



## Kitchen sink study points the way to water conservation

**Dishwashing is responsible for over half of tap water used in the kitchen, according to the results of a new study, which also suggest that people who live alone consume double the water per person that those that live in a four or five-person household. Although relatively few households were studied, this research could prove useful in helping develop consumer advice for saving water.**

Although average water consumption data is available for EU countries, detailed data on how water is used is limited. Understanding water consumption patterns is key to planning water conservation policies and consumer advice. Economy of scale ensures that larger households consume less water per person, and so single-person households represent a key group for information campaigns, particularly as the number of people living alone is increasing in modern, urban society.

The researchers investigated which everyday kitchen duties consume the most water and how much water single-person households consume compared to larger households. Small water meters and webcams were installed at the kitchen sinks of 81 urban households across four European countries – 21 in Germany and 20 in each of Sweden, Italy and the UK. They then recorded the amount of water used, and purpose, each time a kitchen tap was turned on over a two week period.

The researchers were able to identify specific uses of the water for 96% of their 25,000 observations. In each country, dishwashing accounted for at least half of the daily water consumption per person, and averaged 58% across all four countries. Cleaning, cooking and drinking accounted for around 10-15% each, except in Italy, where drinking water consumed just 2%, which may be linked to perceptions of tap water's quality. Washing hands and 'other' accounted for the remaining 5% and 3%, respectively.

As expected, single-person households consumed more water on average per person than larger households. The difference was minimal between one to two person households, but grew larger with household size, so that the average person living alone consumed approximately twice as much water in the kitchen as the average person living with three or four others.

Some interesting differences between countries also emerged. Daily water consumption was highest in Italy, where the average person used over twice as much water (23.6 litres) in the kitchen as the average person in Germany (11 litres). This may be partly explained by Italian habits of pre-rinsing dishes with significant amounts of water before putting them in a dishwasher, and a tendency to use more water in cooking and for cleaning than observed in the other countries. Average daily water consumption in the UK was 19.8 litres, and for Sweden the figure was 21 litres.

Drinking represented an interesting example of 'consumption'. In Sweden, the tap was often left running before filling a glass or bottle with drinking water, so that the amount of water that drained away made up 79% of the total amount allocated to 'drinking'. In Germany, this drained water made up just 7% of 'drinking water'.

The researchers conclude that water use patterns are hard to generalise. However, they say the finding that dishwashing consumes by far the majority of water in the kitchen is crucial and hints at potential for significant reductions to be made through water conservation.

**Source:** Richter, C.P. and Stamminger, R. (2012). Water consumption in the kitchen – A case study in four European countries. *Water Resource Management*. DOI: 10.1007/s11269-012-9976-5.

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