Urban Water Security Research Alliance

Level 15, 53 Albert Street, Brisbane Qld 4000
PO Box 15087, City East Qld 4002
www.urbanwateralliance.org.au

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Research confirms being waterwise works

New research has confirmed that waterwise initiatives such as switching to front-loader washing machines and installing efficient showerheads are enormously effective in reducing water use, according to preliminary findings from an Urban Water Security Research Alliance (UWSRA) study.

The Residential Water End Use study, which is being led by Griffith University's Associate Professor Rodney Stewart, also found that households with younger people appear to use less water than those with older people, and irrigation for watering gardens and lawns contributed less to demand than previously thought, while taps and leaky toilets contributed more.

Professor Stewart's research team is collecting and analysing water consumption data in 252 households in Ipswich, Brisbane, the Gold Coast and Sunshine Coast. He has just published a technical report on the findings.

Professor Stewart will present the findings of the study to water industry stakeholders at a UWSRA Stakeholder Forum being held in Brisbane on 5 April.

He said the winter 2010 data collection results were based on information gleaned through high-resolution water meters, remote data transfer loggers, household water appliance audits and self-reported household water-use diaries.

"With this type of research we've been able to extract the end uses of households so we know where they're using water and when.

"We've shown that where we can make the most difference with water consumption is in areas that have the highest water use within the household. Generally that starts with the shower (29 percent of water used), then the clothes washer (21 percent), then taps (19 percent) and toilets."

Professor Stewart said the results confirmed that waterwise initiatives were working.

He said switching from a top loader to front loader washing machine saved on average 11 kilolitres per household per year (kL/hh/y), while high-efficient showerheads potentially save 13 kL/hh/y.

"Further savings could be made by asking householders to check and fix slow leaks from toilets, and to be mindful of tap use," Professor Stewart said.

"Taps account for 19 percent of household consumption, and people probably don't realise the cumulative effect of rinsing dishes and washing their hands so that could be a significant area to target in future demand management initiatives.

“Leakage is also something people should be aware about, with our study showing approximately nine litres per day being lost through leaks. The lions’ share of domestic leakage is attributed to toilets. This is something we’re now investigating through a separate comprehensive PhD study.”

Professor Stewart said that steeply reducing irrigation levels for garden and lawn watering found in this study supported a trend found in a number of other recent end-use studies.

“Historical end-use studies showed irrigation to be 30–40 percent of total consumption but what we’re seeing now is much less, due to a number of factors driving down irrigation in general,” he said.

“The rebate program for water tanks means a lot more homes are using tanks for external use to fill up the pool or water the garden. Also, we’re seeing much smaller lot sizes, bigger homes and working families so people have less lawn and are putting in low-maintenance gardens.”

Professor Stewart said the data also indicated that younger families used less water than households with older people in them, especially as families with both parents working meant people were not home as much during the day to use water.

“We’ve now got a PhD student developing statistical models to reveal the determinants of water use, for example, family characteristics, income, working status and education,” he said.

Professor Stewart has published a technical report on the end use study, which is available from the UWSRA website. He is also running workshops for water utility personnel on the findings on 21 April.

UWSRA is leading water research and security in South East Queensland through a $50 million, five-year partnership between the Queensland Government, CSIRO’s Water for a Health Country National Research Flagship, The University of Queensland and Griffith University.

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Media contacts:

Associate Professor Rodney Stewart
Director - Centre for Infrastructure Engineering and Management
Project Leader - Smart Water Research Facility, Griffith School of Engineering
Telephone: 07-5552 8778 or 0409 788 173.

Carmen Myler, Niche Consultants: 0400 791 148