



Californians Move to 'Toilet-to-Tap' Water Recycling

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In response to Southern California's dwindling water supply, several California cities are trying out new water reclamation projects that turn wastewater into drinking water.



California is substituting some of its water intake from the Sacramento-San Joaquin River Delta region in northern California with recycled wastewater.

The controversial water reclamation process, known as "Toilet-to-Tap," has been in place in Orange County since December and San Diego is planning to open its own water-purification plant this summer.

A new kind of water cycle



Recycled water is widely used for irrigation.

Recycling water is not a new concept. There is evidence that some communities reused sewage water for irrigation more than 5,000 years ago.

Californians began irrigating their crops and pastures with it in the early 20th century.

Up to half of the water in American rivers has been used, collected, treated and distributed downstream.

The process

Water recycling is a three-step filtration process.



Wastewater goes through a water-purification system to remove harmful elements like bacteria and chemicals.

Upon entering the treatment facility, wastewater is first sucked up into thousands of tiny straws (no wider than three hundredths the thickness of a human hair) which help separate out bacteria.

Second, the water molecules undergo reverse osmosis, a process where intense pressure is used to force the molecules through a sheet of plastic.

Lastly, the remaining water molecules are exposed to ultraviolet light and mixed with peroxide for a final cleansing. The entire process ensures that not even the tiniest bacterium, virus, chemical or hormone can survive, and in many regards, it's actually purer than highly coveted mountain spring water, according to California's Department of Health Services.

San Diego's challenges



A court ruling aimed at protecting the endangered delta smelt fish forced San Diego to find new sources of water.

Still, the notion of drinking former sewage water can be hard to swallow. In fact, California has tried water recycling before, but the phrase "toilet to tap" scared so many residents that the plan was scrapped.

Now, worried water officials in San Diego County are hoping public education will help people accept what they see as a necessity.

Currently, San Diego imports 90 percent of its water from places like the highly sought-after Colorado River and the Sacramento-San Joaquin River Delta in Northern California. But due to a recent federal court decision protecting the endangered delta smelt (a small fish), San Diego was forced to look elsewhere.

The city council, which has likened the city's dependence on imported water to our nation's dependence on imported oil, hopes to halve the city's percentage of imported water when its plant opens this summer.

To do this, the city will combine its sewage water reclamation project with conservation efforts including planting native vegetation, collecting rainwater, and installing pressurized shower-heads and low flow toilets.

The water wars



U.N. Secretary-General Ban Ki-moon said that water shortages have contributed to poverty and other problems in nations around the world.

California is not the only area to face a water shortage -- in the U.S. or around the world.

The United Nations predicts that severe water shortages affecting at least 400 million people today will affect 4 billion people, more than half of humanity, by 2050.

Prevention of the looming water crisis should receive top priority in 2008, according to UN Secretary-general Ban Ki-moon.

At an economic conference in January, Ki-Moon said the conflict in the Darfur region of Sudan was touched off by drought and that water shortages have contributed to poverty and social hardship in numerous countries, including Somalia, Israel, Sri Lanka, Colombia and Kazakhstan, he said.

"Too often, where we need water, we find guns instead," he said. "Population growth will make the problem worse. So will climate change."

The United Nations will hold a critical meeting in September to focus on technologies and strategies to improve drinkable water conditions around the world.

--By Lauren Knapp for NewsHour Extra

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