

## Introduction

After the traumatic floods of 2007 citizens of Gloucestershire do not take water for granted and many businesses know to their cost in loss of business how vital water is to their livelihoods. Many companies were shut for the duration and employees were stranded overnight in office blocks or abandoned cars whilst commuting home. This data sheet looks at saving water in the workplace and methods of flood alleviation. Most of the information provided is derived from the Environment Agency (EA).

## The Cost of Water

Most businesses are metered so saving water saves money and also reduces the CO2 emissions associated with supplying mains water. Envirowise points out that businesses accept that rising costs are becoming a way of life for raw materials and energy but that few businesses recognise that water is a raw material paid for twice – to receive it and to take away the waste. The Environment Agency has identified that water could be costing you 1% of your turnover if you are in manufacturing. If you are in retail, hospitality or the service sector you could save up to 50% of your water bills. If like many SMEs water use is confined to your office there are many ways to save water with payback periods of a few months.

## Water Footprint

This website shows how much water is used in the manufacturing of consumer items. It is referred to as virtual water as it is unseen by the end user: [www.waterfootprint.org/](http://www.waterfootprint.org/).

## Water Management System (WMS)

The EA says a WMS could save you money and reduce your water consumption by up to 80%. They have written a comprehensive report for businesses: 'Waterwise good for business, great for the environment'. The fundamentals of this best practise are in bullet points below: [http://www.environment-agency.gov.uk/commondata/acrobat/waterwise\\_2006\\_1407627.pdf](http://www.environment-agency.gov.uk/commondata/acrobat/waterwise_2006_1407627.pdf)

- Obtain management and staff support.
- Find out the true cost of your organisation's water consumption.
- Identify your water use.
- Reassess your water use.
- Identify and evaluate water efficiency measures and write a plan.
- Implement plan and report findings.

## Areas to Save Water

**Toilets** – An average domestic toilet accounts for 30% of a household's water consumption. This percentage figure can be even greater in offices. Cistern bags such as 'Save-a-flush' save a minimum of a litre per flush, have a payback period of 47days and will save £200/year for a company employing 100 staff. (NB: this device should only be fitted to toilets manufactured before 2001). Four free bags per organisation are available from Severn Trent. Dual flush toilets reduce water use. These can be retrofitted. A Torbec Ecofill shuts the water inlet valve until the flush has stopped which can save an additional one litre per flush.

**Urinals** – If no controls are fitted 76% of flushing occurs when offices are unoccupied – various controllers are readily available some of which also switch off lights when toilets are unoccupied also saving you energy. A case study at a school found that between 40-80% of their water use was flushing urinals. Controllers were fitted and saved an annual cost of £1,414 with a payback period of eight months. Waterless urinals only use water for daily cleaning and can be retrofitted to standard units. The best designs

effectively eliminate odour, blockage and subsequent flooding problems.

**Wash basins** – Account for about a third of office water use. Spray taps can save about 80% of water and energy use for hand washing. Most taps can have spray devices retrofitted. Concerns have been expressed that spray fittings and aerators might introduce a risk of Legionella by creating aerosols that could be inhaled. The EA say: "In practice, well-designed and regulated spray fittings provide a very gentle flow with little or no splashing. Laminar flow fittings are an alternative to aerators for high-risk applications such as care homes". Sensor taps and timed turn-off taps prevent wastage and flooding.

**Showers** – Premises with pumped or mains pressure showers can be fitted with flow regulators or 'water saver shower heads'.

**Water coolers** – Consider removing as they apparently encourage water cooler TV talk and increase CO2 emissions associated with transportation.

**Water-efficient gardening** – If your site includes lawns and borders, organic compost boosts water retention. Select plants to suit soil type and to be drought resistant, install water butts (which can also wash vehicles), apply water only at stem leaving surrounding ground dry, employ seep or drip systems, don't water lawns – drought-dried brown grass recovers after rainfall. Evergreen plants such as *Juniperus squamata* can be used as an alternative to lawns if green lawns are important.

**Grey water** - Is associated with domestic wastewater other than toilet water. It is collected and re-used for flushing toilets or treated and used in washing machines and gardens. For commercial use we recommend contacting the Environment Agency for specific advice regarding water regulations. Interestingly the EA says that saving water saves energy and CO2 emissions associated with production whereas greywater and rainwater systems often increase the total amount of energy use and CO2 emissions.

**Rainwater harvesting** - Is the collection and storage of run-off water from roofs. Rainwater is filtered and can be used for toilet flushing, laundry use, process water and irrigation. Water bills are reduced by using less metered water. It also reduces storm water run-off which can contribute to a sustainable drainage scheme. For further information please see: <http://www.rainharvesting.co.uk>.

**Sustainable Drainage Systems (SUDS)** - In the summer floods of 2007 Cheltonians experienced how impermeable concrete and tarmac are. Run-off from hard paving and roofing can increase the risk of flooding downstream, as well as causing sudden rises in water levels and flow rates in watercourses. Roof water can be disposed of on a gravelled car park or lawn, where it can soak into the ground. Instead of using paved services for walkways and car parks there are a number of porous surfaces that are available: [www.tensor.co.uk/contents.asp?cont\\_id=306&cont\\_type=3&page\\_type=CT](http://www.tensor.co.uk/contents.asp?cont_id=306&cont_type=3&page_type=CT) SUDS solutions vary from one site to the other. Further advice and information can be found at: <http://www.environment-agency.gov.uk/business/444304/502508/464710/> <http://publications.environment-agency.gov.uk/pdf/GEHO0308BNSS-e-e.pdf>.

## Further Assistance

The government allows you to claim Enhanced Capital Allowances for qualifying water-efficient products that are listed on the Water Technology List. An Enhanced Capital Allowance ([www.eca-water.gov.uk](http://www.eca-water.gov.uk)) is a tax break that allows companies to claim 100% first year tax relief.

Environment Agency: <http://www.environment-agency.gov.uk/>

Envirowise: <http://www.envirowise.gov.uk/water>

Water 21: <http://www.water21.org.uk/>