

save!

SMART
SANITATION
FOR A
SUSTAINABLE
FUTURE

BY EOOS

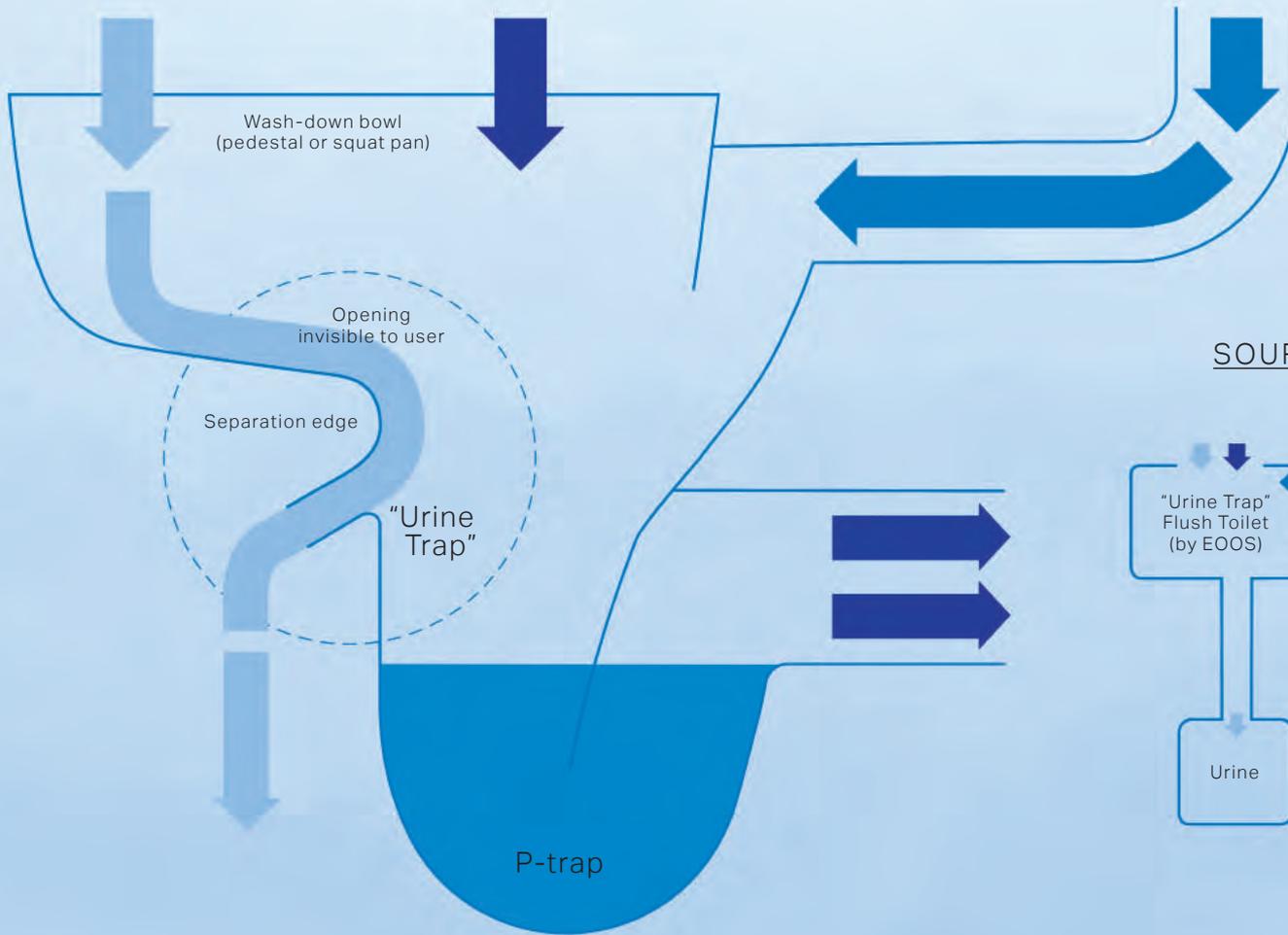
LAUFEN

TRANSFORMATIVE

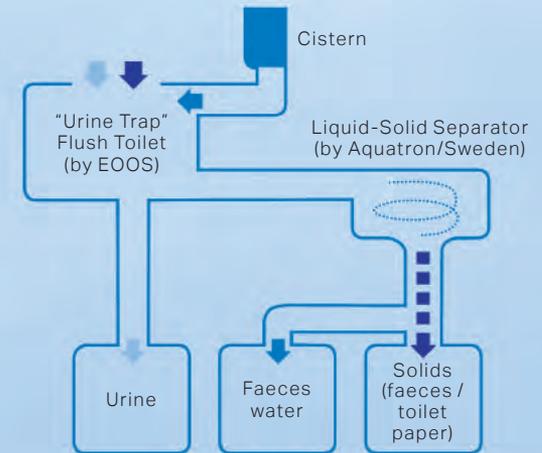


CHANGE

INVISIBLE



SOURCE SEPARATION



INNOVATION

A top-down view of a white ceramic toilet bowl. The bowl is centered in the frame, with its rim visible on the right and bottom. The interior of the bowl shows the water level and the central drain. The background is a solid, vibrant blue. The text "A NEW" is positioned at the top, and "PARADIGM" is at the bottom, both in a bold, black, sans-serif font.

A NEW

PARADIGM

save!



CONFRONTING A HIDDEN DANGER

The way we dispose of human waste has changed very little in centuries, and is now a major contributing factor to one of the most urgent environmental issues facing the planet. A series of studies by leading scientists ranks excessive nitrogen levels caused by sewage and the agricultural use of fertilisers as more threatening even than rising CO₂ levels and climate change.

There is a need to readdress the infrastructure around wastewater treatment, which currently represents a major pathway for the introduction of nutrients (nitrogen and phosphorus) and micropollutants (hormones and medical residues) to surface water.

Efforts to remove these pollutants have so far caused wastewater management infrastructure to become even more expensive, cumbersome and increasingly energy intensive.

SOURCE SEPARATION TECHNOLOGY

Since the mid-1990s, one of the world's leading water research organisations, the Swiss Federal Institute of Aquatic Science and Technology (Eawag), has been examining potential alternative ways to reduce pollution from wastewater. One particularly interesting direction identified by Eawag is Source Separation Technology, which involves separating domestic wastewater at the source into urine, faeces and greywater.

If the different types of wastewater are kept separate rather than mixed, these different streams can be sustainably processed and usable resources can be extracted.

Eawag's research into resource recovery has focused on urine as it contains most of the nutrients that cause harmful effects such as excessive nutrient load (eutrophication) on ecosystems.

The scientists have developed a process for recovering nutrients from urine while removing micropollutants hormones and medical residues using small, highly efficient decentralised reactors. As a result, around 80 percent of the nitrogen found in sewage can be removed from the wastewater stream, which will in turn reduce the resources required to operate treatment plants.

A CIRCULAR CONCEPT

The use of decentralised reactors to enable more flexible wastewater management has been pioneered by Vuna – a spinoff of Eawag in Zurich. The treatment process uses microbial transformation, activated carbon filtration and distillation to transform source-separated urine into a fertiliser called Aurin which has been officially licensed by the Swiss Federal Office for Agriculture for use on all plants.

A HIGH-PERFORMANCE SOLUTION

The Austrian design studio EOOS, Eawag and LAUFEN have developed a pioneering urine-diverting toilet that revolutionises the user interface for sustainable urban water management. save! is an evolution of the pioneering Blue Diversion Toilet, which was developed by EOOS and Eawag and supported by a grant from the Bill & Melinda Gates Foundation.

save! is the first gravity flushed urine-diverting toilet to meet the latest industry standards of conventional toilets. It passively separates urine from solids and flush water so it can be treated using systems such as a fast, simple and organic wastewater management process developed by Vuna.

The product's key innovation is a "Urine Trap" invented by EOOS Design, which directs urine towards a concealed outlet using only surface tension. Laufen applied this concept to a new toilet design featuring a ceramic bowl that is optimally shaped to guide the water flow. The interface's easy maintenance, low-tech, hidden innovation ensures it is indistinguishable from any other high-end WC. save! represents a new format for a familiar product that is business ready and could play a key role in the future of wastewater management.

SMARTER SANITATION FOR SMARTER CITIES

According to Professor Tove Larsen from Eawag's Department for Urban Water Management: "Wastewater management is vital if we are to prevent catastrophic damage to the world's rivers and oceans. save! represents a breakthrough in the quest for effective, hygienic wastewater separation that is invisible to the end user. Finally, there is a sanitation solution that is fit for the 21st century".

GLOBAL ACCESS

In late 2018, Bill Gates appeared on stage at the Reinvented Toilet Expo in Beijing holding a jar filled with human excrement. Gates wanted to highlight the dangers facing around 2.3 billion people who don't have access to basic sanitation facilities. The Bill & Melinda Gates Foundation invests in the research and development of ecological sanitation for those most at risk.

Laufen is fully committed to supporting the evolution of innovative solutions to this urgent problem. To safeguard 21st century sanitation for the world's poorest citizens, the company will develop a source separating squat toilet for local production.

The design will be made available for anyone to produce and distribute in developing countries. This new solution will help to save lives and improve conditions across the developing world.

PRODUCT DETAILS

save! is the first urine-diverting toilet to meet the latest industry standards. The rimless, wall-mounted, patent-pending device was developed for Europe and is approved according to EN Class 1 Type 5 (3/4.5 L) and Type 4 (2.5/4 L). Compliance with existing functional and connection standards is also assured. An odour trap in the urine siphon with a filling quantity of 65 ml guarantees the water exchange with every flush and can be serviced without removing save! from the wall.

Installation in conjunction with a Laufen system is required for the yellow and black water drains. This also allows for standardised flushing conditions and mounting safety through the integration of a pre-assembled mounting cuff.

The source separation works without mechanical parts, using only surface tension, intelligent direction of the water flow and the ceramic shape. Computational fluid dynamics simulations developed by ETH Zurich were used to optimise the inner geometries. No change in user behaviour is required, however, men have to urinate while sitting. save! is the latest example of Laufen's continued dedication to a subtle and intelligent combination of technology and design.

CIRCULAR FLOWS – THE TOILET REVOLUTION!

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GAME-CHANGING TECHNOLOGY

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