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India Launches Its First Public Toilet-to-Tap Water Project

The treatment plant can produce 20 million gallons of clean drinking water a year—and yes, it's totally safe to drink.

Sanchaita Gajapati Raju, founder and managing trustee of SANA, drinks the treated water at Keshopur Sewage Treatment Plant in Delhi on July 9. (Photo: Sushil Kumar/Hindustan Times' via Getty Images)

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Bio

India's sanitation woes may be notorious, but at least the country isn't afraid of creative solutions.

Officials in Delhi just launched the capital's first so-called toilet-to-tap water project last week at the Keshopur Sewage Treatment Plant. If a tall glass of former sewage water sounds less than appealing, Delhi's chief minister Arvind Kejriwal was ready to prove otherwise. Kejriwal, who spearheaded the project, was the first to drink the water converted from raw sewage at the launch announcement. (Bill Gates did the same earlier in the year at a sewage water treatment plant in Seattle.)

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So, Why Should You Care? Groundwater contamination is a huge problem in Delhi. While three-fourths of residents have access to water from an official piped water network—which is relatively uncontaminated—the rest of the population relies on untreated groundwater. Drinking contaminated water can lead to a number of waterborne illnesses and can even be fatal. Twenty-one percent of communicable diseases in India are related to unsafe water, and diarrhea causes more than 1,600 deaths daily in the country, according to World Bank estimates.

More than half the city's population isn't connected to Delhi's sewage system, and just 15 percent of the population uses septic tanks, according to a report from India's Central Ground Water Board. As a result, raw sewage flows into the city's network of unlined storm drains and into the Yamuna River.

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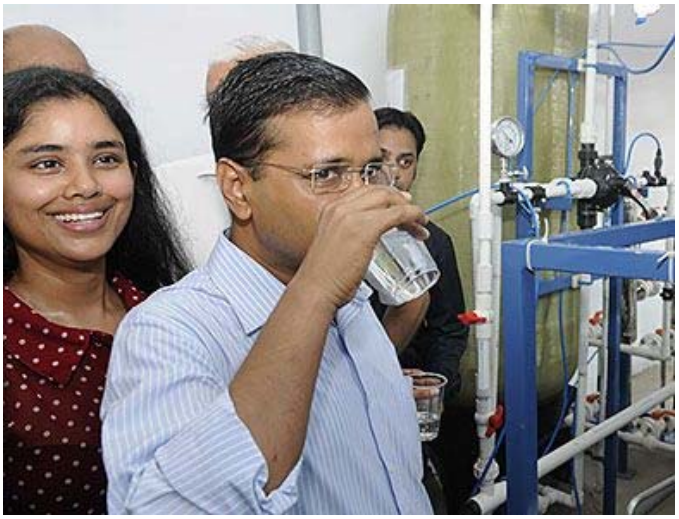
Nitrate levels in drinking water should be below 50 milligrams per liter, according to the World Health Organization, but in Delhi, they have been recorded at as high as 1,500 milligrams per liter. The levels have been attributed to the "combined effect of contamination from domestic sewage, livestock rearing, landfills and runoff from fertilized fields, unlined drains, and cattle sheds," according to CGWB.

The new project at the treatment plant, which was set up in collaboration with Delhi-based nonprofit SANA, uses a chemical and organic filtration system that can produce 20 million gallons of drinking water a year. While the technology isn't new, there's still a stigma attached to the idea, making it difficult for residents to embrace.

Still, more regions around the world are looking into implementing the idea, including developed countries. In drought-stricken California, toilet-to-tap programs are getting more serious consideration, CBS News reported.



Delhi chief minister Arvind Kejriwal tastes the treated water. (Photo: Sushil Kumar/ 'Hindustan Times' via Getty Images)

"It is the cleanest water we have in the state of California," Mike Markus, Orange County Water District general manager, told CBS News as he discussed a waste-to-water treatment plant that was built in 2008. It's the largest in the world, he pointed out, and can produce 70 million to 100 million gallons of water a year. "We're able to provide enough water for nearly 850,000 people a year," he said.

One reason for the stigma: the name.

"The term that has been coined, 'from the toilet to the tap,' is omitting the fact that there is a lot of treatment in between, so it gives the wrong perception," a UCLA chemical and biomolecular engineer told CBS News.

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In reality, the

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technology works to purify water the same way nature does. As a Delhi water works official explained to *The Indian Express*, "raw sewage is pumped into the five-layered biofilter–comprising earthworms, cotton extracts, bacteria, organic sand, pebbles, stones, etc. This treated sewage is then pumped into the membrane system, where it is chlorinated and made available for drinking purposes."

"The chief minister drinking this water has sent out a strong message," said water minister Kapil Mishra, who added that the government will roll out an awareness campaign to educate the public on the new water source.

Next up, officials will explore how the project can be implemented throughout the city and beyond, reports the *Hindustan Times*.

"If this project is up-scaled in a decentralised manner, every home will get sewer and water connections in the next three to four years," Kejriwal said.

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