

Saving water in your business

The five-step plan to save
water, energy and money



Water is essential for business

There are lots of opportunities to reduce the amount of water you use and save money.

Saving water will increase profits through lower water bills and lower energy bills thanks to a reduction in hot water use. Whether you're in charge of a production line, restaurant or office block, saving water should be a key business target and best of all, it only means taking a few simple steps.

Step 1	Find out how much water you use
Step 2	Identify ways to cut water consumption
Step 3	Draw up an action plan
Step 4	Implement your action plan
Step 5	Measure, monitor and report success

This guide focuses on general water use in commercial organisations but does not cover water use in industrial processes.

We want to encourage businesses to investigate how water is used at each of their sites, look at opportunities and set targets to improve water efficiency.

Key benefits

of reducing your business water use

Save water, energy and money

Saving water is not just an environmental initiative – it could also save you money. Small changes could mean big benefits. In addition to reducing your water bill, you could also make savings on energy bills by using less hot water.

Reducing Water Regulations risk

The main purpose of the Water Supply (Water Fittings) Regulations 1999 is to prevent waste, misuse, undue consumption and the contamination of wholesome water supplies.

As a minimum, your organisation must comply with these regulations.

Reduced environmental impact

Water companies abstract water from the local environment. Reducing water use will help to protect the environment and lessen your carbon footprint.

Reputation benefits

Corporate social responsibility is more important than ever. Being environmentally-friendly will be valued by your clients, investors, the public and your staff.

Step 1

How much water do you use?

The aim of Step 1 is to help you understand how much water you're using in your business as well as where that water is being used. You can do this using your past water bills on their own or, in addition, by reading your water meter on a regular basis. See the information sheet at the back of this pack if you are unsure how to read a meter or do not understand your bills.

Analysing past water bills

A useful measure of water consumption is the Average Daily Usage (ADU). This can be used to show your water consumption over time, known as a Water Demand Profile. The profile can show you any changes in water use by your premises that you may not otherwise be aware of.

To produce your profile:

- Take all your previous water bills (over at least three years if possible) and organise them into individual years.
- Identify the total volume of water used by your premises by adding the water volumes (shown as m³) on your bills. This can be done for any period, but is most commonly done on an annual basis or quarterly if your water use is likely to vary from season to season.
- Calculate the ADU by dividing the total volume of water used by the number of days in the period. For example, if an organisation uses 10 cubic metres (m³) of water in 10 days, the ADU would be 1m³ per day.

Unit conversions

1m³ = 1 cubic metre
1m³ = 1,000 litres
1ML = 1,000,000 litres
1ML = 1,000 m³
1m³ = 220 gallons
1ML = 220,000 gallons

See Table 1 below for an example of how to set out your water meter readings and calculate your ADU.

Year	Consumption for Q1 m ³	Consumption for Q2 m ³	Consumption for Q3 m ³	Consumption for Q4 m ³	Total annual consumption m ³	Year ADU m ³ (total/365 days)
2012	150	134	187	162	633	1.73
2013	147	136	185	160	628	1.72
2014	139	121	170	170	600	1.64

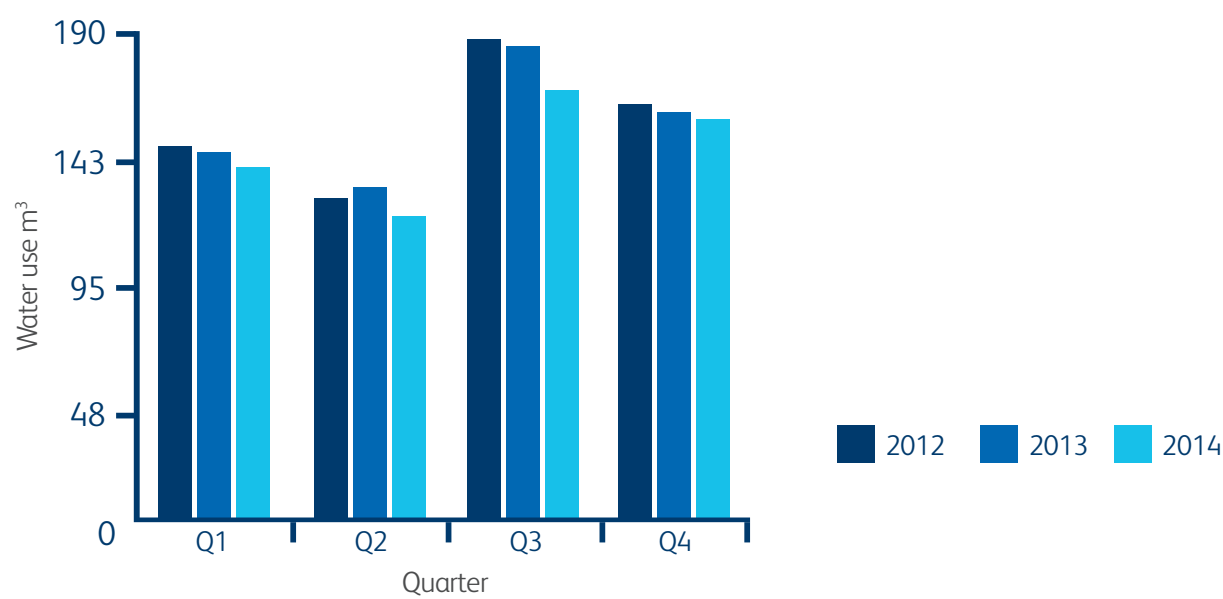
Table 1: Example of water profile using water meter data

If you have more than one meter you will need to calculate the ADU based on the combined meter readings. See Table 2 for an example of how to set out your water meter readings if this is the case.

Year	Consumption for Q1 m ³	Consumption for Q2 m ³	Consumption for Q3 m ³	Consumption for Q4 m ³	Total annual consumption m ³	Year ADU m ³ (total/365 days)
2012 (1)	150	134	187	162	633	1.73
2012 (2)	73	68	81	77	299	0.82
Total 2012	223	202	268	239	932	2.55
2013 (1)	147	136	185	160	628	1.72
2013 (2)	70	71	79	76	296	0.81
Total 2013	217	207	264	236	924	2.53
2014 (1)	139	121	170	170	600	1.64
2014 (2)	68	68	75	72	283	0.78
Total 2014	207	189	245	242	883	2.42

Table 2: Example of water profile using water meter data where multiple meters are used.

Sites where consumption remains relatively stable should be able to note a reduction in a much shorter monitoring period, for example through weekly reads, whereas sites with seasonal variation should review changes in annual consumption. A good visual appreciation of water demand can be gained by plotting this data on a graph to show your water demand profile. Graph 1 below shows an example using the figures from Table 1.



Graph 1: Annual water use from bills.

Using your meter

By reading your meter(s) and recording water use directly you will be able to monitor consumption on site. You can then compare these readings to those on your water and sewage bills.

It's important to check your water meter on a regular basis – daily, weekly or monthly. Frequent meter readings will provide a more detailed understanding of your business's water use.

The WRAP water monitoring tool can also help you to record your water data. The water monitoring tool is a Microsoft Excel spreadsheet which will generate tables and graphs for weekly, monthly and annual water use for up to five separate meters. You can download it here: wrap.org.uk/content/water-monitoring-tool-0

Things you should note while recording your water consumption:

- Check any increase in water use with changes in the business. If you've not increased your headcount or installed new water-using devices you may have a leak.
- If there is water use when your site is closed (e.g. overnight or at weekends) this could indicate a leak or perhaps fixtures, like automatic urinals, operating unnecessarily.
- If you are using water across a number of different zones or facilities within your site, it may be worthwhile installing sub-meters to monitor water use in each process area to give you a clearer view of your water use.

Monitoring your water use – automated meter readings (AMR)

Automated meter reading (AMR) is meter technology that reads your water consumption status data at more regular intervals and either sends it directly to you or to us or records your water usage over a set period of time as part of a water audit. See Diagram 1 for an example of hourly monitoring information you can see if you have AMR installed.

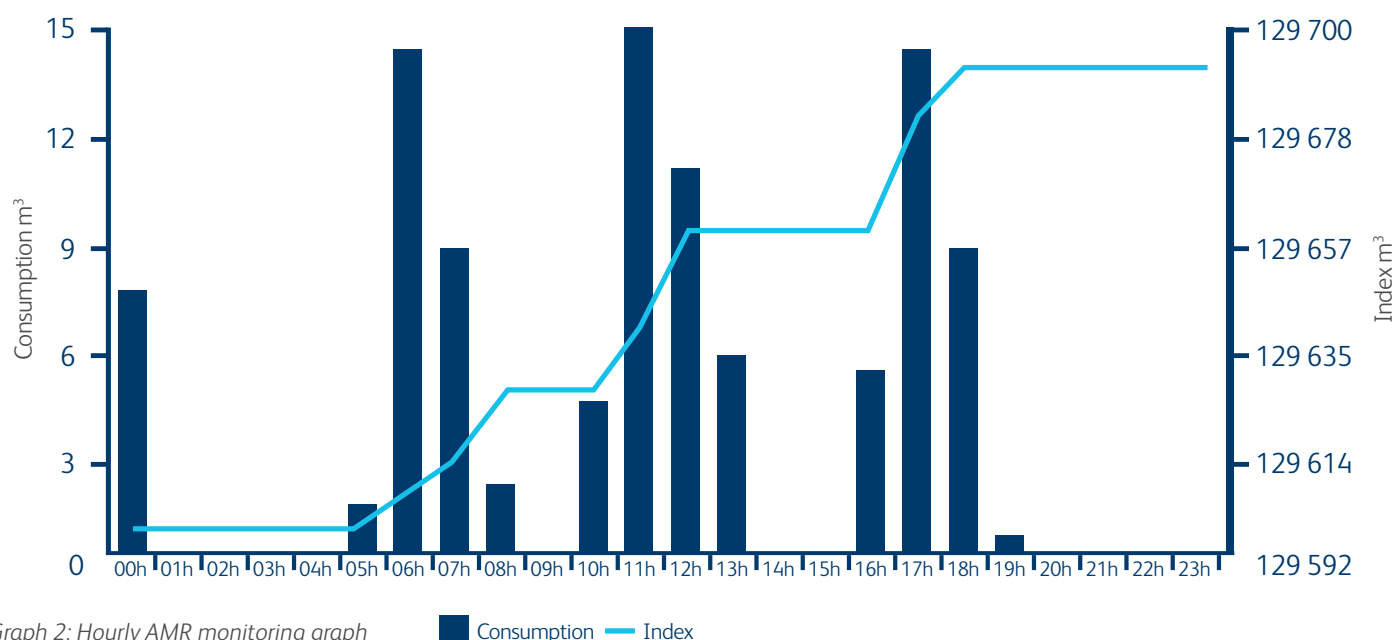
AMR technology will be able to help you:

- Monitor water use patterns through the day according to operations and user behaviours
- Identify abnormal use patterns, typically associated with leaks or malfunctioning fixtures/fittings (e.g. continually flushing urinals)
- Confirm water savings achieved

We can provide AMR services for your business. For more information, please email enquiries@thamescommercial.co.uk

Large commercial sites with complex water use requirements can benefit from developing their own water balance. This is a tool that can show where water enters and leaves your business and how it's used in between. It's a way of gathering and presenting information about water use that can help you to:

- understand water use over the whole site
- identify the best areas to invest in
- detect leaks



Graph 2: Hourly AMR monitoring graph

■ Consumption — Index

Producing a site water balance

The first step to creating your water balance is to get a complete overview of your water use and effluent disposal. You can gather this information in the following ways:

- **Numbers:** Using sources such as water meters, bills from the water company, data from flow-meters (if you use them) and machine data. Walk around the site and make sure you've accounted for everything.
- **People:** Talk to your colleagues, departmental managers and employees about what you are doing and ask for their input.

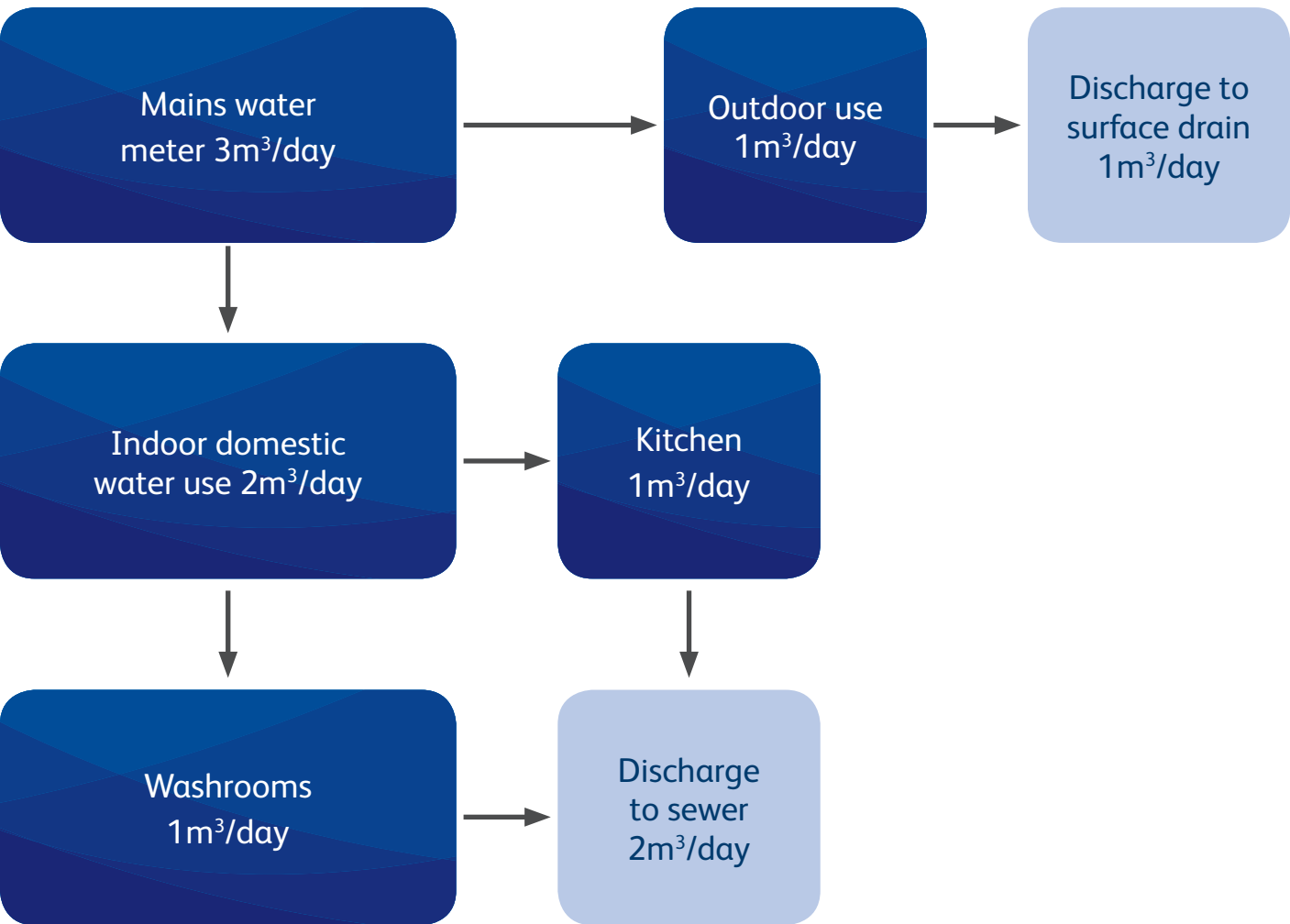
How much detail do you need to provide?

This depends on your business type but most commercial businesses find it takes minimal effort. However, the more detail you put into your water balance the more useful you will find the results.

Create your water balance model

If you're a big business or large water user, mapping out how water is moving around and being used on your site can be hugely helpful. Draw up a block diagram of the information you have found. This is your water balance. You should include any major water using activities where water enters the site, where a function takes place and where water or effluent leaves the site. Here's one we prepared earlier (below).

Add in any details to your water balance. Have you found every water use outlet? Every water use practice? Have you considered any different water supplies to your site, e.g. borehole? In theory, the total of all water coming onto your site should equal that of the water leaving the site. However it is rare that this actually happens. You should initially aim to have no greater than a 10 per cent difference in the two total volumes. If you have a discrepancy greater than this value you may have missed out a section of your water use or you could possibly have an on-site leak.



Box 2 – Producing a site water balance

Step 2

Identifying ways to reduce water consumption

Before you can put any ideas into practice it's worth looking at which areas of your business have the potential to save you water.

There are two key areas to consider:

- Leaks
- Water consumption of fixtures and fittings

Finding leaks

If your business's total water consumption figure (from AMR or water bill) is far greater than the sum total of your actual water use practice (identified in your water balance), it is possible that you have a leak on one of your underground water pipes.

Leaks may occur on the supply pipe to your premises or possibly on the network of internal pipes that distribute water around your site (if you have them). Diagram 1 shows you which section of your pipework is which. Finding leaks should be a priority in your action plan.

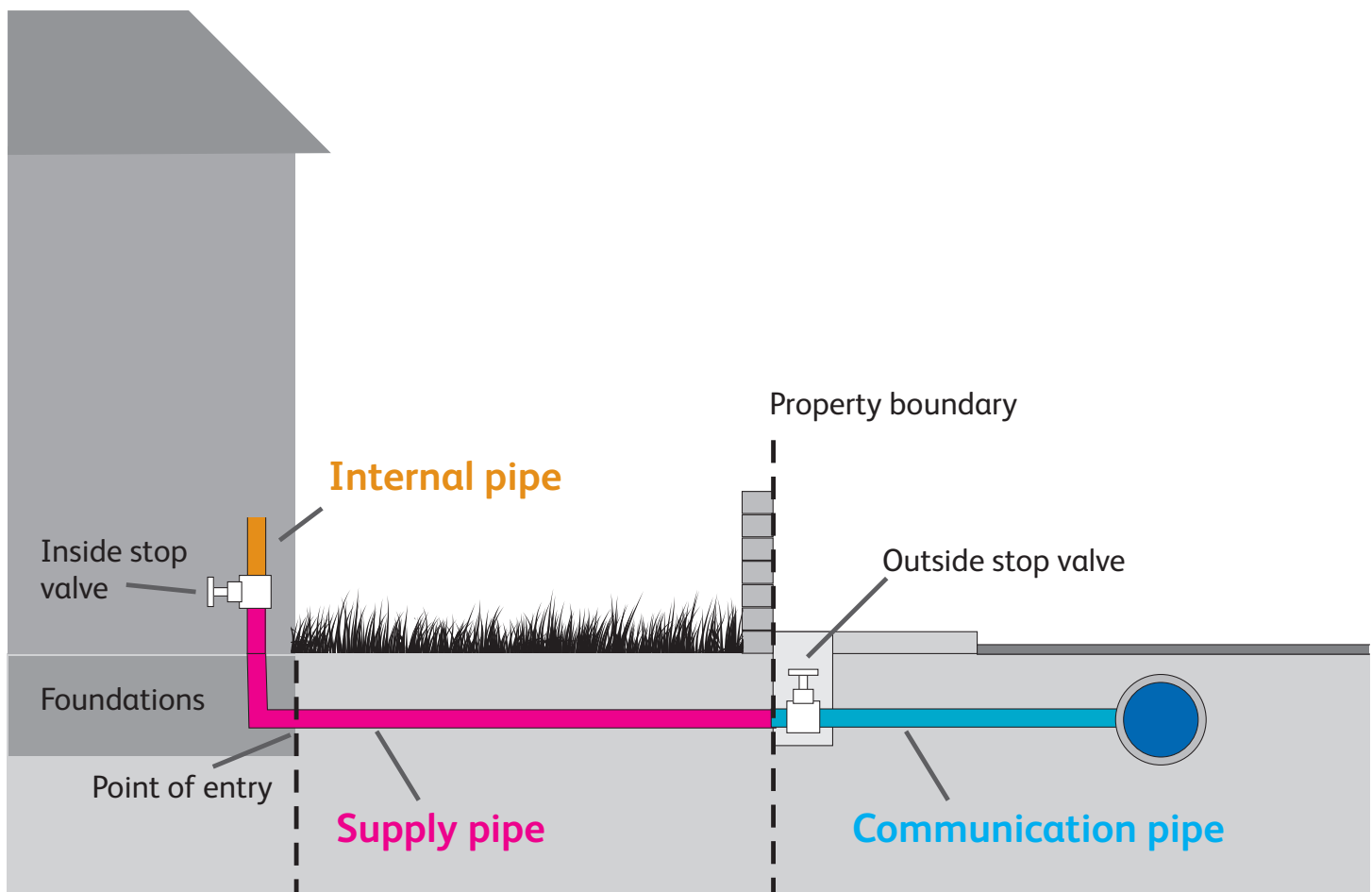


Diagram 1: How a typical site is connected to our water mains

To identify if you have leak on your supply pipe, follow these steps:

- a) First locate your water meter. It can be found either externally – located underground in a meter chamber – or will be in a purpose-built plant room or meter house. Typically the meter chamber will look like this:



but the size will vary depending on the size of your business. If your meter has been placed in a chamber you will need to remove the cover before you can gain access to it.

- b) At a time when your premises are not in use (perhaps overnight or at the weekend), turn off your water supply at your inside stop valve. This is generally found where your supply pipe enters the building. You should ensure that no water is being used in your building and notify everyone that you are going to shut off the water supply.
- c) You should now return to your meter and there should be no movement on the meter dials. If the dials are moving, recheck that all fittings inside the building are turned off and that there are no cisterns filling.
- d) Leave the stop valve shut and read the meter half an hour later. If the meter dial has moved, there may be a leak. If you have more than one water meter you should check each one.
- e) You should then open the stop valve. This will restore the water supply to your building and you should ensure that all fittings (e.g. flushing cisterns) are once again functional.

You are responsible for your supply pipe. This will generally run between your water meter – usually on the boundary of your property – and the first point of entry of water into your building.

In addition to your supply pipe, you might have a network of underground water distribution pipes on your premises. These leaks may also become apparent through an increase in your water demand profile, as discussed in Step 1, especially if you cannot attribute this to a supply pipe leak.

To find leaks on your distribution pipes follow these steps:

- Choose a time when your premises are not in use and ensure that no water is being used in your building. This can be done by making sure that all water fittings are turned off, as detailed in point 'b' of the blue panel on the left of this page.
- Once all of the water fittings have been turned off, take a reading from your water meter. Make a note of the figure together with the date and time. If you have more than one meter you will have to make a note of all meter readings. You can enter the reading in the table below.
- You should leave your water fittings turned off for at least a few hours, for instance overnight or over the weekend. The exact length of time you can leave your system shut down will depend on the nature of your premises and what is convenient for you.
- After this period you should read your water meter. If you have a leak on your distribution pipes then your meter reading will be different to that taken at the beginning of the exercise.

For more information on leaks, please visit:
thameswater.co.uk/business/leaks

Assessing water consumption of fixtures and fittings

Having checked for any leaks in your pipework, the next step is to look for savings in consumption.

Listed below are some of the ways you can save water in this area. Keep these in mind when compiling your ideas for Step 3. You can also visit [thameswater.co.uk/businessfreebies](https://www.thameswater.co.uk/businessfreebies) to get ideas about where you can save water and what water-saving products are available to you free of charge.

Toilets

How much water is your toilet using? Older cisterns can use anything from seven litres per flush to 13 litres per flush. The Water Supply (Water Fittings) Regulations 1999 state that all new toilets should use no more than six litres per flush. Dual flush toilets should have a smaller flush of no more than two thirds of the full flush.

If you estimate that each employee uses the toilet four times a day while at work, you can generate huge water savings by making your toilets more water efficient.

- A cistern displacement device (e.g. a save-a-flush bag) can be fitted into older toilet cisterns of seven litres or more to reduce each flush by up to two litres.
- Existing cisterns can be converted into a dual flush system. There are a number of devices that convert siphon (lever handle) toilet cisterns of seven litres upwards into a dual flush, so you have the option of a short flush where less water is required.
- Check to make sure that toilet cisterns, whether for storage or flushing, are not overflowing and causing water to overflow into waste pipes. In such instances, necessary adjustments or repairs should be made to the float-operated valve or other device that controls the water going into the cistern. Ideally the water level should be 25mm below the overflow. Toilets where the float-operated valve has been incorrectly adjusted to sit above this level can actually waste around 1 litre per flush.
- If you are due a refurbishment, install new low flush/dual flush toilets to provide a four-litre/six-litre flush.
- Leaky loos can waste thousands of litres and be one of the main causes of unexpectedly high water use in businesses. They often go unnoticed so keep an eye out for water running constantly or intermittently into the pan when not flushing. Ensure that cleaners and staff report any leaking toilets and fix them as quickly as possible.

Leaky Loos

A leaky loo can waste 400l per day on average – that's around 12m³ per month – and that's just for one toilet. This would cost you more than £24 a month* and almost £300 per year* for a single toilet.

Normally you can tell if your toilet needs repairing as you can hear a flow of water when the toilet has not been flushed. In a lot of cases you will also see water running into the toilet pan to confirm any suspicions. If not, take a look in the cistern; is there water running into the overflow pipe?

*Based on 2014/2015 water price.

Taps

Tap flow regulators can reduce the flow of water from the taps by up to half [Water regulations state that all taps without plugs available in the sink or basin should be restricted to 3.6l/min].

Sensor taps use a simple sensor (usually infrared) to identify that the user's hands are under the tap. If set correctly they are very efficient.

Percussion taps (push taps) deliver water for a pre-determined period and help avoid waste from running taps. If push taps remain stuck on, or if their run time is longer than 10 seconds, you should fix them.

Sufficient lagging of hot pipes will help to minimise the need to run the tap for a long time to get hot water, as well as helping to conserve heat energy and will save you money on your energy bills.

Repairing a dripping tap could save around nine litres of water a day, in some cases more. In most instances all that's required is a new washer.

Urinals

Urinals are one of the most common water wasters in offices and business premises. They often leak or flush at frequent regular intervals, all day and night. A large number of water-saving devices are available to businesses to reduce water use substantially. Saving this water is an easy fix.

Flushing can be made more cost-effective by installing passive infrared (PIR) flush control systems, so flushing reflects use.

On average, an unmanaged cistern flushes four times an hour, 24 hours per day, using 315m³ of water at a cost of £652 per year (based on 2014 prices). Reducing the flush frequency and preventing flushing out of hours can reduce this to 36m³, which equates to just under £75 per year.

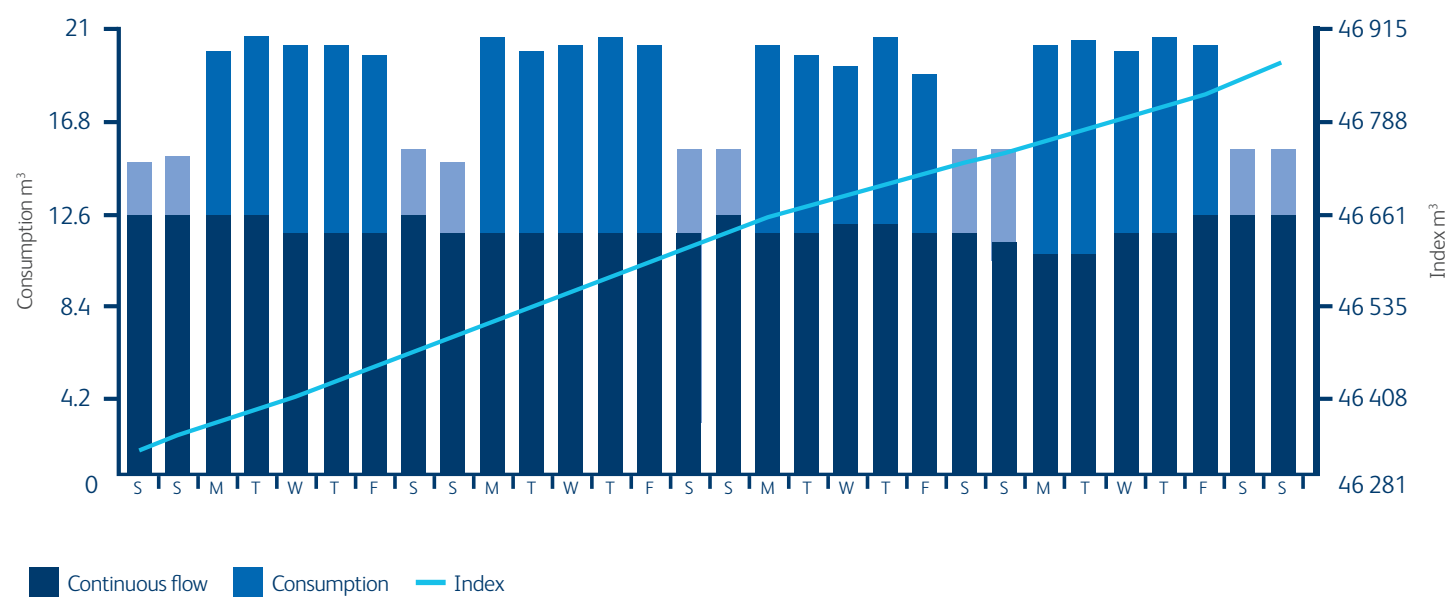
The Water Supply (Water Fittings) Regulations 1999 state the volume of water passing through a urinal must be controlled to prevent undue consumption and limit flushing out of hours.

A PIR Urinal control will only cost around £100-£200 to install. On average, the urinal control will pay for itself through reductions in the water bill within four to six months.

One office, with seven urinals, discovered it had a constant water consumption issue. It investigated the possibility of any leaks but couldn't find any. Managers later realised that the constant consumption was a result of the urinals, which were set to flush at regular intervals. This meant they were flushing regardless of use – day, night and weekends. This worked out at around 6.7m³ per day, every single day, equating to more than £5,000 a year in terms of the water bill and sewerage charges.

You can see from the graph below the impact that this had on the office's water consumption. The portion in dark blue is that attributed to the urinal flushing.

Installing PIR (passive infra-red) controls to the urinals means flushing now only occurs after the urinals have been used, saving water and money by ensuring water is not wasted during quiet periods, overnight or at weekends. This has reduced the company's water consumption attributed to urinals by 75 per cent to just 1.675m³ per day, saving approximately £3,800 a year in water charges.



Graph 3: Daily index consumption for a month, highlighting constant water consumption volumes attributed to urinal flushing

Showers

A lot of businesses will have at least one shower on the premises. Have you got any? If so you may be able to save water by either replacing the showerhead for a water-saving alternative or by installing a flow regulator.

A water-saving showerhead will either regulate the flow of the water or will aerate the flow (mixing air in with the water) to reduce overall consumption. These showers will typically reduce flow to less than nine litres per minute.

Reducing shower time will save water and energy. Placing timers in the showers will encourage staff to take shorter showers and consequently save the business water.

Outdoors

Reducing your water consumption outside can be as simple as changing outdoor washing/water use practices or installing a system to capture water from other sources – rainwater harvesting or water butts.

Rainwater harvesting systems (RWH) can be used to collect and store rainwater for use in some water use situations/devices to offset the existing use of mains potable water. Examples include capturing rainwater from your roof area for use in toilet flushing, clothes washing, vehicle washing and garden irrigation. Rainwater harvesting systems must be properly designed (to BS 8515) and be properly installed in accordance with the manufacturer's instructions.

For further information about RWH we recommend contacting the UK Rainwater Harvesting Association (www.ukrha.org), where you can get advice on collecting and reusing rainwater.

You can also take a look at the Horticultural Trades Association website www.the-hta.org.uk if your business is focused on gardening, as it has a certificate available for efficient water users.

Checking the flow rate of your shower(s)

Get yourself a measuring jug and a timer that will count in seconds.

Turn on the shower and let the water fall into your jug and bucket. Time this for six seconds.

See how much of the jug has filled up and multiply this number by 10. This figure is how many litres per minute your shower is using, in other words, the flow rate of the shower.

Water regulations

There are various water efficient devices that can help reduce water consumption. However, it's important that cutting consumption does not affect hygiene standards.

If you have had an external audit or water regulations inspection recommendations may have been identified. It is now important to determine measures suitable for each area. The water regulations inspection may include infringements which are enforceable. If you have not had an external audit or water regulations inspection you will need to compile a checklist of all water fittings on your premises together with their location. You can use the water audit sheet at the end of this pack to record your fittings information.

Operations/production water use

If you are a company that uses water in the production processes it is worth bearing in mind the following:

- It's vital that you know where your water is going. Produce an even more detailed site water balance which outlines all plant and machinery and how water is used in each process
- Highlight possible areas to target i.e. cleaning/washing processes
- It may be worthwhile getting a third party to help you undertake a site-wide water audit. This is particularly useful if your site water use is higher than expected

Step 3

Drawing up an action plan to reduce water use

Having an action plan is essential if you want to reduce your water consumption and reduce your bills. Having a plan helps you to prioritise your actions, communicate these with other parts of the business and motivate others to make it a success.

Once you have collected all the relevant information you can draw up your action plan. A template action plan is provided in the appendices but an example is shown below.

Having spent time getting a clear picture of how water is being used on site, you should also be aware of any simple ways to save that may exist.

Action No.	Action	Benefit	Potential water saving	Owner	Target date for completion
1	Install water butts to collect rainwater	Potentially use for vehicle washing, reduce volume of surface water to drain	10L per bucket of water used to clean vehicles	Facilities Manager	31 January 2015
2	Replace toilets in factory with dual flush or low flush toilets	Current toilets are using 13L per flush, other toilets on site have been replaced with dual flush models, using 6L per maximum flush.	Minimum 7L saving per flush	Facilities Manager	Toilet Replacement by 31 January 2015
3	Retrofit all urinals with sensors and programmable flush controls	Current urinals flush every 10mins, all day and night. New controls will reduce flush frequency and/or flush only after use	Current system = 3.75L per 2 urinals. 10 urinals in total = 37.5L every 10 mins (144 times a day). This is 5.4m ³ per day. Controls will reduce flush frequency or flush only when urinal in use. If only set to flush once per hour this will reduce water use by 4.5m ³ /day.	Facilities Manager	Urinal Replacement by 31 January 2015
4	Undertake staff engagement on water efficiency	Implement training for Sustainability Team/ leads. Roll out water and energy efficiency training for all staff	Will capture behaviour changes using diary keeping in the office. Will estimate water savings from diaries	Sustainability Manager	Complete training by 31 January 2015

Step 4

Implementing your action plan

This step will give you some ideas on how you can put your plan into action. It will discuss fixing leaks and identifying excess water pressure to reduce the likelihood of leaks in the future as well as where to source water-saving devices.

Fixing leaks

If you identified a possible leak through Step 2, the action needed will depend on the leak's location e.g. in your underground pipes or water going to waste above ground such as overflowing tank cisterns, failing toilet valves or dripping taps.

Repairing your pipes

You are responsible for the maintenance and repair of your pipes. It is to your advantage to fix any leaks as soon as possible, as you will be paying for any wasted water and often leaks get worse over time. Fix all visible leaks and overflows noted during your onsite audit. A minor overflow, estimated as a 3mm stream, could lose as much as 350m³ per year.

Review water pressure across your site

High water pressures can be experienced on lower floors where water is supplied by a gravity system from a tank in the roof, or where booster pumps are used to ensure adequate pressure higher up. High pressure can result in excessive consumption and can cause leaks or make them worse. For example, taps on the top floor of a tall building may have a flow rate of eight litres per minute while those on the ground floor, without pressure reduction, may have flow rates of anything up to 60 litres per minute.

Lower excessive water pressure

Pressure-reducing valves (PRVs) can be used to control the pressure across the site. They can be fitted on the supply to each floor, the down pipes of a gravity-fed system or the risers in a pumped system. Flow regulators can also be installed to each fitting affected if more appropriate. Visit wras.co.uk or the Water Technology List for details on approved products.

Savings in water consumption

Having repaired leaks and tackled pressure issues, the next step is to look for savings in consumption, either through installing more water efficient equipment, making small alterations to existing equipment or encouraging more efficient behaviour among staff.

Water-saving devices

There are various water efficient devices available to help reduce water consumption. However, it's important to make sure that reducing consumption does not affect hygiene standards.

A number of water efficiency devices and technologies are available to purchase on the Water Technology List (WTL). The WTL is part of The Enhanced Capital Allowance (ECA) scheme. The ECA offers a 100 per cent first-year allowance for investments in certain water efficient devices. It lets businesses write off the entire cost of qualifying plant and machinery against taxable profits in the year of purchase. This can bring significant financial savings and reduce your business's impact on the environment. Purchasing products on this list entitles you to a reduction in your taxable profits equal to the cost of the product(s) purchased.

More information about the WTL is provided in the appendices.

You can request free water-saving devices for the taps, toilets and showers at your business property from thameswater.co.uk/businessfreebies. You can also access additional water-saving devices and technologies to buy through this site.

Educating your staff

Poor awareness of water efficiency is common among staff, so it is important to encourage staff to become involved. Employees need to be given the facts and understand their own water use and how water efficiency benefits them as individuals as well as your business.

Education and awareness

Don't assume people know what's expected. Motivate by using simple, exciting messages.

Leadership and ownership

Appoint a member of staff or a team to champion water efficiency and promote the changes.

Identify and report

Establish a clear, accessible system for staff to report water-related maintenance issues, such as leaks or push-taps being stuck on, and ensure action is taken quickly to show how seriously you take saving water.

Ideas and innovation

Encourage ideas from everyone and engage staff in plans.

Signage and reminders

Put up posters around your site and use emails to keep everyone informed of the work being done. Signs and stickers could also be used in bathroom and kitchen areas to remind staff not to leave taps running and to fill the kettle only with the water they need. Keep it simple and keep it obvious.

Engagement and activities

Arrange a staff awareness day. This could include a range of activities such as asking staff to pledge to turn off the tap when they brush their teeth. This encourages your staff to take key messages home and reinforce the standards you expect of them on site. We may be able to support staff engagement days by giving away water efficiency advice and freebies to involve staff in reducing water consumption.

Think like staff

Success requires buy-in and change from your staff. Think about change from your colleagues' point of view and provide support and guidance to help them along the way. Design your messaging and actions to suit them first.

Support from the boss

Get support from your business leaders. If they demonstrate that water efficiency is an important part of the business take-up from staff at all levels should increase.

Visit thameswater.co.uk/savewateratwork for tips on how to save water, calculate how much water you use and information on how to get hold of water-saving devices.

Maintenance programmes

Establish preventative maintenance programmes. Find out if the existing inspection and maintenance programmes for your site/office include looking for leaks or areas of water efficiency improvement. If not, include water efficiency as a core element on the checklist. For example, if overflows are not visible then ensure regular checks are carried out to prevent any overflows going unnoticed.

Step 5

Measure, monitor and report success

To report your achievements, either internally or externally, you'll need to ensure that you measure and monitor the results. This will provide you with regular and reliable data to show the effectiveness of the improvement measures you've implemented. It will also be useful as evidence of the savings you have made.

Monitor any reduction in water consumption

A meter sheet is included in this pack to help you collate any readings you take as part of this plan or you can download WRAP's water monitoring tool as mentioned previously in the booklet. Remember that the ADU calculation can be worked out for any period you choose provided you have the necessary meter readings. Make sure you record the date of any installations and note any events that may lead to an increase or decrease in consumption, such as site closure or open days. This will allow you to take them into consideration when assessing changes.

You can also use your water balance diagram to plot where any changes have occurred. You may find that saving water in one area has affected another, for example reduced effluent generation further down the line reducing effluent charges that you may not have taken into consideration.

Taking regular measurements will enable you to:

- assess changes from your basic water consumption
- identify further cost savings and water efficiency measures, monitor progress towards targets and help set new ones

Should you receive a bill based on an estimate, provide your own meter reads to ensure your reduced consumption is reflected in water bills. You can do this online at thameswater.co.uk

Points to note

Try to read meters on the same day each week/ month to minimise the impact of change in use on different days of the week.

Try to take the reading at the same time so as not to reduce/ increase time covered.

You should work on trying to reduce your ADU, as calculated during Step 1. The usage includes the weekend even if your site is closed then. Provided you continue to calculate ADU in the same way you will be able to monitor reduction.

You will need to know the number of employees you have if you wish to calculate $\text{m}^3/\text{employee}/\text{year}$. Combine part-time roles to give full-time employee number. Ensure your water savings are reflected in your water bill.

Monitor any changes in energy consumption

Using less hot water will reduce energy bills and in many cases the savings could be greater than the savings on water. We recommend that any changes to reduce the volume of hot water are linked to regular electricity or gas meter readings as well as water meter readings. The energy required to heat 1m³ of water to 60°C from 20°C (room temperature) is 46.52 kWh.

For each m³ of hot water saved, CO₂ emissions will be reduced by 20kg, based on energy savings of 46.52kWh per m³.

Benchmark your water use

Business type	Typical water use	Best practice use	Unit	Sample
Office	9.3	6.4	m ³ /person/year	500
Primary school with pool	4.3	3.1	m ³ /pupil/year	14,330
Primary school without pool	3.8	2.7	m ³ /pupil/year	14,330
Secondary school with pool	5.1	3.6	m ³ /pupil/year	14,330
Secondary school without pool	3.9	2.7	m ³ /pupil/year	14,330
Large acute or teaching hospital	1.66	1.38	m ³ /m ² floor area/year	273
Small acute or long stay hospital without personal laundry	1.17	0.90	m ³ /m ² floor area/year	273
Museum and art gallery	0.332	0.181	m ³ /m ² floor area/year	50
College and university	0.62	0.40	m ³ /m ² floor area/year	127
Police station	0.92	0.63	m ³ /m ² floor area/year	141
Sports centre	0.0385	0.0305	m ³ /visitor/year	65
Library	0.203	0.128	m ³ /m ² floor area/year	89

Monitor any changes in energy consumption

Benchmarking is one way of examining your performance. It can be used to compare water use across your business with other similar businesses (external benchmarking). It can also be used to compare the performance of business sites or similar processes within your own business (internal benchmarking). In short, it's about being honest enough to acknowledge that others may be doing better than you and smart enough to learn from their example.

If you have more than one site in your business internal benchmarking can be particularly valuable, especially when comparing water use at sites that undertake similar production activities, or in the commercial sectors where sites have similar numbers of staff and visitors.

Benchmarking between your sites will help you to identify those sites implementing good water management practices and those that are not performing as well as others. It may, for example, draw attention to where more efficient cleaning practices are being used, or where equipment is becoming less efficient indicating that it requires inspection and maintenance. We offer consolidated billing. Using this service will help you to directly compare bills from all of your sites in one go. This makes it easier to spot sites that are either using best practice or underperforming.

Report on your success

Reporting your achievements, whether externally, to your management team or to your colleagues, can help to secure the support you need throughout the company to continue making water and cost savings.

Internal reporting

It is important to feed back to staff what progress has been made. Let them know when changes have been made and promote any reductions in water and energy bills.

For example:

- a) Posters in areas refurbished or fitted with water efficiency measures stating what has been done and why
- b) Posters, emails and details on Intranet outlining what reductions have been achieved by a change in practice or new measures

Recognising the contribution of your colleagues and reporting details of the success of a project will help to keep staff on board. Make sure you include the reasons why particular measures worked well, as well as those that didn't or were not taken forward.

External reporting

Sharing details of your achievements with customers and suppliers can help your business attain recognition for the steps you are taking to improve your business practices. Promoting your sustainability can make you more attractive to potential customers. There are many ways to promote your work externally.

Here are some examples:

- a) Ensure that your work to improve resource efficiency is reported in your corporate social responsibility report.
- b) Consider using this as a stepping-stone onto an accredited environmental management system.
- c) Enter your business for an environmental award, such as the Environment Agency Water Efficiency Award, or check out local council and environmental business awards for your area.
- d) Send us a brief article on your site's efforts and the savings achieved.
- e) Post a report on the programme on your website and keep it updated with progress.
- f) Produce a press release and send it to local newspapers.

Further information

and resources

Useful Links and Websites

Thames Water

Saving Water

thameswater.co.uk/savewateratwork

Order free water-saving products

thameswater.co.uk/businessfreebies

Thames Water Commercial Services (for paid-for services)

Thamescommercial.co.uk

Reading your meter

We encourage you to take readings and monitor your own usage. When reading a meter you only read the black and white numbers, not the red ones. If it is safe and convenient for you to read your meter, you can submit a reading online by visiting our website at thameswater.co.uk/submitreading.

Or, if you prefer, you can call us on **0800 316 9800**, quoting your account number. You can also send meter readings by text message. Simply start a new text message and enter your account number, then add a space followed by your meter reading. Send this to 84771 and we will record this on your account.

Other useful websites

Waterwise

waterwise.org.uk

General information, advice on products

Environment Agency

environment-agency.gov.uk

General information

CIRIA

ciria.org

Benchmarking information

WRAP

wrap.org.uk/

Resource of water efficiency advice for businesses

Defra (ECA scheme)

wtl.defra.gov.uk/

The Water Technology List, Enhanced Capital Allowance Scheme

Defra

defra.gov.uk

Guidance on water regulation

WRAS

wras.co.uk

Approved products

The Water Label

europeanwaterlabel.eu/

The scheme provides easy access to a database of bathroom products which, when installed and used correctly, will use less water, save energy and save money.

Water Safe

watersafe.org.uk

Find your nearest qualified plumber

Water Supply (Water Fittings) Regulations 1999

What are they?

The Water Supply (Water Fittings) Regulations 1999 are national requirements for the design, installation, composition and maintenance of water fixtures and fittings. They are designed to protect consumers and the environment by preventing waste, misuse, undue consumption, erroneous measurement and the contamination of wholesome water supplies. They replace the water byelaws in England and Wales, which we and other water suppliers have issued for similar purposes for many years.

Similar provisions are contained within the Water Industry Act 1991.

Who has to comply?

Owners and occupiers of both domestic and commercial premises. Anyone who installs plumbing systems or water fittings has a legal duty to ensure that the systems satisfy the 1999 Regulations.

What do they cover?

In relation to the volume of water used on your site, the regulations cover, but are not restricted to, the following:

- Fixing leaks on your property
- Minimum standards for the water consumption of WCs
- Controlled flushing of urinals
- Durability and water-tightness of fittings
- Minimising the length of pipe runs and therefore the draw-off time required for correct temperature water
- Maximum flow rates at unplugged sinks or basins (3.6l/min)

How do the regulations affect you?

Water systems and fittings in premises that are, or will be, connected to the public water supply must comply with the regulations. If you are planning to carry out certain plumbing work you must obtain the prior consent from us by giving advance notice of the work in writing with any associated drawings. This includes the installation of water fittings in connection with the erection of any new building or structure, extension/alteration of the water system in any premises, material change in use of any premises or the installation of any fitting listed in table under Regulation 5 of the Regulations.

Write to:

Thames Water Utilities Ltd,
Water Regulations,
PO Box 286,
Swindon
SN38 2RA

Plumbers and the regulations

The regulations introduced the concept of an approved contractor to identify plumbers who are competent in the requirements of the regulations. Approved contractor status carries certain statutory responsibilities which benefit plumbers and their customers. We run an Approved Plumber scheme (Water Safe). To confirm the benefits to you, or for further information, please call **0800 009 3926** or visit thameswater.co.uk/plumbers

Non-approved plumbers should not undertake any notifiable work as listed in table under regulation 5. If they undertake work that is found on later inspection not to comply with the water regulations you could face prosecution and a fine of up to £1,000. Successful prosecutions result in the offender having a criminal record.

Where can I get help and advice?

The Water Regulations Advisory Scheme (WRAS) has published the Water Regulations Guide, which contains guidance from the Department of Environment Food and Rural Affairs (Defra) and a more detailed explanation of the requirements. This can be ordered from WRAS at info@wras.co.uk

- WRAS and KIRA publish directories listing approved products that meet the requirements of the regulations. These can be found at wras.co.uk and KIRA.co.uk.

The Water Technology List and Enhanced Capital Allowance Scheme

The Water Technology List, available at wtl.defra.gov.uk/product_search_landing.asp, catalogues water efficient or water-saving technologies that qualify for the Enhanced Capital Allowance (ECA) Scheme.

Capital allowances enable the cost of capital assets to be written off against businesses taxable profits. The main rate of capital allowance for expenditure on most plant and machinery is 18 per cent per year on a reducing balance. The ECA scheme for water offers a 100 per cent first-year allowance for investments in designated water efficient plant and machinery, providing a helpful cash flow boost.

All products listed on the Water Technology List are approved by the Water Regulations Advisory Scheme (WRAS) where applicable but you should make sure prior to buying any products that they have a current and valid approval.

The list covers a range of equipment that reduces water wastage including showers, washing machines, waterless urinals, industrial floor-cleaning equipment, mechanical seals and vehicle washing.

How to calculate current water use

- **Taps/showers**
Collect the flow in a measuring jug or flow bag for 6 seconds and multiply the volume collected by 10 to give you a litres per minute flow rate.
- **Toilet cisterns**
As a general rule, if your toilets were installed after 1999 they will be dual flush or slimline 6l toilets. Installed between 1993 and 1999: 7.5-litre capacity. Installed before 1999: anything from nine litres to more than 12 litres. For older toilet cisterns you can sometimes lift the lid and check as the volume can be written along the water line.
- **Urinals**
Where there is no urinal control device fitted identify the size of cistern, time how long the cistern takes to fill and flush after it has just flushed. If a control is fitted, record what type and how the flush is controlled i.e. passive infrared sensor or linked to lights.
- **Dishwashers/washing machines**
Find out what programme is generally used and refer to the technical specification to identify water use per load. If you cannot locate the manual it may be possible to search for the model online to give you the relevant information.

Meter Record Sheet

Please photocopy this sheet so that it can be used again

A	B	C	D	E	F	G	H	
Read date	Reading	Reading date	Reading	Number of days in Read Period	Consumption during period m ³ (column D –column B)	Average daily Usage (ADU) m ³ /day (column F/ column E)	Water use m ³ /employee/day (Column G/ number of employees)	Notes
08/11/14	10084	15/11/14	10185	7	101	14.43	0.14	Example based on 100 employees

Meter location:	Meter serial number:	Number of employees:
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Water Audit Sheet

Please photocopy this sheet so that it can be used again

[illegible]

Action Plan

Please photocopy this sheet so that it can be used again

Action No.	Action	Benefit	Potential water saving	Owner	Target date for completion
1					
2					
3					
4					
5					
6					

