Turning wastewater into a resource

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Credit: Ivan Bandura at Unsplash

A team of European researchers and engineers initiated the ULTIMATE project to turn wastewater into a resource. This initiative is co-financed by the European Commission and started in June 2020. The aim is to

create economic value and increase sustainability by valorising resources within the water cycle.

Wastewater is not only a reusable resource but also a carrier for energy and components that can be extracted, treated, stored and reused. In the ambitious concept called "Water Smart Industrial Symbiosis" the consortium promotes recycling in various industrial settings. As a pilot, the consortium has selected nine business cases from the international agro-food, petrochemical and biotech sectors.

The Aretusa Consortium in Italy, treating residue waters from two communities in Tuscany, has an ambitious vision to increase its annual water process capacity from 3 to 4 million cubic meters. The famous Glenmorangie whiskey distillery in Scotland is another partner that takes part in the pilot. The aim is to extract up to 800mg/L ammonia for usage as fertilizer and to recover heat for use in the distillery processes. Another demo case is the horticulture development area Nieuw Prinsenland in the Netherlands. At this site excess heat during summer is stored and reused to cover the greenhouse heat demand during the wintertime. Furthermore, the project aims to reuse the water and nutrients after treatment of the wastewater to remove pesticides and plant pathogens. The goal is to achieve zero wastewater discharge.

All these approaches promise benefits such as lower costs as well as new types of revenues, by exploiting waste management: not only because it is a legal obligation but because it offers business opportunities. The European Commission has long recognized this potential and adopted the new Circular Economy Action Plan, one of the main building blocks of the European Green Deal, Europe's new agenda for sustainable growth.

"ULTIMATE is a 4-year Horizon2020 project under the EU Water in the Context of the Circular Economy program," says senior researcher

Gerard van den Berg, coordinator of the ULTIMATE project from KWR Water Research Institute in the Netherlands. van den Berg explains that "We have mobilized a strong partnership of water utilities, industry, technology providers, business developers and applied research institutes. We aim to create economic and sustainability value by valorising resources from the water cycle."

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