

Carnegie Mellon's Chris Hendrickson tracks water use

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Carnegie Mellon University researchers are tracking how US industry uses scarce water resources.

Just think, every time you feed Fido or flip a spoonful of sugar into your coffee cup, you use more than 300 gallons of [water](#).

Checking the amounts of water it takes to make a \$1 worth of sugar, cat and dog food or milk is part of a comprehensive study by Carnegie Mellon University researchers to document American industry's thirst for this scarce resource.

Chris T. Hendrickson, the Duquesne Light Professor of Civil and Environmental Engineering, said the study shows that most water use by industry occurs indirectly as a result of processing, such as packaging and shipping of [food crops](#) to the supermarket, rather than direct use, like watering crops.

The study found it takes almost 270 gallons of water to produce a \$1 worth of sugar; 140 gallons to make \$1 worth of milk; and 200 gallons of water to make \$1 worth of cat and dog food.

"The study gives us a way to look at how we might use water more efficiently and allows us to hone in on the sectors that use the most water so we can start generating ideas and technologies for better management," said Hendrickson, co-director of Carnegie Mellon's Green Design Institute, a major interdisciplinary research effort aimed at

making an impact on environmental quality through design.

Hendrickson, along with civil engineering Ph.D. candidates Michael Blackhurst and Jordi Vidal, said his team is trying to help industries track and make better management decisions about how they use water, which makes up more than 72 percent of the earth's land surface.

The study, featured in the Feb. 23 edition of the journal *Environmental Science & Technology*, reports that a lot of water consumption is hidden because companies don't use all the water directly.

"We discovered that among 96 percent of the sectors evaluated, indirect use exceeded direct uses throughout the supply chain," Hendrickson said.

But Hendrickson and Blackhurst are quick to report that their data are national findings and do not apply regionally. In addition, they could only track withdrawals, and were unable to determine how much water was returned to the system or recycled.

"That is a big deal because water that gets degraded during industrial processes might not be suitable for future uses," Hendrickson said. "Effective water management is critical for social welfare and our fragile ecosystems."

Provided by Carnegie Mellon University

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