

Drought is making treated wastewater a "and" tastier option

Ticket
No "it" "they"
"and"
(Repeatedly)

By Los Angeles Times, adapted by Newsela staff on 06.04.15
Word Count 887



At sunrise, wind pushes the receding water to splash up on the banks at Pine Flat Reservoir in Sanger, California. As a fourth year of drought continues in the state, water experts are suggesting a water recycling policy called "direct potable reuse" — taking treated sewage and purifying so it can be used as drinking water. Allen J. Schaben/Los Angeles Times

Drought
CA

LOS ANGELES, Calif. — Experts say there is an effective way to help California deal with its long-running drought.

However, there is one big problem with their solution — the "yuck factor." *What is the "yuck factor"?*

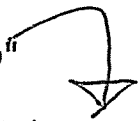
For a fourth straight year, California's drought has been shrinking the state's water supply. In response, water managers are pushing for something known as direct potable reuse. *How/What is Direct Potable Reuse?*

Direct potable reuse is a system that makes use of wastewater, much of it from toilets. The idea is to purify the sewage so it can be used as drinking water.

The idea of drinking "toilet water" makes some people gag. However, the process has been used for years in Namibia in Africa. More recently, it has also been used in drought-stricken Texas cities, including Big Spring and Wichita Falls.

Direct Potable Reuse Already been being used

Time Might Be Ripe For "Toilet To Tap"



In California, however, such plans have run into heavy opposition.

A San Diego newspaper cartoon published in 1994 helped turn people against the idea. It featured a dog drinking from a toilet bowl while a man ordered the animal to "Move over."

In 2000, opponents of a proposed reuse program in Los Angeles came up with the mocking phrase "toilet to tap." Their efforts to stop the program were ultimately successful.

Disrespect of science

Stopped a scientific discovery to help CA drought

Still, supporters of the process are now pushing the idea again. They say the time has finally come for Californians to accept direct potable reuse as a partial solution to their growing water problem. With California Governor Jerry Brown ordering a 25-percent cut in water use in some areas, the solution makes sense, they say. It particularly makes sense, they argue, for large coastal cities such as Los Angeles.

Coastal cities flush hundreds of billions of gallons of treated sewage into the Pacific Ocean each year. They could instead capture that wastewater, clean it and turn it into drinking water, supporters of reuse say.

"That water is discharged into the ocean and lost forever," said Tim Quinn, director of the Association of California Water Agencies. "Yet it's probably the single largest source of water supply for California over the next quarter-century."

Drought Is Changing Attitudes

California's severe drought may finally have changed long-held attitudes on potable reuse.

Recently, a leader in the effort to stop the earlier Los Angeles project said he might consider a new plan.

"You know, toilet to tap might be the only answer at this point," said activist Donald Schultz. "I don't support it, but we're running out of options. In fact, we may have already run out of options."

Supporters of potable reuse insist that the public's distaste for the idea is based on ignorance. They note that more than 200 wastewater treatment plants already pour sewage into the Colorado River. The river is a primary source of drinking water for Southern California.

Potable reuse is essentially already happening, said George Tchobanoglous, a water treatment expert and professor at the University of California, Davis.

Tchobanoglous estimates that by 2020, potable reuse could yield up to 1.1 million acre-feet of water annually. The newly available water would be enough to supply 8 million Californians — around 20 percent of the state's population.

All Politics

How??

Wastewater Ends Up Cleaner Than Most Bottled Waters

In potable reuse systems, sewage is cleaned numerous times and very thoroughly.

First, the water is passed through a microfilter that blocks anything larger than 1/300th the thickness of a human hair. Next, it undergoes even finer filtering through a process called reverse osmosis: water is forced through a membrane that blocks fertilizers, drug compounds, viruses and salts. In the third step, ultraviolet light and hydrogen peroxide are used to break down any disease-causing bacteria that escaped the first two steps.

What is reverse osmosis?

Result ALL disease bacteria killed

toilet to tap or potable reuse cleaner than bottled water

The result is a purified liquid that is cleaner than most bottled waters, supporters say. However, it is still sent to a traditional water treatment plant afterward. There it is blended with other sources of water, processed and pumped to homes.

Supporters of potable reuse say opposition is mostly driven by the so-called yuck factor. However, opponents say they have a variety of other reasons for their resistance. Cost is one. Another is concern over the possible long-term effects of the contaminants found in wastewater. Opponents do not believe that even the most thorough cleaning will remove them all.

"Personally I would not drink water that has been recycled through the toilet to tap process," said Steven Oppenheimer, a biology professor at Cal State Northridge. However, Oppenheimer said he would use such water for household cleaning and even bathing.

Purified Water Can Be Stored Underground, In Reservoirs

Some say the safest way to deal with possible contaminants is to use so-called indirect potable reuse systems. With these methods, purified water is stored underground or in surface reservoirs before it is used as drinking water.

Such a system has been operating since 2008 in Orange County. There, purified wastewater is pumped into an aquifer — an underground layer of rock and sand. It is held for six months before being treated again, then used as drinking water.

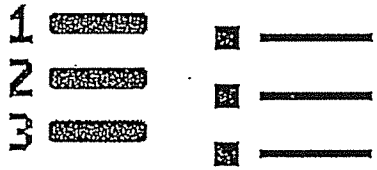
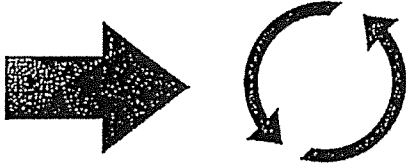
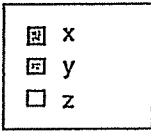
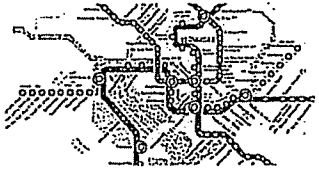
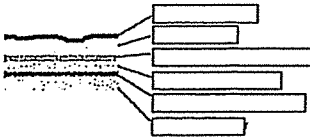
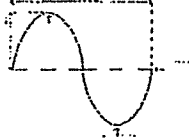
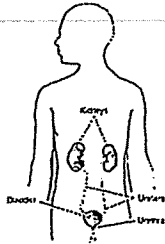

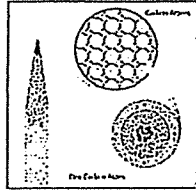
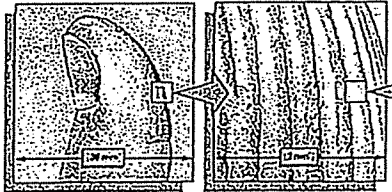
Rock / sand natural filters to clean

Allison Chan, an expert on potable reuse projects, said that many people become more supportive of such programs as they learn more about them. However, the opposite is true for others — they become even more opposed.

"This just goes to show how the yuck factor can stick with some people," said Chan.

Technical Writing Tools

*visual tools to communicate and justify your thinking
and show connections*

<p>Numbered/Bulleted List</p>	
<p>Arrows</p>	
<p>Text Typefaces</p>	<p>Text <u>Text</u> text TEXT Text Text</p>
<p>Color-Coding</p>	<p>Color Color <u>Color</u></p>  
<p>Annotations/Labels</p>	  
<p>Call-Outs / Zoom-Ins -Outs</p>	  
<p>Charts/Tables/Diagrams</p>	