



Michel Riechmann next to the Autarky toilet's Nutrient Harvester, which received the Energy Globe Award South Africa (Photo: Claudia Carle, Eawag)

Award for the “Nutrient Harvester” of the “Autarky” toilet

January 31, 2023 | Claudia Carle

The Autarky Nutrient Harvester is one of three modules of a self-sufficient sanitation system and recovers fertiliser from urine. This is particularly interesting for areas with little infrastructure, as was demonstrated by a successful field test in South Africa. Now the Nutrient Harvester has been awarded the Energy Globe Award South Africa.

The Energy Globe Award is a prestigious environmental prize that is awarded every year at both international and national level in more than 140 participating countries. In 2022, more than 2500 innovative projects were submitted for the protection of the environment. Michel Riechmann from the Process Engineering department received the Energy Globe Award South Africa for the Nutrient Harvester from the Blue Diversion Autarky project at the end of 2022.

In Durban, South Africa, the Nutrient Harvester was successfully tested in the household of an extended family as part of the 2019 Autarky toilet house. The Autarky toilet, as the “smallest room” that functions independently of the water, sewage and electricity grids, can on the one hand help to provide safe and decent sanitation devices in regions with poor infrastructure. At the same time, thanks to the Nutrient Harvester, it recycles nutrients from urine in the form of dry fertiliser, which helps to meet the growing demand for fertiliser for food production. To do this, the volatile components of the urine are first stabilised to prevent odours and the loss of nutrients. The water it contains is then evaporated to produce a concentrated dry fertiliser.



The evaporation of the water contained in the urine reduces the initial volume by more than 96 % and produces a dry fertiliser (Photo: Michel Riechmann, Eawag)

Spin-off in preparation

“This award shows that our approach is perceived as a sustainable key technology for the future and that it also resonated with the wider society,” Michel is pleased to say. He is currently working together with Kai Udert to set up an Eawag spin-off: to launch the Nutrient Harvester on the market. Work on market analysis and cooperation talks with various interested partners are currently underway. “The technology has also developed significantly over the past year,” adds Michel, for example in terms of space requirements and energy efficiency. However, further industrialisation steps and tests in various field settings are still necessary for a market launch. In order to build trust in the technology, it will initially be established in niche markets such as tiny houses or mountain huts in Switzerland and in the European region. “We need to show that the Nutrient Harvester is also a desirable technology in our context, too. This is the only way that the new system can compete on an equal footing with water-based and centralised wastewater treatment plants, which has so far been the gold standard, even in countries with poor infrastructure,” Michel is convinced.

Related Links

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<https://www.eawag.ch/en/info/portal/news/news-archive/archive-detail/nutrient-harvester-der-autarky->

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