Solar powered device that extracts water and fertilizer from urine used to make beer

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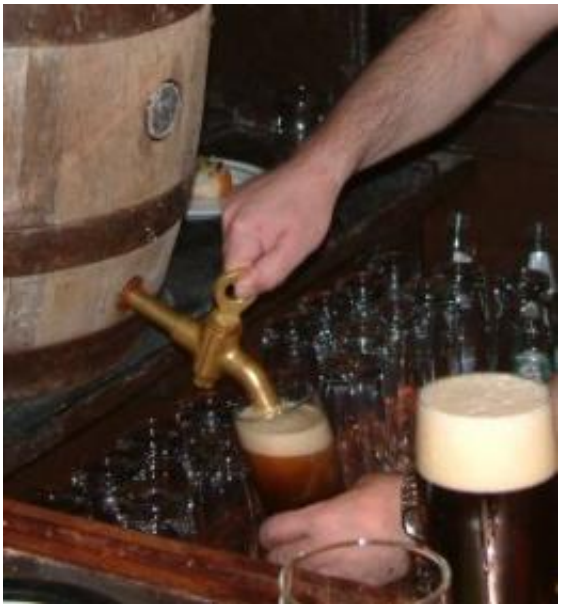

Image: John White

(Tech Xplore)—A team of researchers at Ghent University has made headlines by announcing that they have designed and created a solar-powered device that is capable of separating out water and fertilizer from human urine, which will be used to grow crops used for making beer. Additionally, the team gathered urine from thousands of people attending a 10-day music festival (and drinking lots of beer). They have written a paper describing the technology behind their device and have posted it on the university web site.

The researchers reportedly began their work with the idea of a filtering device and the aim of helping people living in rural communities where water is scarce—but they soon noticed that it might also prove useful in highly trafficked areas such as sports venues, music events, and even airports.

The device is simple in nature—the urine that is collected is dumped into a tank, where it is heated via solar energy—as the urine evaporates, it is pushed through a "special" membrane that separates and collects water and other material. The team claims that the process removes approximately 95 percent of the ammonia that is present in urine, making it clean enough to actually drink. But realizing that most people may not be ripe for a sample taste, the team has made plans to use the water and the fertilizer they make from the other material extracted (phosphorus, potassium and nitrogen) to grow a crop of hops which will be used to make more beer—which might very well result in more urine being produced at the same music festival next year.

The researchers call the project "sewer to brewer" in a light-hearted attempt to promote their technology and hopefully to attract investors. They have even taken to social media, using the hashtag #peeforscience. They claim also that their device is more energy efficient than other wastewater treatment devices, offering users more immediate benefits. They hope that their project has attracted enough notice to allow them to build mores such devices, which they would like to take to rural communities.

More information: biblio.ugent.be/publication/7196702
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