Water Conservation Tipsheet 50p

We can no longer take our water supply for granted, so here's a series of tips for saving water – and using it more wisely.

Centre for Alternative Technology Publications

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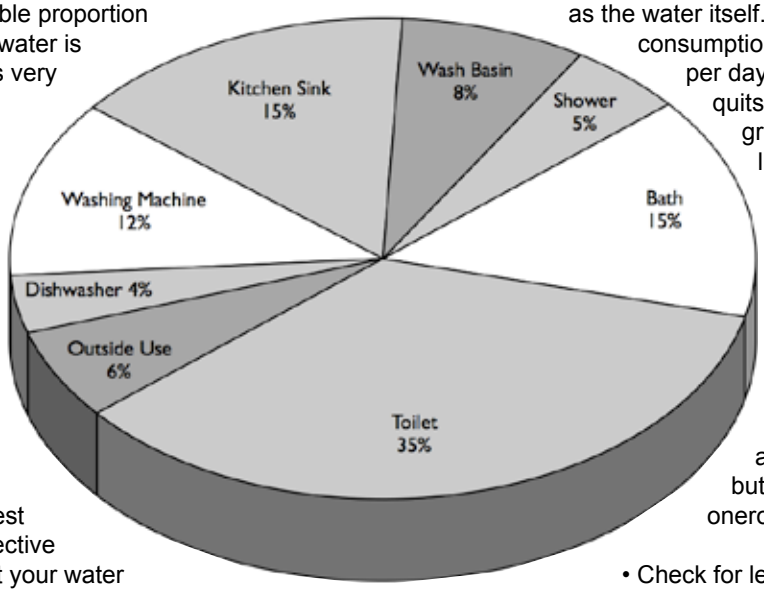
The amount of water on the planet is constant, and the British Isles as a whole has a reasonable proportion of it. However, our demand for water is rising, and our rainfall pattern is very seasonal and likely to become more so with the effects of climate change. About 75% of us have no economic incentive to save water – we are unmetered and pay fixed rates however much water we use. In contrast, consumers with a metered supply use on average around 20% less water. If you are already on a meter, the suggestions in this tipsheet translate directly into cash savings. If you're not, we suggest you carry out the most cost-effective measures anyway and then get your water company to install a meter (free of charge) – your bills will almost certainly be less than an unmetered supply.



How much do we need?

Five litres per person per day is a minimum just to stay alive. At the other extreme, the average American uses a hundred times this: half a cubic metre per head per day. In the UK, the amount we typically use in the home varies from about 120 to 220 litres per head per day, with another 100 litres or so as our share of industrial and commercial use.

Modern lifestyles demand at least 40 litres per person per day, and 80 litres is probably a reasonable target for overall sustainability in ordinary homes. At this rate, a household of three would be consuming 240 litres a day, or about 22 cubic metres per quarter.

How do we use our water?

Private households account for 51% of water consumption. Average household use is shown in the chart, although this will vary a lot from one family to another. Less than 10% of the water is actually used for drinking, although all the water supplied is of drinking quality. In nearly all households the largest amount of water is used for flushing the toilet.

How to use water more efficiently

Different things suit different people, so take the information here as guidelines rather than exact recipes. The basic idea is to do the easiest and most cost-effective things first and see how you get on. We have divided the suggestions into four categories on the basis of cost, and within each category we have tried to rank the items in order of cost-effectiveness. As a general guide, start at the top of the list and work down, but rearrange the order if that's the logical thing to do. Remember that if you're saving hot water, you'll be saving the cost of heating it as well as the water itself. Once you get your household consumption down to 80 litres per head per day, it's probably best to call it quits and spend your resources on greening up other areas of your life.

Category 1: Free or almost free

Most of these are simply common sense, and doing them all could save up to 30% of your water consumption. It's true that they involve a bit of thought and perhaps changes of habit, but they are not really difficult or onerous.

- Check for leaks and fix them or get them fixed. Most of these are dripping taps.
- Don't flush the toilet every time you pee.
- Put a water-filled drink bottle (with lid screwed on) in the toilet cistern. Water companies give away special bags for this purpose. These objects displace some of the water and reduce the amount needed for flushing. Be careful not to interfere with the flushing mechanism. Don't use a brick or rock – these could damage your cistern. This technique is only suited to older siphon flush toilets (the 9 litre, or 2 gallon, cisterns). Don't try this in a newer cistern or one with a dual flush button; these toilets are already fairly efficient.
- Showers can use less water than baths, but if you have a power shower, measure the flow rate (with a bucket and stopwatch) as some use a lot more.
- Whether washing dishes by hand uses more or less water than a dishwasher depends a lot on your technique! If you buy a dishwasher, check that you are buying a water and energy efficient one.
- Make sure only full loads go into the washing machine.
- Reduce water use in the garden (use a trigger-spray rather than a sprinkler, use drought-tolerant plants, mulch the ground to reduce evaporation).
- Wash your car with a bucket of water, rather than a hose, or use a carwash where the water is recycled.

Category 2: Tens of pounds

These are things that most householders could do with little difficulty and will save an additional 10% (or more if the final item is included).

- Insulate hot water pipe runs so you don't need to run the tap for as long to receive hot water. (This also saves energy.) If you're re-plumbing, use narrow-bore pipework and keep the run between the boiler and appliance as short as possible.

- Install low-flow taps, or attach spray fittings to those that are only used for hand washing.
- Get a large water butt for garden watering, with overflow accessories if required.[1]
- Install a simple bypass system for channelling greywater into the garden through a hose.[2]
- Consider some very basic toilet alternatives outside the house: a pee-can and/or an unvented bucket toilet.[3]

Category 3: Hundreds of pounds

Now we are getting into serious investments, with dramatic and unusual measures. The payback times can be rather long, but these will save serious amounts of water and are particularly recommended for new buildings.

- Install a low-flush toilet. This will reduce water use to an average of 4 litres from the old fashioned 9 and the newer, more efficient 7.5. There are many makes. Expect to pay £150–250.[4]
- Install a waterless urinal for males. Very little water, if any, is required to flush urine away. Standard urinals can now be retrofitted with simple modifications so that no flushing is required. Having one in the bathroom would reduce water use by several per cent at least.
- If the washing machine needs replacing, make sure you get a water efficient one. This could cut water use by 5% on its own. It may cost slightly more than a standard model, but is likely to be of better quality, and will also save energy.[5]
- Invest in a very large water butt if you need a lot of outside water – 1500 litres or more.[6] It can be partially buried if required, and the water can be recovered via a low-powered pump that would cost you less than 50p a year to run.[7] Alternatively, you can keep it at ground level and draw water from the bottom through a hose and trigger-spray.
- Install a basic vented compost toilet, which uses no water. These are often difficult to fit into standard bathrooms, although there are compact models. Be warned that visitors and some members of the family may find them disconcerting (see *Lifting the Lid*, CAT Publications).

Category 4: Over £1,000

Finally we have sophisticated water systems costing an arm and a leg. With these measures you could theoretically cut your mains demand by a further 20-50%. They give big potential returns but are not particularly cost-effective at present water prices, having payback times of ten years or more. We do, however, need to build up experience to improve designs and expand the market to reduce prices, so this is an area for well-heeled enthusiasts to make a serious contribution.

- **Rainwater collection systems.** It is technically possible to provide all your own water from the roof and disconnect from the mains entirely. However, we do not recommend this because the cost of purifying to drinking standards is not justified for the small proportion that is actually drunk. Rain can provide for pretty well everything else, but if you are already connected, leave the mains to supply the drinking stuff. Reliable systems that comply with the water by-laws range from around £500 if you do most of it yourself to many thousands for the very best quality equipment.[8]
- **Greywater recycling systems.** Greywater is the wastewater from the sink, shower, washing machine, etc. – everything except the water from your toilet. Currently available systems seem to have a higher environmental impact than your mains water supply, so there is little to recommend them.

Notes

1. Plastic water butts can be obtained cheaply from garden centres. Traditionally the drainpipe runs straight into the butt, which overflows when full. Simple devices which run the excess back into the pipe are available from CAT Mail Order.

2. Basic greywater systems – for example, the 'Water Two' – divert the water in the waste pipes directly to a hose nozzle for hand-watering the garden. They are available from Water Two, Greenside Head, Revenstonedale, Cumbria CA17 4LU; tel: 01539 623 429; website: www.watertwo.co.uk. There is also a chapter on water efficient gardening, including the use of greywater, in *The Water Book* from CAT Publications.

3. In essence this is like an Elsan in which a dry 'soak' material is used instead of water. They need emptying when full, and the material can be composted for use on non-edible crops. For a range of commercial models, contact Eastwood Services, Kitty Mill, Wash Lane, Wenhaston, Halesworth, Suffolk, IP19 9DX, tel: 01502 478165. See also *Lifting the Lid* from CAT Publications. The pee-can is simply a 25 litre container with a very large funnel. It also needs emptying when full, and can be put down the drain or the toilet, or used in the garden.

4. For example the Ifo, Ido and ES4 toilets, available from the Green Building Store in West Yorkshire: tel: 01484 854 898; www.greenbuildingstore.co.uk; Construction Resources in London: tel: 020 7450 2211; www.constructionresources.com, or Elemental Solutions near Hereford: tel: 01594 516063; www.elementalsolutions.co.uk

5. The consumer magazine 'Which?' carries out research on washing machines and other water using appliances. Subscribe online at www.which.net for access to their product reports. In 2006 the Miele Premier 500, with an energy label of AAB, was a Which? Best Buy on running cost and reliability.

6. 1500 litre recycled plastic tanks are available through CAT Mail Order. A range of even larger tanks can be obtained from Balmoral Tanks in Aberdeenshire: tel: 01224 859100; www.balmoral-group.com/tanks

7. Suitable pumps and filters are available from Rainharvesting Systems Ltd: tel: 01452 772000; www.rainharvesting.co.uk

8. Commercial systems are available from Gramm Environmental in East Sussex: tel: 01273 844899; www.grammenvironmental.com or AquaStore in Cornwall: tel: 01288 359 994

Recommended reading

You may find the following CAT publications helpful:

- *The Water Book: find it, move it, store it, clean it… use it*, Thornton, 2005, £12.00, ISBN: 1-90217-523-9
- *Sewage Solutions: Answering the call of nature*, Grant, Moodie & Weedon, 2005 (3rd Edition), £12.00, ISBN: 1-90217-526-3
- *Lifting the Lid: an ecological approach to toilet systems*, Harper & Halestrap, 1999, £12.00, ISBN: 1-89804-979-3
- Various water tipsheets from CAT – order or download at www.cat.org.uk/catpubs

The above titles are available direct from CAT Mail Order: tel. 01654 705959 to order or receive the complete Buy Green By Mail catalogue. Visit **www.cat.org.uk/catpubs** to order, read reviews or download tipsheets and factsheets.

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