

PRACTICE ABSTRACT

Author: EDEN

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A microfluidic system circulates liquid in minuscule channels (around the size of a hair strand), and the walls of the channels are tailored to activate, destroy or capture molecules or particles in the water, depending on the field of application. The treatment reaction is accelerated compared to systems at larger scale, since the channels are very small and the elements of the reaction come into contact very rapidly. Working with small channels is often thought to limit their field of application to small-volume treatment, but Eden Tech interconnects thousands of channels in a "smart" network to permit high-volume treatment with little pressure needs, just like the human body does.

In WATERAGRI, Eden Tech assesses the value of the elements found in agricultural wastewater for its reuse. The work performed in WATERAGRI has enabled Eden to interact early on with final stakeholders' and real-life condition, allowing the company to pivot development for farming application. Initially, Eden had planned to develop a micronutrient recovery system, since it was anticipated that their very-low concentration would require highly-efficient solutions to recover enough micronutrients for financial viability. However, water analysis showed that Eden's system is too efficient and micronutrients can be found at concentration relatively high, saturating Eden's system in a matter of minutes. Eden's thus focused on micropollutants treatment solution. The most recent results show the presence of micropollutants in specific locations, and their molecular structures are close to molecules that Eden has previously treated in its water treatment solution. This work demonstrated the high value of WATERAGRI for technology provider such as EDEN.