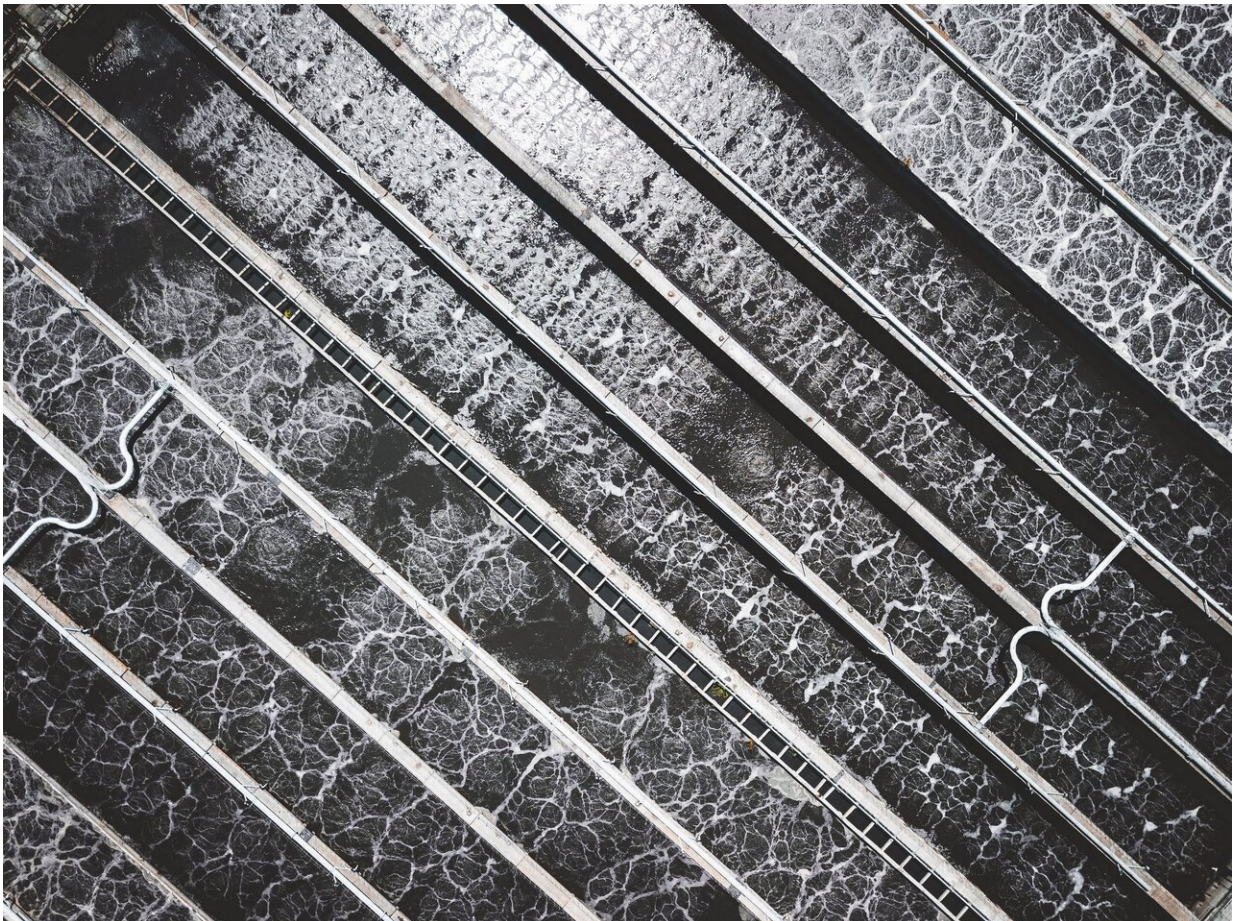


The circular economy could save our broken water system

September 18 2020, by Steve Gillman



Credit: By Ivan Bandura unsplash

Society is consuming water at an ever-increasing rate while water

pollution and global warming continue to limit the availability of water, a cluster of problems that could slash future economic development by at least a third.

"Science has been telling us for some time that the [water scarcity](#) and security crisis is bad and is set to get worse," said Cate Lamb, water director at CDP, an international not-for-profit working to advance sustainable business. "That's just not a situation that can continue."

The race is on to fix a broken system, and our best bet to transform how we use water could be the circular economy. This is when supply chains are redesigned to reduce, capture and reuse as much as possible, and water is in desperate need of that thinking—currently, 80% of wastewater flows back into the environment without being treated or reused.

Lamb thinks corporations could be the catalyst to shift society toward the circular economy, if they grasp the scale of the water crisis.

"Companies are just blind to the pollution related risks that they may be facing and they're not taking sufficient transformative action," she said.

In CDP's latest water report, they found that only one in 10 apparel companies showed awareness of water pollution, which is a worrying commercial trend, considering a business' growth can be hindered by linear supply chains in a variety of ways; from regulatory fines and legal battles to disrupted production and reputational damage.

"Unilever disclosed to us in 2019 that [water quality](#) in the Mississippi River basin is increasing the costs associated with growing the soy that they need for their Hellmann's mayonnaise brands," Lamb adds.

But the consumer goods company is starting to adapt to the problem and now sees the need for more water-saving solutions. It has since

developed technologies and products in line with the circular economy of water, like their dry shampoo for clothes called Day2, which reduces water consumption among its consumers—where 85% of the company's water footprint is found.

Lamb says there is still a long way to go, and more businesses must deploy solutions by which they can trigger the greatest water savings and combine that with a change of corporate goals beyond economic growth. "We have a number of companies that are now setting C-suite incentives, they're having their bonus tied to [reducing] water pollution," she said.

Ripple effect

In the Netherlands, this top-down approach has already worked. Water-using companies decided to join forces in addressing the high costs of waste disposal from their production processes. A company called [AquaMinerals](#) was eventually born, and a quarter of a century later, the Dutch water reuse business has transformed waste streams into a range of raw materials for new products—like turning sludge into fertilizer pellets for gardening, cosmetics and glass bottles.

Olaf van der Kolk, director of AquaMinerals, said, "A wheel started spinning faster and faster because the first success led to the next one." Van der Kolk acknowledges that the Dutch company's origins were initially about saving costs, but over the years it became clear that AquaMinerals had tapped into a valuable emerging market—one that turned out to be the circular economy of water.

AquaMinerals soon began to benefit from a growing demand for sustainability as well as stricter environmental legislation, a situation that saw more clean water in the environment and the business benefit from selling some of their circular materials as premium high-end products.

"If a company wants to make the transition from a linear economy toward a circular economy, it searches for good, high quality, secondary raw materials, and when they are scarce, it means the value goes up," Van der Kolk said.

But AquaMinerals are still at the mercy of the market and sells some of its products at a cheaper price than its competitors. That is because some reclaimed wastewater materials encounter strict regulations when trying to enter the market and are grouped as conventional waste. Companies must then meet complicated criteria to be allowed to compete with linear products, which can translate into extra costs for businesses and prevent some sustainable alternatives from becoming profitable.

"Reusing waste requires a lot of knowledge about legislation and proof, which is expensive and sometimes too complex for a commercial company to pursue," Van der Kolk said, adding there is a need for simpler and more harmonized rules. "Politicians are ambitious, but the people writing the legislation and enforcing the laws can make things difficult."

Luckily for AquaMinerals, a lot of its costs are covered by the founding drinking companies, which in turn, benefit from the revenue streams of the overall portfolio of products.

However, other sectors and individual businesses do not have the same luxury and are more reliant on regional treatment plants to limit their contribution to [water pollution](#) and scarcity. But currently, only 0.25% of wastewater in the EU is reused each year while water scarcity affects 17% of the EU population.

According to Professor Francesco Fatone, a water cycle expert from the Polytechnic University of Marche in Italy, decision makers need to redesign their country's wastewater treatment plants (WWTPs) to

address the problem.

"WWTPs are currently the last step of a linear water system," said Prof. Fatone. "If we want to introduce the concept of circularity in the water management process, we must intervene in the WWTPs and transform them in Water Resource Recovery Facilities (WRRFs)."

Reimagine

Prof. Fatone is the coordinator of the [SMART-Plant project](#), which demonstrated WRRF technologies across Europe. This included cleaning wastewater streams and turning the leftover materials into new products, like industrial or agricultural waste into biogas, biochemicals and biobased fertilizers—even using purified toilet paper to build greener roads.

"Recovered resources materials, such as cellulose, are ready to be safely reused and commercialized," said Prof. Fatone, echoing Van der Kolk's call to harmonize EU rules to let these products enter the market easier.

SMART-Plant are also using their results to advise policy makers on how to best scale up a circular economy of water. They are specifically showing the economic and environmental benefits of WRRF technology in different regions while advising them on how to best avoid legislative and regulatory barriers, which Prof. Fatone hopes will improve the marketability of the [circular economy](#) of water and can pave the way for more water to be reused in Europe.

"There is a serious interest by water utilities to introduce SMART-Plant solutions," he said, explaining that is thanks to policymakers opening their eyes to the [water](#) crisis and finally seeing that "each recovered resource has its own value."

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