

Traditional dewatering and stormwater drainage systems are static systems operating using inertia. The modern approach classifies them as systems for rainwater management and reuse that are monitored and controlled using fixed algorithms. In order to properly modernise the whole system so that its future operation is correct and effective, the development and constant upgrading and calibrating of hydrodynamic and integrated models is needed. Of course, the starting point is the local precipitation model and the prediction of its change according to the accepted climate change scenario. According to hydraulic analysis of inflows and outflows, concept projects and optimisation, the most appropriate solution to modernise the already-existing stormwater drainage systems is the concept of scattered retention. Solutions introduced that base on this idea give best effects using the lowest investment of means. Moreover, these solutions are resistant to climate change. Correct monitoring, operation and adjustment of work of the system using scattered retention needs the application of intelligent control systems. There have been no examples of such solutions operating in Poland. A concept of such a systems has been developed in Bydgoszcz as part of the project "The development and redevelopment of stormwater drainage system and its adaptation to climate changes on the area of the city of Bydgoszcz". The project of intelligent system for scattered retention management will be carried out together with the redevelopment of stormwater drainage system.

Intelligent System for Scattered Retention Management (ISSRM) is going to be based on artificial intelligence technology, modern monitoring technology as well as monitoring and forecasting of precipitation on the area of the city. It will aim at making the control over outflow from retention basins and wastewater outflow automatic in real time on the basis of precipitation and ICM data.

The control of ISSRM system over rainwater outflow from reservoirs will optimise transit capacity in the system and using rainwater on the area of the city.

The attached figure shows this concept.

