

PLENTY MAGAZINE

Sewers to Sinks

A drought-stricken California county has found a new source of water: its toilets

By Jonathan Parkinson



“Here, try this,” says Gina DePinto, a spokesperson for the Orange County Water District [OCWD] as she offers me a bottle of NEWater from a cooler. It looks like it could be any other brand, but there’s one slight difference: this water came from a sewer in Singapore. I unscrew the cap and go bottoms up. Although it has been down a toilet, water-purity tests have shown the water to be some of Earth’s cleanest — and a possible solution to a global problem.

Water is so commonplace in countries like the US we sometimes take it for granted; it's safe, fresh and available at the flick of the wrist. But as drought in arid regions like northern China, eastern Australia, and the American Southwest intensifies and global warming alters weather patterns, clean

water will grow more scarce for many; already, according to the UN, a billion people worldwide lack access to clean drinking water. The UN estimates that by 2025, two-thirds of the world's population could face water shortage. Here in the US, the parched Southwest is already struggling: nearly eight years of drought have left reservoirs in the Colorado River basin almost half-empty, and in Northern California, 2008's spring was the driest on record — with some researchers predicting still worse to come.

To meet the challenge, a growing number of cities are purifying wastewater to recharge groundwater or reservoirs, a process engineers call “indirect potable reuse” and skeptics refer to as “toilet-to-tap.” Among the early adopters are El Paso, Texas; Singapore; Windhoek, Namibia; and Fairfax County in Virginia. Other US cities considering or launching similar projects include Los Angeles, San Diego, and Miami-Dade County, which is scheduled to begin an operation in 2013 at an estimated cost of \$350 million (that's still cheaper and more energy-efficient than seawater desalination). Leading the way is Orange County, California.

Known more for its wealth than its filth, the county has a new state-of-the-art plant that opened in January. OCWD engineer Mehul Patel boasts of an 80-to-85 percent recovery rate; the plant produces some 70 million gallons of potable water a day — enough to meet the needs of nearly half a million thirsty Southern Californians.

Our tour of the filtration plant starts next to a row of concrete basins where Coca-Cola colored wastewater churns in the depths; solids have been removed, but this water is thick with muck. In a technique called microfiltration, pumps draw the wastewater through bundles of fibers shaped like ultra-slim drinking straws, with holes 1/300 the size of a human hair, trapping bacteria and dirt. Every fifteen minutes a blast of air flushes the dirt from the microfilter while the water passes to the next stage.