

Method for urban flood mitigation in the context of climate change (URBRAIN)

Description

The innovation is based on a joint approach between urban planners, civil engineers and geoscientists.

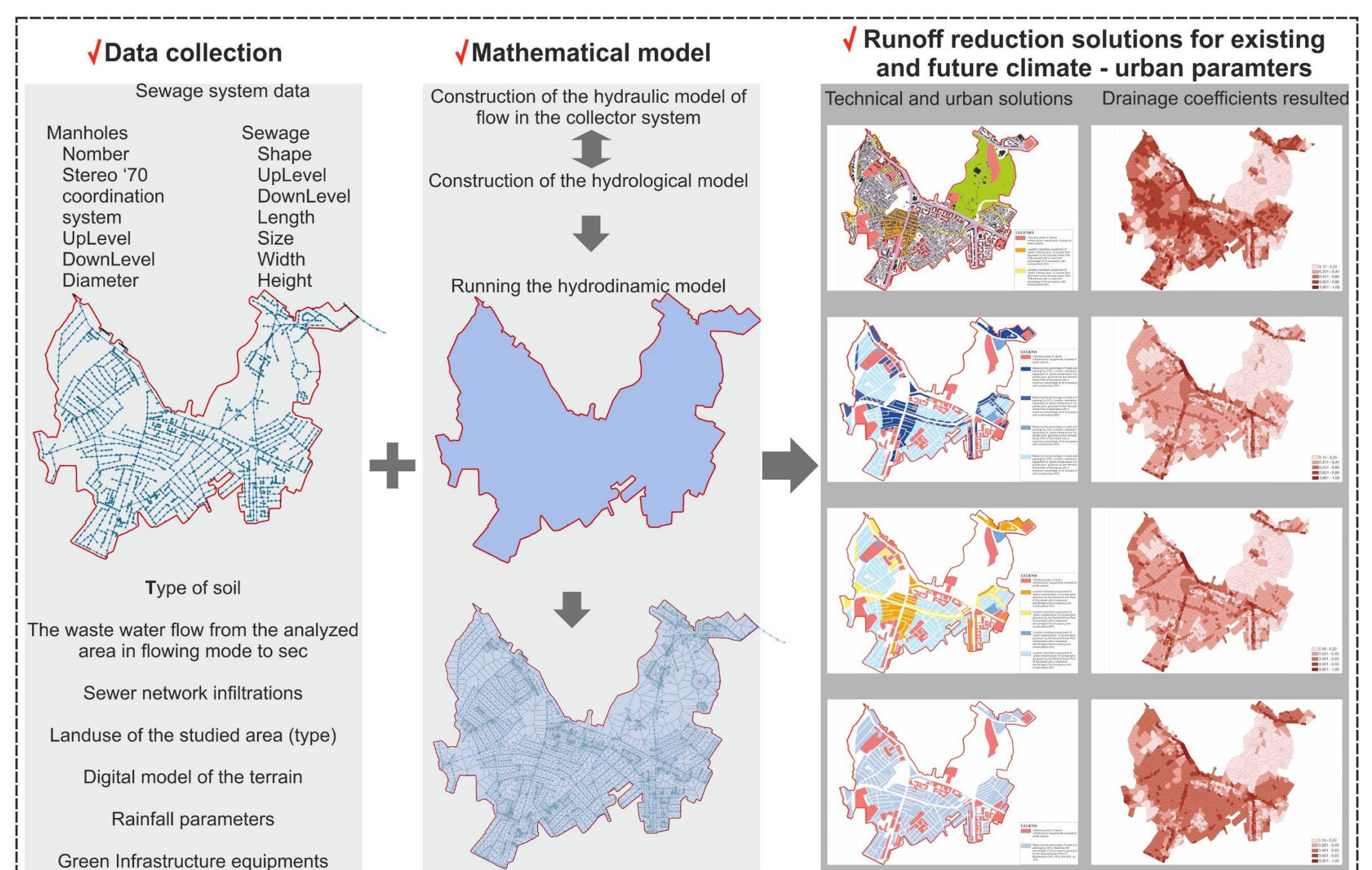
So far, the components of “Green Infrastructure” (“rainwater ponds”, “bioswales” etc.) identified by international research projects have been studied mostly individually. The main objective of the innovation is to ensure the rainwater collection at the raining point in a way to allow integration in urban planning. There is an obvious need for a model that uses these components globally, in a system, applicable at the city scale.

The URBRAIN model uses urban data that is already available (land use, sewage system, soil etc.) and the processing chain that can be performed from district scale to city scale.

The innovation provides technical solutions that are integrated in the urban planning framework for green and blue infrastructures in cities with flood problems.

The innovation addresses heavy precipitations in urban areas.

CURRENT STATUS OF THE RESEARCH



FURTHER DEVELOPMENT: How this research can be transformed in a methodology applicable in each city confronting urban floods?

Results

The innovation has been tested on the case study of ‘Tineretului District’ - Bucharest. The objective of the project was to reduce more than 20% of runoff by using green infrastructure systems like rainwater ponds, bioswales, ditches planted with vegetation etc. Additionally, the purpose of the project was mainly to identify which green infrastructure equipment can be more efficient in reducing runoff, on what type of site the equipment should be implemented and how many of these pieces of equipment are necessary to achieve the main objective.

The mathematical model developed simulated the flow in the sewage system and the surface drainage of rainwater. The results identified the impact of green infrastructure solutions on the sewage system and on local development.

Further Development

For the next step, we want to extend the research and develop a methodology (guideline) applicable to every city that is facing urban floods.

The methodology will be an adaptive tool for urban areas to reduce the flood effects, by combining urban planner criteria with an engineering approach in using green infrastructure solutions for stormwater management.

End-users

Local administration

Sewerage network administrators

Residents (kids, adults, teenagers)

Real estate investors (the use of Green Infrastructure systems – rainwater recirculation – can substantially reduce the amount of water used for domestic purpose and thus the cost of a dwelling would be considerably smaller)

Industrial companies (the re-use of large quantities of rainwater in technological processes is a huge benefit for this companies)

Implementation

Regions:

Austria
Belgium
Bulgaria
Denmark
France
Germany
Greece
Hungary
Italy
Netherlands
Romania
Spain

Markets

Landscape market
Stormwater equipments
Real estate
Construction market

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