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Decision support tool for stormwater disconnection support tool for stormwater disconnection

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► **To cite this version:**

Violeta A. Montoya-Coronado, Pascal Molle, Damien Tedoldi, H el ene Castebrunet, Gislain Lipeme Kouyi. Decision support tool for stormwater disconnection support tool for stormwater disconnection. MULTISOURCE, Jul 2022, Lyon, France. 2022. hal-04330254

HAL Id: hal-04330254

<https://hal.science/hal-04330254>

Submitted on 4 Jan 2024

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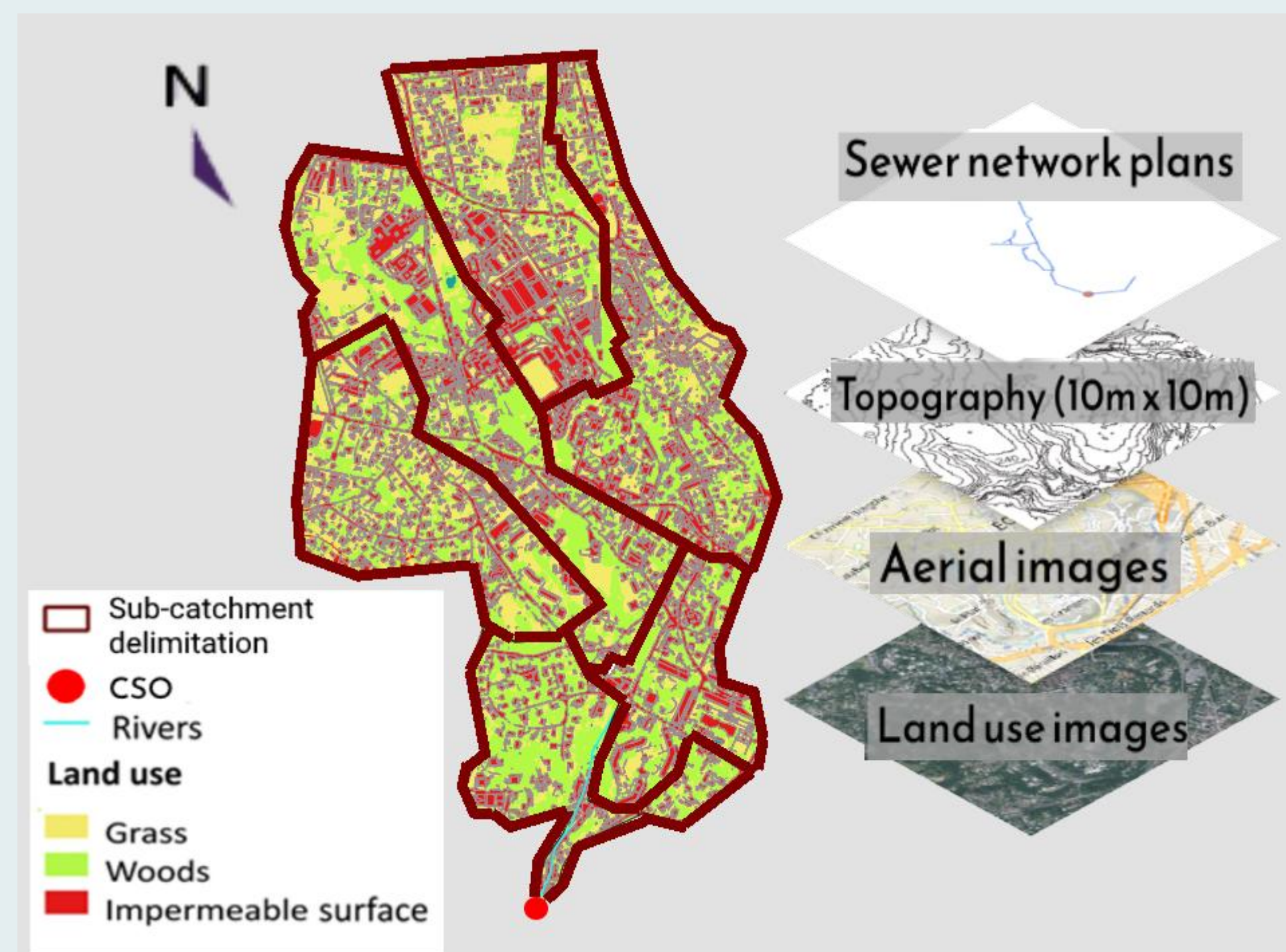


MULTISOURCE

Decision support tool for stormwater disconnection

The disconnection concept focuses on the principle of correcting the consequences of previous centralized urban water management by reintegrating water cycle in the city. Solutions are based on infiltration, storage and evapotranspiration for stormwater and local reuse for wastewater.

The main objective is to identify the sub-catchment(s) and its associated degree of disconnection to reduce combined sewer overflows (CSO) volume, frequency and pollutants loads.



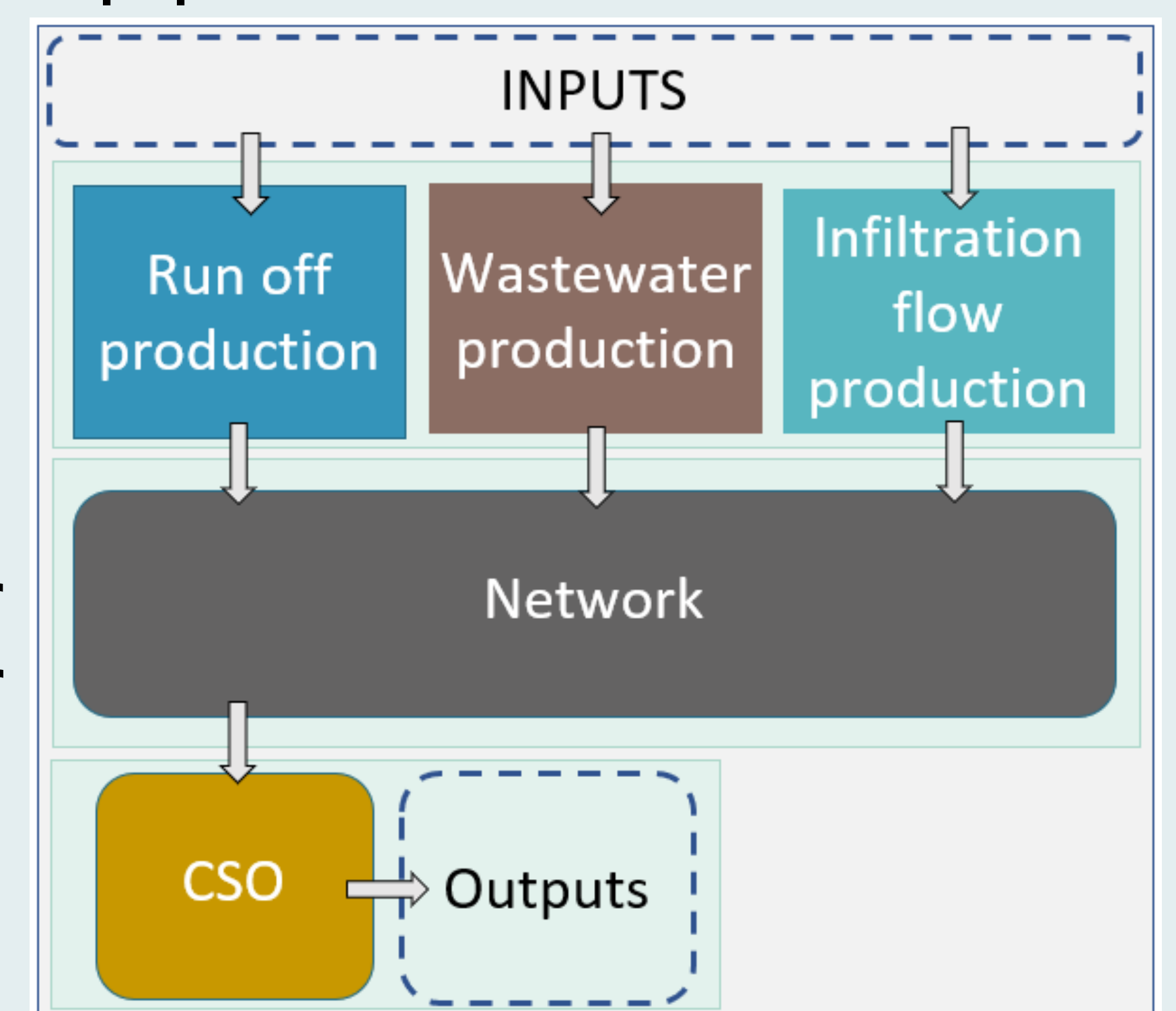
Ecully catchment delineation (All needed data available)

1) Delineation of (sub-)catchment areas according to available geographic information

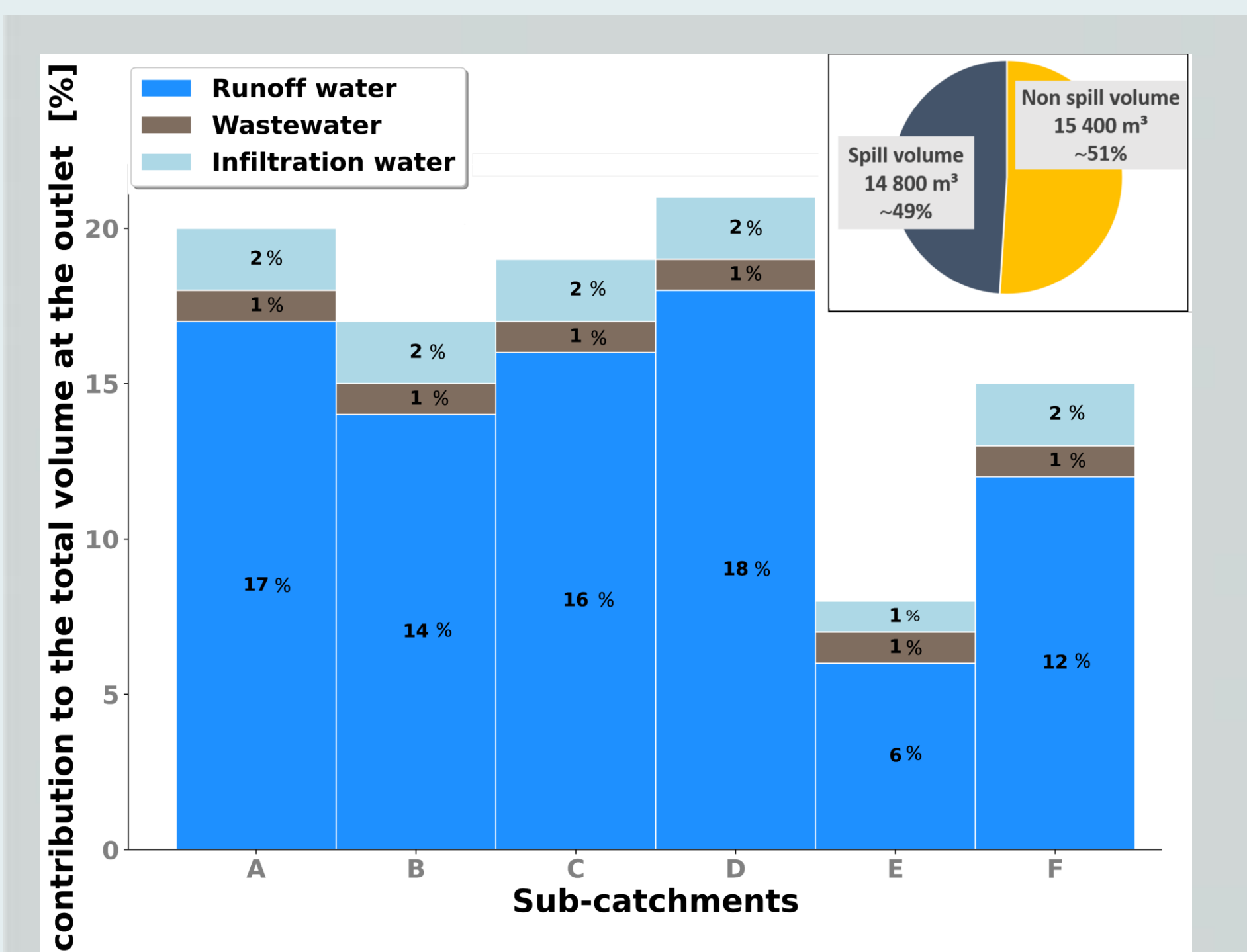
A preliminary **delineation of contributing areas to CSO** is made from aerial views (excluding natural or artificial frontiers). Whenever necessary, we propose to mimic the real sewer network by means of a fictive gravity line following the main roads direction. Boundaries between sub-catchments are defined considering the natural path flow direction (D8 method) or by the equidistance between two pipes.

2) Hydrological & hydraulic model for CSO simulation

Aims to represent the physical processes of runoff and discharges in urban areas provided by a combined sewer system. Is a semi-distributed model based on i) the rainfall-runoff model, ii) a linear reservoir as a transfer function, and iii) a spilled flow equation for CSO simulation. It provides indicators on CSO annual volume and frequency.



Model overview



Water balance during a rainfall event (06/08/2007); Ecully catchment.

3) Optimization of disconnection scenarios

Development of an algorithm allowing to indicate :

- i) **Where** disconnection would be suitable for CSO mitigation
- ii) **The volume** of runoff and/or wastewater that should be disconnected from the sewer system to fulfill local compliances.

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This project has received funding from the European Union's Horizon H2020 innovation action programme under grant agreement 101003527.

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