Biotope, water retention and energy storage in one: pilot plant on the roof of Eawag (Photo: Eawag).

Sponge city also stores energy

April 1, 2025 | Andri Bryner

The aquatic research institute Eawag is getting serious about the sponge city. Instead of heat collectors, water basins and water-storing vegetation on the roofs of the institute's own buildings are to curb the excesses of climate change and provide a habitat at the same time. What's new: the water basins will be used as highly flexible energy storage units.

Blue-green infrastructure should make our cities more liveable. Water basins and lots of greenery can prevent heat islands and create living space at the same time. In addition, the basins and the vegetation, which is deliberately built up like an absorbent sponge, act as a buffer. This means that not all the water runs off at the same time during increasingly intense rainfall. This breaks up the flood peaks, reduces the flooding of underpasses or cellars and the retained water can be used to irrigate the green areas in the next dry period.

Win-win-win situation

Several research projects that Eawag has been carrying out for years together with Empa and WSL have now shown that this win-win situation can be extended even further. Namely, when the water basins on the roofs of buildings are used as pumped storage. The principle is simple: surplus solar or wind power is used to pump water up into the basins during the day. During the night, in bad weather or generally when the demand for electricity exceeds the sustainably produced supply, the water from the basins in the basement of the building is converted into electricity using standard small turbines.

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