Utilizing stormwater control facilities: from low-impact development approach to blue-green corridors

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ABSTRACT

Vlasina lake in Southeast Serbia is classified as an Area of Distinct Land Use, and as such, it is subject to high environmental protection standards applied in the Master Plan. Two open channels for stormwater and sediment transportation to two large detention basins with pumping stations for water evacuation into the lake were foresaw in the Master Plan. In the preliminary design, storm water system was quite a different: wherever possible, on-site natural features were used for allocation of ponds, and drainage channels were led through existing road culverts. The design concept applied has been low-impact development (LID), which led to blue-green corridors potential, recognised by project stakeholders. The aim of the paper is to further study possibility for use of ponds, as key elements both of LID concept and blue-green corridors approach. For that purpose, an initial Vlasina lake site agent-based model is created. Realistic physical model is included, and simulation results for two hypothetic climatic and socio-economic scenarios are presented. From the experience in the agent-based model creation, and based on the simulation results, recommendations are given for further work, since it was shown that ponds have potential for preliminary investigated water reuse purposes.

KEYWORDS

blue-green corridors, LID concept, multi-agent model, stormwater, water re-use