The Swiss water transition: wait and see or take a proactive approach?

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New technologies in the water sector can contribute to the flexible and sustainable development of urban water management and the sustainable utilisation of water as a resource. In a recent article in the journal Aqua & Gas, a team of researchers from the aquatic research institute Eawag shows what opportunities and risks are associated with this.

Urban water management is facing a turning point: modular technologies are intended to make existing water and wastewater infrastructures more flexible and contribute to the sustainable development of urban water management. Today, a few large treatment plants with a widely diversified sewer network manage the flows of water in urban areas – highly efficiently, but often also at high cost. In the future, smaller, modular installations could increasingly be integrated into the existing water system in order to close water cycles locally where it makes sense to do so. The technologies for this are already available. They make it possible to clean and treat wastewater locally and to recover nutrients from wastewater, i.e. directly in individual buildings or neighbourhoods. Now it is a question of combining the technologies into systems and transferring them into practice.

In Switzerland, the new technologies are not yet widespread. “However, we should not underestimate the potential for radical transformations in the medium term,” says the Eawag researcher Bernhard Truffer, head of the COMIX research project, which investigated the opportunities and risks of future urban water management as part of the National Research Programme “Sustainable Water Management” (NRP 73). “If we look at the electricity or automotive sectors, we see that the relevance of new technologies such as renewable energy or electric cars had been dismissed for a long time. In the last decade, however, rapid transformation have occurred in both sectors.”

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A turnaround in Swiss urban water management?

How should the Swiss water industry react to the expected water transition: prepare proactively so as not to be overwhelmed? Or would it be better to wait until the new technologies have matured elsewhere? These questions were investigated by Eawag researchers from engineering and social sciences in dialogue with experts from Swiss urban water management in the recently completed COMIX research project.

In the article “Modular water infrastructures – options for sustainable urban water management” in the professional magazine Aqua & Gas, the researchers write that Switzerland could be at the forefront of the water transition. They are convinced that Switzerland could position itself as a test market and development base for the new systems, given the high credibility and know-how of Swiss technology providers. “There is a high level of technical expertise in both Swiss research and in the private sector,” says Bernhard Truffer. “In addition, numerous players are already involved in the development and implementation of new water technologies.” In the cities in particular, interest in locally closed water cycles is growing. In several future urban laboratories, for example several new real estate projects oriented towards ecological values, new water concepts are tested such as the separate collection of urine and its further processing into fertiliser.

Switzerland could play a pioneering role

“At the moment, however, the activities are still too isolated from each other,” notes Bernhard Truffer. “And synergies are still insufficiently exploited.” Whether the positioning as a water pioneer will therefore succeed depends on whether Swiss companies are prepared to make the corresponding investments and to network. But authorities and associations are also called upon to approve and critically discuss experiments with the new technologies.

“The increasing number of experiments, such as using treated water for showering or washing clothes, should be seen as a learning opportunity ,” Bernhard Truffer emphasises. “There are still a number of unanswered questions, for example in the area of water protection.” For instance, do the small, decentralised installations clean the wastewater equally well as the centralized plants? Nevertheless, the COMIX research project shows that Switzerland could play a pioneering role in the urban water transition. The prerequisites would be in place.

Cover picture: Modular technologies are to contribute to the sustainable development of Swiss urban water management. (Photo: iStock)

Original publication

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