

Purification technology tackles China's household water pollution

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In a province near Shanghai, Singapore's AnnAik is keeping China's waterways clean.



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This may look like an ordinary house, but this small building about an hour's drive from Shanghai, is improving the lives of the community around it.



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No conventional fittings or furniture here; this unassuming building houses a potential solution to China's domestic wastewater problems. It's a treatment facility that filters out pollutants and other potentially hazardous contaminants. This unconventional wastewater plant employs a full range of treatment solutions and products to keep the environment safe from household water pollution. Think composite bio-filters, composite anaerobic reactors, high-loading wetlands and phosphorus-removing water treatment fillers.



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Small facilities just like this one are appearing across China's rural areas, just as Chinese consumers are increasingly conscious about the environment.

Doing their part to keep China's waterways clean is Singapore environment and engineering firm AnnAik Limited and its local partner Shanghai Onway Environmental Development. By employing wastewater purification technology, AnnAik is working towards cleansing domestic wastewater of impurities, and by extension, keeping pollutants from entering the rural ecosystem.



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These pollutants often include washing water, human sewage, surplus chemicals from pesticides and cooking oil, which originate from household sources such as dishwashers, bathtubs and sinks. Domestic wastewater in particular poses a huge challenge for China. In 2015, about two-thirds of China's roughly 74 billion tons of wastewater came from household sources, a problem that is even worse in rural villages.(1)



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As China's economy and population grows, so does its challenges with household water pollution. Contaminant-rich water from households and other sources often runs into large bodies of water. As many as one-third of its lakes and rivers are unfit for human use.



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According to the World Economic Forum, China has about 20 percent of the world's population, but just 7 percent of its fresh water. (2) In addition to the everyday demands of 1.3 billion people, the country's water resources are increasingly under strain from growing agricultural and industrial needs. Sustained pollution further constrains China's precious water resources.



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There are currently more than 3,000 of AnnAik's wastewater treatment systems across China. Each one can serve up to 3,000 households. They're affordable, effective and unobtrusive. Best of all, once they're set up, they work on their own. They don't need staff on site, and they only require occasional maintenance.

As of 2015, only 11.4 percent of China's villages reaped the benefits of wastewater treatment facilities.(3) More treatment plants like these will certainly go a long way in improving the quality of life for the surrounding community. Besides being more pleasant to live near, cleaner waterways are less susceptible to environmental problems like algal blooms.



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For locals, the benefits are clear: water goes in dirty, and comes out clean. Once clean, the water is discharged and returns harmlessly to waterways. Across China, these systems process more than 100,000 tons of water every day.(4)

The good news is that water quality is improving. A 2018 survey consisting of 1,940 samples from across China found that 71 percent were considered suitable for drinking and fishing, according to China's Ministry of Ecology and Environment (MEE), up 3.1 percentage points from the previous year.(5)

(1), (3) *China's 13th Five Year Plan: What Role Will Wastewater Play?*, *Water and Waste international*, January 2018, <https://www.waterworld.com/articles/wwi/print/volume-33/issue-1/technology-case-studies/china-s-13th-five-year-plan-what-role-will-wastewater-play.html>

(2) *China has a water crisis – how can it be solved?*, *World Economic Forum*, April 2016, <https://www.weforum.org/agenda/2016/04/china-has-a-water-crisis-how-can-it-be-solved/>

(4) *In-situ Decentralized Wastewater Treatment Solution*, *AnnAik Limited*, 2016, <https://www.annaik.com.sg/wp-content/uploads/OnwayBrochure-16.pdf>

(5) *China hails improved water quality, but some rivers more polluted*, *Singapore Press Holdings Ltd*, January 2019, <https://www.straitstimes.com/asia/east-asia/china-hails-improved-water-quality-but-some-rivers-more-polluted>