

grey water to green

We all know we have to conserve water supplies, but how exactly? Jo Moulds has sourced the best solutions

With environmental bodies issuing warnings, and hosepipe bans and drought orders in place, it is staggering to learn that, in Britain, we use an average of 160 litres of water per person per day – almost 50% more than 25 years ago. Most of the usage is due to our reliance on appliances: washing machines, dishwashers and power showers.

Add to this the likely increase in the population of London by 800,000 in the next 10 years, as well as inevitable questions about climate change, and it is easy to see why there is a problem.

Although the rest of Britain isn't as stricken, it is not as simple as 'borrowing' water from other areas. There is no national grid for water: it would be technically complex to construct as water is very heavy; the time and cost implications would be vast – which would inevitably be passed on to customers – and it would have a high environmental impact. It's time to get water-wise.

Harvest rainwater

'The drought in the UK is real,' says Roger Budgeon, founder of The Green Shop, managing director of Rainharvesting Systems and chairman of the UK Rainwater Harvesting Association. 'If this is the future, we will have to learn to accept it and to live in the environment it brings.' Budgeon is promoting the fitting of rainwater-harvesting systems to existing and new housing stock in the UK.

A rainwater-harvesting system is a way of looking at the whole house as a means of collecting and managing rainwater for domestic use. A system could, for example, include filters, pumps, storage tanks, an integrated rainwater-harvesting unit and environmentally friendly guttering. Costs range from £20 for a water butt (see page 121 for stockists and suppliers) to £3,000 for a complete system.

At the moment, around 400 systems

are fitted to houses each year in the UK (100,000 units are fitted annually in Europe). Most domestic systems cost £2,000-£3,000 to install and the payback period is currently 10-15 years for domestic systems, but with water prices set to rise by 10% a year for the next five years, this will be reduced.

One of the benefits of using rainwater for household appliances is that it is soft, so in hard-water areas, washing machines will often last longer and run more efficiently. 'Continuing as we are with our increasing water consumption is not an option for the future,' says Roger Budgeon. 'Everybody must do something to reduce their personal consumption – even small savings made by everybody would make large savings on a national scale.'

Use grey water

Rather than watch it go down the drain, dirty water, or 'grey water', can be collected and stored in a tank. After filtering, it can be reused for flushing toilets, washing the car or watering the garden, but not for bathing or drinking.

The amount of water that can be collected via a grey-water recycling unit equates roughly to the amount used for flushing a toilet. According to the Centre for Alternative Technology, the cost of installation is around £1,000, which means the payback time is 10-14 years.

The power of plants

Domestic water used once for bathing or washing dishes, or even flushing toilets, can be filtered through plants to become usable as 'green water' (see far right). The new vegetated rooftop recycling system, developed by the Green Roof Water Recycling system (Grow), costs around £550, plus installation. Grey water is pumped up to a framework of horizontal troughs containing filtering plants, such as water mint, yellow flag iris and the common reed, whose roots absorb pollutants. This treated water is dyed with a vegetable colour as it is

not drinkable but can be used to flush toilets or water the garden. The plan is to reduce the size of Grow so that it can sit above a garden water butt and treat domestic water. For more information, contact Water Works UK (020 8888 7259, wwuk.co.uk).

Plants can also be used to treat effluent from a septic tank, which is percolated through layers of sand and gravel planted with reeds. The reeds help bacteria break down pollutants, producing green water. These reed beds also attract wildlife, encouraging biodiversity.

Drill for ground water

One solution to the water shortages could be the untapped reserves of water that lie beneath our feet. Ground water already provides about one-third of public water supplies in England and Wales, but the potential is there for it to be used in greater quantities. Benefits include reduced leakage, less pipework and less energy used due to the absence of pumps.

Water Works UK specialises in supplying urban ground water to individuals by constructing a borehole, but if you fancy drilling one yourself, further information can be found on the Environment Agency website (environment-agency.gov.uk).

Flush less often

Roger Budgeon of The Green Shop recommends installing a low-flush or dual-flush toilet. Some existing lavatories may be flushing as much as 12 or 13 litres each time. New regulations recommend a maximum figure of six litres per flush, but dual-flush toilets will probably use only two litres on a short flush. Some newer, water-efficient lavatories will full-flush only four litres. There are now quite a few cheap and ingenious modification kits to reduce the flush volume (see page 121 for details). These are not as good as replacing the lavatory entirely but they will reduce water consumption.

5 ways to save water

1 Get a water meter fitted. People with water meters use, on average, 5%-15% less water. Call your water supplier for details.

2 Don't fill the kettle every time you use it. Boiling water accounts for around 27% of all electricity used in domestic cooking.

3 Mend dripping taps. A dripping tap can waste up to 140 litres of water per week. If your bath tap loses a drop per second, that's the equivalent of 16 bathtubs per month.

4 Take a short shower. A five-minute shower uses 30-60 litres of water. A bath could use 80.

5 Don't wash vegetables under a running tap. Soak them instead – peeling will be easier and it saves up to 10 litres each time.

Contacts

Rain Harvesting Systems Ltd (rainharvesting.co.uk). Supplier of rainwater-harvesting systems.

The UK Groundwater Forum (groundwateruk.org). Organisation raising awareness of ground water.

UK Rainwater Harvesting Association (ukrha.org). Central body for rainwater-collection suppliers.

Water Cycle Management for New Developments (wand.uk.net).

Supports the delivery of integrated, sustainable water management for new developments.

Water Works UK (wwwuk.co.uk). Green Roof Water Recycling systems.

read all about it

The Water Book: Find it, Move it, Store it, Clean it... Use it by Dr Judith Thornton (Cat, £12).

Calculate your demand, reduce your water consumption, find out if rainwater harvesting is for you and learn how best to reuse water in the garden.

Blue Gold by Maude Barlow & Tony Clarke (Earthscan, £14.99).

Charting the battle against corporate theft of the world's water, this book outlines current 'solutions' which are only making the problems worse, and suggests that the alternative is to recognise access to water as a fundamental human right, not dependent on the ability to pay.

Troubled Water: Saints, Sinners, Truths and Lies about the Global Water Crisis by Anita Roddick with Brooke Shelby Biggs (Anita Roddick Books, £9.99).

A sometimes disturbing look at water's crucial role in lives around the world.

Source

Beat the Drought (beatthedrought.com).

Water-saving advice from the government's Environment Agency. **Belu** (belu.org). Bottled British spring water, the profits of which go to funding clean-water projects in the UK and abroad.

Blackwall (blackwall.co.uk). Water-butt supplier.

Centre for Alternative Technology (cat.org.uk). All the gen on harvesting rainwater and filter beds.

Clear Water Revival (clear-water-revival.com). Ecological engineers, sustainability consultants and landscape designers specialising in natural swimming pools, reed-bed treatment systems and renewable energy systems for pool heating.

Green Building Store (greenbuildingstore.co.uk).

Water-saving advice and devices.

3 colours of water

>> **Grey water** water that has been used domestically – for showers, baths, washing dishes and clothes.

>> **Green water** grey water that has been filtered and treated to make it usable again for toilet flushing, for example, or watering the garden, but not for drinking or bathing.

>> **Black water** water that has been contaminated by sewage.