

The Blue Diversion Toilet is an Off-Grid Portable Potty That Filters Waste Water For Washing

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According to the [World Health Organization](#), some 2.5 billion people lack access to improved (ie., safe, clean) sanitation facilities, and so in 2011 the Bill and Melinda Gates Foundation launched the “[Reinvent the Toilet Challenge](#).” The challenge funds projects which are working to develop a next-generation off-grid toilet that “Removes germs from human waste and recovers valuable resources such as energy, clean water, and nutrients... Promotes sustainable and financially profitable sanitation services and businesses that operate in poor, urban settings,” and costs less than \$0.05 cents per user per day.

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A team from [Eawag](#) (the Swiss Federal Institute of Aquatic Science and Technology) partnered with Austrian design firm [EOOS](#), and the Blue Diversion Toilet was born. The single unit separates undiluted urine, feces, and water into separate containers below the pan. The water that is used for flushing is then filtered through a self-cleaning multi-barrier treatment system to make it safe and clean for washing. The same water can be used around 50 times a day, and

power for the pumps and electronics within the toilet is provided by [photovoltaic panels](#) atop the unit.



The urine and feces, meanwhile, are collected twice a week by a service person who safely transports the sealed waste containers to a community-scale resource recovery plant. Here, the nutrients from the urine are extracted through partial nitrification and distillation to create “marketable [urine-based fertilizer](#),” while the feces are treated and composted.

The toilet has been successfully [tested](#) in trials in Uganda and Kenya to largely positive feedback, and the team is now working on developing a sit-down version as well as one that will have onsite resource recovery, dubbed the [Autarky Toilet](#). They are also seeking support to begin large-scale production of the toilets, which they hope to market for around \$500.
