Flash floods and stormwater management on the example of Kecskemét

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Nowadays, flash floods caused by heavy rainfall not only threaten mountainous and hilly areas, but also lowland settlements. Intense rainfall of 50-60 mm in 12-24 hours is unmanageable for urban sewerage systems. However, the large amounts of precipitation falling at once – and drained from the area – will be absent from the system in the coming weeks and months. This is why it is a priority to develop and operate an urban stormwater management system that focuses not on runoff, but on retention and treatment of precipitation. Water retention systems are now an essential part of adapting to the negative impacts of climate change.

In our research, we use the example of Kecskemét, a city in the Hungarian lowlands, to illustrate the problems caused by the increasing frequency of heavy rainfall and one possible way of managing flash floods. Rain gardens are artificially created and planted areas of deeper ground to capture, temporarily store and filter rainwater. These surfaces are an effective method of stormwater management.

Kecskemét currently has three rain gardens, which could be complemented by additional rain gardens, mainly in areas most affected by flash floods. In our work, we analyse one of the city's most prominent location and demonstrate the potential of rain gardens.