'Air shower' set to cut water use by 30 percent

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As Australians become increasingly alert to the importance of using water wisely in the home, CSIRO researchers have found a way to use a third less water when you shower – by adding air.

The scientists have developed a simple 'air shower' device which, when fitted into existing showerheads, fills the water droplets with a tiny bubble of air. The result is the shower feels just as wet and just as strong as before, but now uses much less water.

The researchers, from CSIRO Manufacturing Materials Technology in Melbourne, say the device increases the volume of the shower stream while reducing the amount of water used by about 30 per cent.

Given the average Australian household uses about 200,000 litres of water a year, and showers account for nearly a third of this, the 'air shower' could help the average household save about 15,000-20,000 litres a year. If you extend this across the population, that is an annual saving of more than 45,000 Olympic-sized swimming pools.

The Aerated Showerhead creates the sensation of having a full and steady stream of water even though the water is now more like a wet shell around a bubble of air.

While the general concept of using an aerated showerhead to save water is not new, the technology behind the CSIRO's device is novel.

Developed by a team led by Dr Jie Wu, the aeration device is a small nozzle that fits inside a standard showerhead. The nozzle uses a small Venturi tube – a tube for which the diameter varies, creating a difference in pressure and fluid speed. Air is sucked into the Venturi tube as a result of the partial vacuum created, causing air and water to mix, forming tiny bubbles within the water stream.

"The nozzle creates a vacuum that sucks in air and forces it into the water stream," Dr Wu says.

"We make the water droplets in the stream hollow and the bubbles expand the volume of the shower stream."

Small-scale experiments using the aeration device found that people detected no difference in water pressure, sensation, or overall perception of showering.

After almost two years of research and development, CSIRO is ready to take the aerated shower head technology to the commercialisation stage.

"We have very promising results on the aerated showerhead's water-saving potential. Now we are looking for commercialisation partners who will be involved in the development needed to turn the technology into a marketable device," Dr Wu says.

He expects the nozzle would cost less than AUD$20 and could be installed by householders.

Source: CSIRO Australia

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