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JONNA DAGLIDEN HUNT BUSINESS 18.10.2021 08:00 AM

## This tiny solar-powered factory cleans up dirty water

For large parts of the world, good quality drinking water is hard to come by. The first solar-powered beverage factory is helping fix the problem



PHOTOGRAPHY CHRISTOPHER HUNT

The world's first completely solar-powered beverage micro-factory started its journey in the spring of 2020, when Swedish startup Wayout International waved its container-sized machine goodbye from the port of Norrköping, south of Stockholm.

With shipping options already radically reduced by Covid-19, the micro-factory set out across the Baltic, Atlantic and Mediterranean seas, via the Suez Canal, stopping by Saudi Arabia, India and Sri Lanka, landing at last in Dar es Salaam, Tanzania. From there, it went by truck through the developing rural landscape, over the Ngorongoro crater wall at 2,640 metres above sea level, across the great Namiri plains and up to the Mara river. It's a big change of scene from a noisy industrial site in Sweden to a peaceful eco-tourism camp in northern Serengeti.

It had taken Wayout 18 months to go from idea to complete product. The result is a module that converts sunshine and local groundwater into pristine, potable water – and which can also produce premium craft beer and soft drinks. A single module puts out 150,000 litres of clean, remineralised water per month and lets whoever operates it serve up to eight different types of drinks through the integrated tap station. The micro-factory is offered for lease and the fully automated beverage production is done via a desktop app letting the local operator – and Wayout, in Stockholm – monitor and control the process remotely. The system in the Serengeti is powered through a 110 kWp solar field with the energy stored in 2,000Ah OPzS batteries.

In the Serengeti, water is abundant, but not fit for drinking. The natural mineral content is extreme, making it corrosive to teeth and internal organs, and the unique ecosystem – including the famous "great migration" of wildebeest – makes the living soil busy with bacterial processes. That is why the micro-factory takes its source water from a local groundwater bore hole and filters it through an advanced integrated treatment system that removes all impurities before remineralising it for optimal taste and quality.

"It started out as a fun project between friends, at a moment when craft beer and micro-brewing was a thing," says Martin Renck, one of Wayout's three founders. The first system was developed to be used in the hospitality industry and by major breweries and beverage brands that seek to produce locally and sustainably. As the trio started pitching the concept to prospective clients, they hadn't realised how urgent the issue of water purification was. "When we listened to the feedback we got – not just in Africa but from all around the warm regions of the planet – it became clear that it was the mineral water that was the really remarkable thing. We realised we not only had a commercial opportunity, but also a greater mission to take on," Renck says.

Martin Renck, co-founder of Wayout. Originally conceived as a way to easily create craft beer, the technology's ability to produce clean drinking water from virtually any source has proved to be its greatest and most impactful innovation. PHOTOGRAPHY CHRISTOPHER HUNT

Touching down on the red dirt track at the Kogatende Airstrip in Northern Serengeti, the infrastructural challenges of the region become instantly clear. Here, the dynamics of the natural world still rule; scorching days followed by chilly nights, dry seasons followed by torrential rains, wildebeest and zebras followed by big cats and hyenas, with termites, boomslangs, hyraxes, aardvarks and pangolins filling the gaps. Roads and rivers meander with the seasons. Man-made structures morph and merge with biomass. Good quality drinking water may be as far away as a few days by four-wheel drive, and the distribution logistics leave scars in the sensitive biotope. The effects of the Wayout micro-factory in this location have been profound.

In situ, at the safari operator Asilia's Sayari Camp, this circular system has eliminated single-use plastic bottles by nearly 18,000 units per year, not only for the camp guests but also for the operating staff and the park rangers in the region. Together with the safari camp operators, the rangers are what protects the national park by maintaining fire breaks, educating locals on the economic upsides of a healthy ecosystem, deterring and removing poachers, and protecting wildlife and people from each other when needed. Easy access to eco-friendly safe drinking water lets the rangers focus on their mission and ultimately improve the experience for the close to 150,000 yearly eco-tourists to the region.

Through the localised production of beverages, Sayari Camp further reduces their environmental impact by avoiding unnecessary waste management and routine long-distance trips. In addition to obvious health benefits, the unlimited supply of safe drinking water also frees up time and resources for families, advancing educational and economic prospects that support long-term development. And the effects have exceeded expectations. "In this location, the transition to a circular and eco-friendly economy in and around the Sayari Camp was more or less instant, which really should make us all think: if this can be done in the far-out region of Northern Serengeti, couldn't it then be done anywhere?" Renck asks.

Renck says that the pandemic has boosted the interest in their innovation. The company is currently busy finalising its second concept: a "water-as-a-service" offer aimed at regions and nations with greater need for desalination and safe drinking water. One such project is slated for roll-out in early 2022 in a large island nation. By producing drinking water through distributed desalination, the cascade effects of the infrastructure system could help replenish the island's water table, restore local farming and revitalise important parts of the island's economy.

"One of the things we as humanity learned from this pandemic is that we can no longer rely on global value chains," Renck says. "A transition to local and sustainable production of food and beverages [could help] humanity greenwash – in the genuine, positive sense of the word – civilisation."

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