are likely to lead to food shortages.



## **The water industry is hugely energy-intensive**

Collecting, treating and pumping water to homes, factories and workplaces, and maintaining the water system, are responsible for 1% of the UK's emissions, according to the NGO Waterwise. This does not include the impact of heating that water and using it, which dramatically increases emissions. Combine foodservice's impacts with food and drink as a whole, and DEFRA data indicates that the industry's water use rivals that of agriculture, forestry and fish.



## **14% of UK rivers are over-abstracted (WWF)**

This means they drop below the levels required to sustain wildlife because too much water has been taken out of them. In addition, 86% of river water bodies in England fail to reach Good Ecological Status, according to the Environment Agency. This is due in part to the contaminants that foodservice sends down drains, including chemicals, food, fats, oils and grease.

## **The hidden cost of water**

“The impact of water processing isn't understood,” notes Mike Hanson, Head of Sustainable Business at independent hospitality provider BaxterStorey. “Hardly anyone has an understanding of the energy used. People don't think about how water comes out of the tap... they don't realise the energy needed to pump the water around the system.”

In fact, it takes vast amounts of energy and resources – which are paid for via utility bills – to collect the water, to screen it, to treat it and to pump it around the system. Water might be taken from one place and returned to the cycle in another. Reservoirs in Wales, for example, may service areas as far away as Birmingham. So the availability of water in an area is not a reliable indicator of the supply in that area.

“Water and energy don't cost enough to be taken seriously,” Hanson notes. “The big boys take it more seriously – like Sainsbury's. Among smaller operators there is still a lack of understanding on the general environmental impact. But water is such a precious resource.”

## The solution: Operator action plan

“Investing in understanding the water infrastructure is preventative.”

**Senior Purchasing Manager,  
major national operator**

The business case and ethical case have been articulated. But where and how to take action? Here are quick wins and longer term, strategic commitments to provide a road map for more responsible water use in foodservice.

### Operator Action Plan

1. Find out how much water you use
2. Focus on FFOG
3. Engage your staff
4. Address the common hotspots
5. Evaluate cleaning systems and processes
6. Demand specs from equipment suppliers
7. Save tax with efficient installations and retrofitting
8. Investigate exposure to water risks in your supply chain

#### 1 Find out how much water you use

This is the most crucial step and should be a priority for every foodservice operator. Saving money and saving water are viable only if you know how much you use and how much you spend.

The deregulation of the water industry in England in April 2017 created an open water market, giving business a stronger hand and more bargaining power. Customers can negotiate with retailers on price and service packages, insisting on – for example – more regular, accurate meter readings.

## Case Study

### Getting to grips with water: self-supply

When the water markets deregulated, Greene King became the first self-supply licence holder. The alternatives were to stick with regional wholesalers (who would have retained the upper hand and which would have made it harder to compare bills/usage across different sites) or to transfer the entire account to a single retailer (which would have meant entrusting responsibility to a player who may have only recently entered this newly agile and competitive market).

The company recognised that deregulation gave it the opportunity to gain greater awareness and control of its assets.

It buys water from wholesalers and is responsible for metering and industry compliance. This has enabled it to understand how much water is being used across the estate and to negotiate better and more regular meter reads and bills to provide granular, site-level detail.

Other advantages include: flexibility; efficiency; membership of MOSL (the not-for-profit that operates the deregulated water business market); and the ability to directly influence the market.

“If you don’t measure it, you can’t manage it.”

**Eleanor Morris,**  
**Hospitality and Food**  
**Service Specialist,**  
**WRAP**

Deregulation has also meant that companies can choose to self-supply. This is ideal for organisations with high water usage on multiple sites, across which costs can be spread (see **Getting to grips with water: self-supply** for an operator example).

Five vital steps to better measurement and management:

#### 1.1 Insist water providers give regular meter readings and bills

This improves the monitoring of expenditure and the understanding and managing of water use. It can be negotiated at any time, but is a must-have when going out to market. Unlike electricity – for which businesses know where meters are, regular bills are the norm, and usage, cost and irregularities are readily observable – water is an unknown quantity. Bills are often estimates, issued infrequently. Meters are often offsite, underground and/or inaccessible – perhaps under a manhole cover that only two people can lift.

“The biggest challenge is visibility and the data to build a business case,” explains Claire Yeates, Director, Waterscan. “Because it is so hard to get accurate meter readings and bills, it’s incredibly difficult to measure your usage and costs; and to therefore provide the business case for doing anything to tackle it. Operators receive estimated readings for ages, then there’s a problem when you get a real reading and discover there’s a leak somewhere, in the huge distance between the site and the

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meter. And leaks are the customer's responsibility to fix, not the water company's. But unless they get better readings, operators are not going to know about issues until they have been going on for months."

Charging schemes, notes Yeates, are also complex. Water is based on geographical costs instead of the standard kilowatt rates for energy.

Consequently, most foodservice businesses will have only an approximate idea of their water use, of its cost and of irregularities.

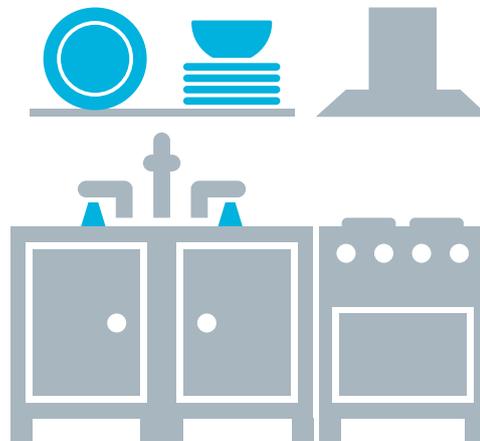
This makes demonstrating the business case for reducing water use tricky.

"We're in a better position because we have a handle on our data," acknowledged one Senior Procurement Manager at a major national chain. "The rest of industry are struggling to even get bills."

Insisting your water provider is required to – and actually supplies – regular meter readings and bills is crucial. If you do not measure and monitor your expenditure, you cannot manage it; from ensuring you are paying the right amount to reducing waste.

"I can tell you my electricity, water and phone bill now, this second. It's important for a business owner to understand where they are, otherwise it will bite them."

**John Campbell,  
Restaurateur,  
The Woodspeen**



## 1.2 Install submeters

Kitchens, according to Yeates, are rarely submetered. "Water volumes are provided for buildings, but this doesn't tell you where the water has been used. This is why people are focused on bathrooms – you can see it being used and the differences that interventions can make."

Installing submeters is therefore crucial to ensure sites are aware of the water they use in each area and the impact it has on the business. Real-time data from submeters also provides immediate information on spikes in consumption. This is especially important for sites that lack incoming water meters – perhaps as tenants within other operations – or those that have water bills assessed on rateable value, rather than metered use.

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Ensuring kitchens are submetered means sites pay only for what they use and are rewarded for efficiencies. This helps the detection of costly leaks and bad practice – such as when a site runs a dishwasher multiple times to compensate for a cleaning chemical having run out.

“People don’t think about water usage because metering is relatively new and there isn’t the consistent rating of equipment like there is with lightbulbs and cookers.”

**Mike Hanson,**  
Head of  
Sustainable Business,  
BaxterStorey

Once meters have been installed, it’s worth breaking down water metrics into something relatable. For example, Greene King equated its wastage to the number of pints it had to sell to recoup the cost of leaving a tap running. This inspired better water management because it helped site managers grasp the impact of wastage on their profit and loss.

Making the figures relatable also motivates users, who can see how their conservation efforts are reflected in reduced usage and costs. And, long-term, it helps future-proof businesses against water conservation legislation.

## 1.3 Be aware of what your usage should be

Benchmark your water usage against similar-sized businesses to get an idea of what normal use looks like. Then drill down and compare data on a site-to-site level to see which sites are performing poorly. This will also help to identify problems such as poor staff practice and leaks.

[The British Water Code of Practice](#), for example, includes food preparation benchmarks that identify the water use of different meal types; from fast food (12 litres per meal) to luxury restaurant catering (30 litres per meal).

This might seem small, but [eight billion meals](#) are served per year by foodservice. According to research by WRAP, the average water use per meal, across the five types identified by the code of practice (fast food; function rooms including buffets; snack bars and bar meals; restaurants – pre-prepared catering; restaurants – luxury catering), is 19.4 litres. That means the annual water use, across meal types, is 155 billion litres<sup>1</sup>. That’s the equivalent of 62,000 Olympic-sized swimming pools, every year.



1. Calculation based on figures from [wrap.org.uk/content/overview-waste-hospitality-and-food-service-sector](http://wrap.org.uk/content/overview-waste-hospitality-and-food-service-sector)

### 1.4 Do an audit

Check sites and see what is happening where. Start at the water meter and check that it serves that property only. Check its integrity – is it reporting properly? Check the internal riser (a system of pipes and valves inside the building, permanently charged with water) and do a drop test to check there is no leakage.

Do a complete walk-through of the building and kitchen to measure every point of use – each tap, dishwasher, steam oven, cistern etc – to check usage and working practices and to identify hotspots.

### 1.5 Consider getting in the consultants

Talk about reducing your cost and consumption with an environmental consultant. Some, such as Waterscan, work on a “no win, no fee” basis. By improving efficiency and negotiating with wholesalers, they can drive down operational costs.



“We’ve worked with a consultancy to analyse water use versus sales,” explains one industry insider for a casual dining chain, “to see how different models change our water usage and to target outliers. We want to know, ‘Who is wasting water and why?’ Getting better data should mean that will start to become clearer... We are also trialling every possible tech to see what works and what doesn’t.” This ranges from smart water and energy efficient dishwashers to aerated spray taps, grey water recycling, low-flow taps and pressure sensors. Cleaning is also an area of focus, with ECA ionized water systems replacing potentially toxic chemicals.

## 2 Focus on FFOG

Forget, for a moment, that food, fats, oils and grease are environmentally disastrous. The business case for tackling FFOG is compelling. As [British Water](#) warns, “Blocked or inefficient drains inside or close to a foodservice site severely limit the operation and cause many problems including hygiene, smells and food safety issues, as well as costing money to resolve... Businesses also risk blocking their own drainage systems, resulting in extra direct costs to the operator in clean-up efforts.”

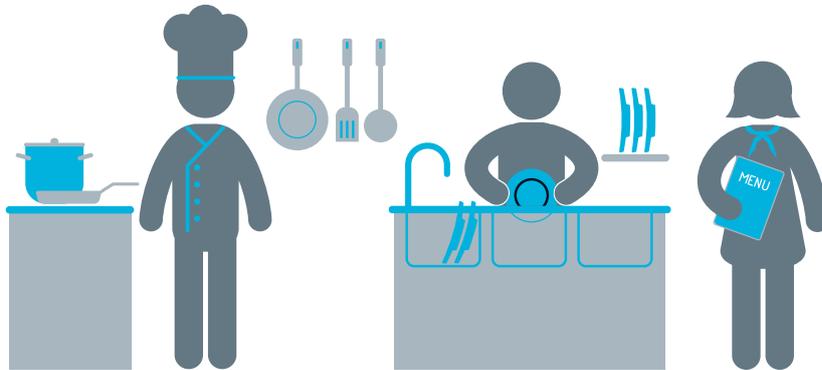
FFOG also carries a legal risk. The Environmental Protection Act rules that you remain responsible for FFOG waste that you create even when it is being transferred and disposed of by a third party.

Tips on tackling FFOG can be found on page 24.

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## 3 Engage your staff



No change in culture succeeds without support from those on the frontline. Kitchens may be staffed – and cleaned – by a shifting cast of crew members. It is vital that everyone knows what is expected of them and how to use and maintain equipment, and that standards are maintained.

Ways to engage staff include:

### 3.1 Incorporate water practices into routine and mandatory training

Making water an explicit part of training and kitchen responsibilities embeds water management into everyday practices. The key is to ensure staff are aware of how things should be done and how important it is that responsible practices are adhered to.

Ensure maintenance is part of the routine. From grease traps, to scaled-up spray nozzles and taps, and dishwasher rinse aid dispensers, improperly maintained equipment usually leads to poor functionality and more water being wasted. In the worst case, it can lead to major malfunctions and expensive repairs.

When briefing staff on responsible practice, put water into context by sharing the ethical case (see **The ethical case** on [page 11](#)) and the business case (what's bad for the business is ultimately bad for its employees – see **Costs and impacts** on [page 7](#)).

“There’s an element of, ‘It’s not my money.’ But when you explain it, staff see it’s common sense. At home, you don’t put all the TVs, lights and kitchen equipment on – why do it at work? It’s training.”

**Senior Purchasing  
Manager,  
major national chain**

Provide context – for example, to their home life, or ways to visualise the amounts saved – to make water management real and relevant.

“Everyone has personal values,” notes Mike Hanson, Head of Sustainable Business, BaxterStorey. “The environmental angle might float your boat. Or you care because you think: ‘It’s costing me and my client money – and, if I can save the client money, they’ll use me more.’ The key is to find the angles that appeal so that each person is bought into responsible water use.”

### 3.2 Harness the power of manufacturers

Equipment manufacturers are an important ally and can often help and support staff training and processes.

Winterhalter, for example, offers training and support to make sure there are key, trained individuals on-site who know how to operate, maintain and monitor machinery. This is especially important for chain operators that have high levels of staff turnover.

Paul Crowley, Marketing Development Manager at Winterhalter UK, commented on the implementation of their system at a major restaurant chain: “There’s pressure on the regional managers to make sure all their sites are operating at an optimal level. By ensuring that we have trained staff in each outlet, the guys on-site know what our machines do and when we’re coming to do training and servicing. It’s had a real impact. We do charge more for this service, but the chain was able to demonstrate the savings and impact on business. In three months, they halved what they spent on service, which has an impact on operating costs and their use of natural resources.

“If a machine breaks down, washing up by hand is really expensive. So our service is proactive: the client pays us to come before malfunctions or issues. It’s like an MOT. And it has an impact on staff retention. If you’re employed to wait on tables and are instead up to your elbows in dishwasher, it’s enough to make people walk out of jobs. So being proactive about training and maintenance has far-reaching implications.”



### 3.3 Get staff involved in finding solutions

Ask staff for suggestions: they will be more motivated if they are involved in coming up with solutions and implementing new practices. And, in high-pressure kitchen environments where the emphasis is often on speed of service, this will help find workable solutions. Setting targets for reduced usage, and rewarding achievement, also add motivation.

One of the challenges is finding the time and space to incorporate sustainability discussions in hectic kitchen environments. BaxterStorey has capitalised on coffee breaks by creating Green Flash: peer-led training modules on topics such as water and food waste. These provide facts, figures and prompts that can facilitate a green-themed discussion of working practices, challenges and solutions over a 20-minute break. The relaxed, informal and, importantly, staff-led nature of this approach has helped inspire staff to find and implement solutions.

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## 3.4 Appoint on-site water and energy managers

Owner-managers are more likely to care about costs, sustainability and water use because they see the impact on the bottom line. But these may not be priorities or even on the agenda for staff operating or managing kitchens on behalf of others. In restaurant chains, for example, the operating costs of multiple sites may be the remit of a regional manager who is more likely to be focused on overall figures.

Making water and energy the responsibility of an on-site manager can change this. An on-site manager is more likely to be invested in the kitchen's conservation efforts – especially if they are rewarded for savings. They are also more likely to engage staff effectively, as their personal relationships with

colleagues should help them find the right

ways to inspire. And, being on-site, they can ensure that water-saving practices are adhered to. On-site managers are also more likely to spot anomalies in usage and so are more likely to deliver cost-effective results.



“If you give them the tools to make a positive change, they will grasp them and do it. You don't find many lazy people in kitchens – it's hard work!”

**Claire Yeates, Director, Waterscan**

## 3.5 Check how interventions work, feed back success and share best practice



Monitor the success of interventions so that approaches can be tweaked and optimised. Share best practice – both within your business and within the industry. Industry insiders find it helpful to attend forums with other businesses – to discuss what works and what doesn't, and to swap notes on kit, staff engagement and other

water-related issues. It makes finding solutions quicker and easier and provides welcome support and motivation.

Internally, it is important to feed back success and achievements. Knowing how effective water-saving strategies are can inspire staff, so ensure savings are presented in a meaningful way. “We've seen a real change in staff behaviour when they can see what it means and what impact their behaviour has,” notes Claire Yeates, Director, Waterscan. “It's like a fitbit™ obsession – suddenly staff can see how far they've come and they want to beat it. They want to be engaged – people are passionate about these things anyway. But we've seen efforts accelerated tenfold by having that visibility of data. People like to make a positive contribution to their role.”

Staff do not leave their values at the door when they come to work. Helping them tackle issues that matter to them, like waste, creates positive associations. So, while they might not be motivated by helping the business save money, when wastage and savings

parallels are drawn between behaviours at work and behaviours at home, it can make a big difference.

For example, Yeates persuaded a cynical member of staff, who was accustomed to taping a pre-rinse tap open, to stop. She explained how the water saved translated into laundry loads at home and how water is becoming scarcer in the context of a parched future (see [The ethical case](#) for more). Linking the staff member's behaviour at work to their family and the wider environment made them connect with water as an issue and to feel personally responsible for, and invested in, usage. When Yeates returned for a follow-up, the staff member was positive about using the tap correctly and had not taped it back up.

## 4 Address the common hotspots

Each kitchen has its own areas of water weakness. The following checklist highlights hotspots common to commercial kitchens.

Approach water wholesalers for their input on what is most effective for your site and for your local water and sewage setup. Wholesalers can work out and monitor pressure in your area and understand exactly what your operating needs are, ensuring that the kit you're interested in is right for you. Water pressure and flow are particularly important: check these meet the requirements of any kit that is being considered. That information can often be found on wholesaler websites.

Kitchen hotspot hitlist:

### 4.1 Taps



**Reduce flow with aerators and pressure regulators.** These reduce flow rates without the need for changing tap fittings. Tamper-proof varieties of aerator prevent their removal. Volumisers can also dramatically reduce heating [costs](#) because the water does not feel as cold.



**Stop running taps.** Leaving taps on unnecessarily is a common kitchen practice; for example, to wash vegetables or thaw food in a sink constantly filling with clean water.

Spray taps, primarily used to rinse plates before the dishwasher, are often taped open so they can simply be lifted from sinks without having to be turned on.

Yet a running tap wastes more than six litres every minute. The charge for this water adds up to the cost of an average pint of [beer](#) every hour, or a staff member on the [minimum wage](#) every two hours<sup>1</sup>. Remove tape and ensure staff turn taps on only when they are required.

1. Calculation based on figures from [tapwater.org/faqs](http://tapwater.org/faqs) (water price), [yougov.co.uk/topics/food/articles-reports/2018/06/01/average-price-pint-60p-more-brits-think-reasonable](http://yougov.co.uk/topics/food/articles-reports/2018/06/01/average-price-pint-60p-more-brits-think-reasonable) (beer price) and [gov.uk/national-minimum-wage-rates](http://gov.uk/national-minimum-wage-rates) (minimum wage)

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Ideally, install gadgetry that makes water efficiency the standard. Pedal or sensor-operated taps, and trigger-activated pre-rinse spray valves, mean taps are not left running. And a silicone dish squeegee is a good alternative to a pre-rinse spray valve: it cleans the plate and uses half the water.



**Stop drips.** A dripping tap wastes at least [5,500 litres](#) per year. A dripping hot water tap wastes energy too. So fix dripping taps and, to minimise leaks, replace rubber seals in tap fittings with inexpensive ceramic valve retrofits.

## Stamp out the drips

Dripping taps can be a massive problem. “We went to one site,” observes Mike Hanson, Head of Sustainable Business, BaxterStorey, “where every other tap was dripping. Consider this over a 24/7 time span and that’s a significant amount of water that you’re paying for twice. And then there is the environmental and ethical impact: that water has been through unbelievable amounts of treatment and has required enormous amounts of energy.” So, ensure staff understand the importance of fixing dripping taps and know what to do when they see one.



## 4.2 Warewashers

Warewashers are among commercial kitchens’ premium water users. So it is important to ensure that they are run, maintained and dosed correctly. Train staff to only run full loads. One full load, instead of two half-loads, saves 30 litres of water per week. Even a high-efficiency machine cannot adequately compensate for an insufficient load. This is a particular problem at the end of shifts when staff may run only a few items to leave the decks clear for the next day.

When choosing warewashers, check specifications for sustainability-related features such as those in the list below.



**Automatic load recognition technology.** This adjusts water and electricity use to match the number of dishes in the machine.



**Wastewater and exhaust heat recovery and heat retention features.** These can save up to 21% on energy costs, according to manufacturers such as [Meiko](#). Heat recovery from the exhaust also prevents steam from escaping, uncontrolled, into the kitchen, improving working conditions.



**Feedback technology.** This shows the estimated consumption on the machine’s display. This helps staff understand and keep track of the energy and water used.



**Soil sensors.** These test how dirty dishes are and adjust the cycle to achieve optimum cleaning and minimum water and energy usage.

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**Improved water filtration systems.** On larger Meiko flight dishwashers, for example, each wash tank features a multiple stage filtration process that first collects food soil, then flushes it out of the tank in high pressure cycles. This improves performance, eases cleanup and reduces detergent consumption by up to [50%](#).



**More efficient jets.** Innovative designs use less energy to spray detergent and water when cleaning.



**Innovative dish rack designs.** These ensure machines clean better, with fewer resources, while fitting more in.



**Built-in reverse osmosis.** Offered by water-savvy manufacturers such as Meiko, this technology delivers “hand-polished” results, especially on cutlery and glassware. It lessens the consumption of chemicals such as detergent and rinse aid and reduces the need for water-softening apparatus.



**Smart systems.** These allow warewashers and other water-using devices to be remotely controlled via an app, either individually or as a whole estate. For example, Winterhalter’s Connected Wash system warns when there are no chemicals or water, or if a wash arm is blocked. It can show when doors are opened too early, when machines are switched on unnecessarily and when the machine’s self-cleaning programme is not used.



**Size of wash tank.** Manufacturers have been working hard to reduce the size of wash tanks, so check the size before you buy. Tank size has an impact on the amount of water consumed as they may be emptied and refilled several times per shift.



**Amount of final rinse water.** Responsible manufacturers have also reduced the volume of rinse water consumed per rack or per hour, creating major water and cost savings.

## Sparkling results

As technology improves, water saving often goes hand-in-hand with other positive features. For example, a Meiko UK partnership with a leading high street pub chain to improve the wash quality of its glassware has already saved over 13.5 million litres of water per year.

Beginning in 2012, glasswashers that consumed 3 litres of water per final rinse were replaced by ones that consume 2.6 litres per final rinse. This saved 400ml per rinse. A pub typically washes 50 baskets of glasses per day. The daily saving was therefore an average 20 litres. Multiplying that by the 1,858 glasswashers in the chain’s estate meant a total saving of 13,563,400 litres every year.

Now, those 2.6 litre per final rinse machines will be replaced as required with 2.4 litre consumption machines, providing a further 200ml saving – or, ultimately, another 6.7 million litres saved annually. These new generation machines can also feature 15% energy reductions from integral heat recovery.

### 4.3 Drains

Grease traps, grease removal units and biological/bacteria-based dosing must be implemented and maintained to ensure FFOG is tackled.

Top tips for tackling FFOG include:

 **Collaborate with the water suppliers.** Operators can be at the mercy of salespeople keen to sell equipment. Waste disposal units might sound like effective ways to get rid of food waste, but they use huge volumes of water and the residue they add to drains strains the sewage system. So, ask your water supplier or a body such as British Water about the FFOG hotspots for your area and your business, and what best suits your site and specific needs.

When it comes to organic waste, innovations such as the Meiko WasteStar are effective solutions that do not impact waterways. In the WasteStar system, organic waste is transferred to WasteStar FC feeding stations at the points where it is generated, e.g. in the food preparation area. A vacuum pump sucks the waste into a collection tank so it can be collected and converted into biogas.

 **Ensure kit is properly maintained.** Grease traps, grease removal units, dosing systems and other FFOG-related kit require regular cleaning and maintenance to ensure they are working effectively. Ensure staff understand what is necessary and that maintenance is built into their regular routine.

Southern Water warns: "If the system is not working properly, then your premises can still be in breach of the Water Industry Act 1991... If FFOG and leftover food from your premises causes a blockage in the public sewer, you may be held responsible for the cost of the work to repair the pipe and clear up flooding and pollution."

"Wholesalers can work out and monitor pressure in your area and understand exactly what your operating needs are, ensuring that the kit you're interested in is right for you."

**Claire Yeates,  
Director, Waterscan**

### 4.4 Water treatment

Water softeners remove calcium, magnesium and other metals from hard water. This means less soap is required for cleaning as it is not being used to mop up calcium ions. They also extend the lifetime of plumbing by reducing or eliminating scale build-up in pipes and fittings. This is why water softeners are popular in commercial kitchens. However, Waterscan Director Claire Yeates advises checking whether there is a water softener for a building's supply. If there is, there is no need for an additional one in the kitchen. It will increase costs and use extra water during its recharging.

Check that the water softener is regularly maintained and restocked with salt. If it is not, it will use significantly more water and energy as it will not function correctly. This can be a particular problem in sites where softeners are not on the ground floor. In this scenario, heavy bags of salt may fail to reach the softener because staff find it difficult to carry them there. If this is the case, find a safe system to ensure salt reaches the softener without straining staff.

It is also worth knowing that dishwashers with integral or built-in reverse osmosis eliminate the need for water softeners and use much less water than softeners to pre-treat incoming water. Reverse osmosis also lessens the consumption of chemicals such as detergent and rinse aid and improves the energy efficiency of electric heating elements by ensuring minimal limescale.

## 5 Evaluate cleaning system and processes

Cleaning is another water-intensive area – from the water consumed to the water and chemicals that go down the drain, and their potential downstream costs and impacts. [WRAP](#) notes: “Excessive use of water for cleaning brings many additional costs, such as labour, downtime, lost materials, cleaning chemicals and energy for heating and pumping.”

Simple changes to cleaning routines go a long way towards reducing water use and environmental impact:

### 5.1 Use mops or water-brooms to clean floors, not hoses

“Dry clean-up is simple,” notes [WRAP](#). “Don’t use water and keep waste materials out of the drains. It is often the most practicable and effective way of reducing water consumption and COD [chemical oxygen demand] levels in effluent and most of it is common sense. If there is waste material on the floor or in a machine, pick it up, brush it into a waste container, vacuum it out or remove it in some other way before cleaning with water.”



### 5.2 Stick to the correct chemical dilution ratios

Put clear instructions on cleaning chemical containers and use automatic dosing machines if possible. Monitoring monthly chemical usage will help you identify if incorrect quantities are being used.

### 5.3 Use eco-cleaners where possible

Avoid environmentally damaging chemicals and purchase eco-labelled chemicals where possible.

Consider an ECA ionized water system instead of potentially toxic chemicals. This nontoxic cleaning system cleans and disinfects using only tap water, salt and electricity. According to its [manufacturer](#) the system “can replace most of your day-to-day cleaning chemicals for use on all hard surfaces such as worktops, food preparation areas etc.” It won’t replace limescale removers or strong degreasers, but can significantly reduce the use of chemicals. This can reduce both water usage and the volume of chemicals going down the drain.

### 5.4 Install grey water recycling systems

These filter and clean water from washing machines and sinks for use in toilets and outside taps.

## 6 Demand specs from equipment suppliers

Research by Footprint Intelligence and manufacturer Hoshizaki concluded that energy-efficient catering equipment may have higher purchase prices, but is usually more cost-effective when whole-life costings are compared – and energy efficiency tends to go hand in hand with water efficiency.

“It’s up to the manufacturers to ensure equipment is super-efficient, to keep the operator’s costs to a minimum.”

**Mark Roberts,  
Marketing Manager,  
Meiko UK**

The Equipped for the Future research concluded that operators should, “Demand energy efficiency and other whole-life costings in tender documents.” This is because “incorporating legally appropriate wording in tender documents would force manufacturers and vendors to make this information available so products can be more easily compared.”

When purchasing water-using kitchen equipment – warewashers in particular – insist on comparable usage costs for energy, water and, ideally, chemicals. These can be used to accurately compare different models. There might not be standardised efficiency ratings for commercial warewashers, but reliable manufacturers can provide detailed breakdowns.

“A full specification – including all the stages of the wash, all the water use and how much the dishwasher or glasswasher uses in an hour – is freely available from Meiko,” says Meiko UK Managing Director Paul Anderson. “We provide this level of information so our clients can make meaningful comparisons.”

Winterhalter’s Paul Crowley notes: “If [sustainability is] not on the [customer’s] radar, they say, ‘Why would I spend typically £1,500 more for a product that saves water or energy?’ They don’t see the link between sustainability and the more medium and long term.” Operators should be persuaded to factor in the whole life cost and to work with energy management, asset management and any other relevant teams – not simply choose the equipment that costs the least and keeps individual teams on-budget.

“It’s simple: manufacturers need to be making more efficient machines.”

**John Campbell,  
Restaurateur,  
The Woodspeen**

## 7 Save tax with efficient installations and retrofitting

The UK government's enhanced capital allowance scheme for water provides a 100% first-year allowance for some water-efficient technologies. This means you can write off the entire cost against taxable profits in the year of purchase. The Water Technology List details eligible water technologies and products – updated each year by Defra – and can be found at [www.watertechnologylist.co.uk](http://www.watertechnologylist.co.uk).

It is also worth checking if loans – government or otherwise – are available for investment in water conservation technology.

### Case Study

#### Water wise

Greene King has saved the equivalent of [676,313 pints](#) of water every day since obtaining a self-supply licence to deliver its own water and wastewater services in 2017.

Keen to “really get to know its assets”, the pub chain and brewer partnered with environmental consultants Waterscan. The first step was to get metering and cost data from water companies. This was checked to ensure its accuracy – a challenging task as water meters are not always accessible. But the investment in regular, accurate readings paid off. It allowed Greene King to focus on prevention and to target interventions where they were needed most.

For example, the company looked at readings from before and after 2018's Beast from the East weather system, to identify quickly where pipes were cracked.

Benchmarking allows Greene King to identify poorly performing sites. If two sites serve the same menu and similar covers, but one uses more water than the other, it can investigate whether there is a leak or an issue with staff practices and work with the site to address it.

Now that the company has more detail on its usage, costs and potential savings, the business case can be advanced for more proactive water-efficiency measures.

## 8 Investigate exposure to water risks in your supply chain

“The need for water is fundamental to the production of everything sold in the foodservice sector,” notes Karen Fisher, Special Advisor, WRAP. Yet much of the food we consume is imported from countries that are drought-prone – and, all over the world, water is becoming an increasingly strained resource. Action is imperative so that the sector is resilient amid future pressures and can deliver for its customers.

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“Chefs, kitchen staff, suppliers, utilities... everyone needs to work together... Efforts needs to be collaborative. This will save lots of water.”

**John Campbell, Restaurateur,  
The Woodspeen**

Specifically, your business could be exposed to the following commercial risks related to sourcing:

- Future security of supply (e.g. availability of sufficient water to produce that crop in that location)
  - Food safety (e.g. shortages leading to increased potential for substitution)
  - Reputation (e.g. sourcing from drought-prone areas impacting on local communities)
- Changes in legislation (e.g. future restrictions on abstraction licenses or discharge consents)

The next step in the journey to making your business resilient to water risks is to look beyond your own operational boundaries and to investigate your exposure.

- Compile a list of known sourcing locations – e.g. countries where you, or your suppliers, typically source fresh produce from; important sourcing regions in the UK, etc.
- Use the [WWF Water Risk Filter](#) to understand where the biggest risks lie across these locations.
- Work with others to address the biggest risks you identify. Water is a shared resource, so you can't reduce your water risks alone. The Courtauld Commitment [Water Ambition](#) is setting up collective action projects in a number of locations, so that businesses can work together with suppliers, producers, water companies, NGOs, local initiatives and others to tackle water challenges in shared sourcing areas.

“We all, as manufacturers, have a huge responsibility to help reduce water and energy consumption. Meiko UK is always looking to be at the forefront of innovations that help reduce our environmental impact.”

**Mark Roberts,  
Marketing Manager,  
Meiko UK**

## What can kitchen equipment manufacturers do?



This report is operator-focused, but manufacturers of equipment such as warewashers have a significant role to play in driving responsible water use in commercial kitchens. Two key areas need to be addressed:

### **1 Provide comparable usage data**

Customers must be able to compare equipment's water usage and efficiency. Industry standards for warewashers and other water-using equipment would help customers and bolster manufacturers' reputations for transparency and responsibility. However, until such standards are mandatory, manufacturers – especially of warewashers – should provide trustworthy data on consumption and costs, ideally using shared metrics.

“It falls on the supplier to make operators aware of water costs and, more importantly, the equipment's efficiency,” observes Mark Roberts, Marketing Manager, Meiko UK. “We believe in transparency, so we often provide running-cost calculations that highlight the efficiency of our equipment. This also enables our clients to see the bigger picture of costs over a number of years.”

### **2 Prioritise innovation and efficiency**

Responsible manufacturers of water and energy-using kitchen equipment, such as warewashers, already prioritise sustainability – both in the production and manufacture of their equipment and in their use. A focus on innovation over the past thirty years has resulted in [Meiko UK](#) warewashing machines using 70% less water and 30% less energy.

For example, if you add up the savings from Meiko's award winning M-iQ flight-type transport machines worldwide, they save some 12,300,000 m<sup>3</sup> of water every year,

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compared to older Meiko dishwashing technology. This is enough to provide a city of around 250,000 inhabitants with water for a year. Meiko has also reduced its entry-level model wash tank size from 20 litres to 11 litres and reduced rinse water consumption from 3 litres to 2.4 litres.

Operators have noticed that sustainability improvements benefit the bottom line. Manufacturers have noted that the “inexorably rising cost of energy, water and detergents”<sup>1</sup> impacts on how operators choose warewashers. That is prompting manufacturers to focus on “bringing down energy consumption – in particular by recycling and managing heat within the wash cycle, recovering it from the final rinse stage and returning it to the input water cycle – and lowering overall water and chemicals consumption.”<sup>1</sup>

## Conclusion: From action plan to common practice

The water impacts of foodservice have been overlooked for too long. It is time to rethink the role kitchens play in using water responsibly.

This report provides guidance for operators on why, how and where to take action in eight key areas:

1. Find out how much water you use
2. Focus on FFOG
3. Engage your staff
4. Address the common hotspots
5. Evaluate cleaning systems and processes
6. Demand specs from equipment suppliers
7. Save tax with efficient installations and retrofitting
8. Investigate exposure to water risks in your supply chain

This report also highlights the key role equipment manufacturers play in providing comparable usage data and prioritising innovation and efficiency.

Taking the lead and adopting responsible water practices enables operators to save money, build resilience, strengthen their brands and play an important part in changing an outdated status quo.

So, are you ready to stop sending **money down the drain?**

### About 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.

### About Meiko UK

Meiko UK is the UK arm of the international warewashing specialists Meiko Group. Meiko's mission is to make the world a cleaner place by using innovative technology for warewashing, cleaning and disinfection. Meiko products combine optimum cleaning results and high levels of efficiency. The company's aim is to produce products which help to conserve resources, achieve energy and water efficiency, and which protect the environment.

### Research description

Footprint Intelligence was commissioned by Meiko UK to conduct this research about water usage and conservation in foodservice kitchens. The results are a mix of desk-based research and semi-structured interviews. Over 10 experts were canvassed, with the sample including operators, equipment manufacturers, environmental consultants and a water company.

Footprint Intelligence is indebted to the industry experts who generously gave their time and insights as part of the research process.

### Report author

Amy Fetzer is Head of Research and Analysis for Footprint Media Group. A journalist, author and consultant, Amy is passionate about helping individuals and organisations become more sustainable and more successful. She is the co-author of *Climb the Green Ladder: Make Your Company and Career More Sustainable*. Current and past clients include EY, Canvas8, Sodexo and Hewlett-Packard.

Amy has an MSc with Distinction in Sustainable Development from the University of Surrey, winning the Roland Clift Award for Environment and Sustainability Research.

Additional research and editorial by Bruno MacDonald.



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The clean solution