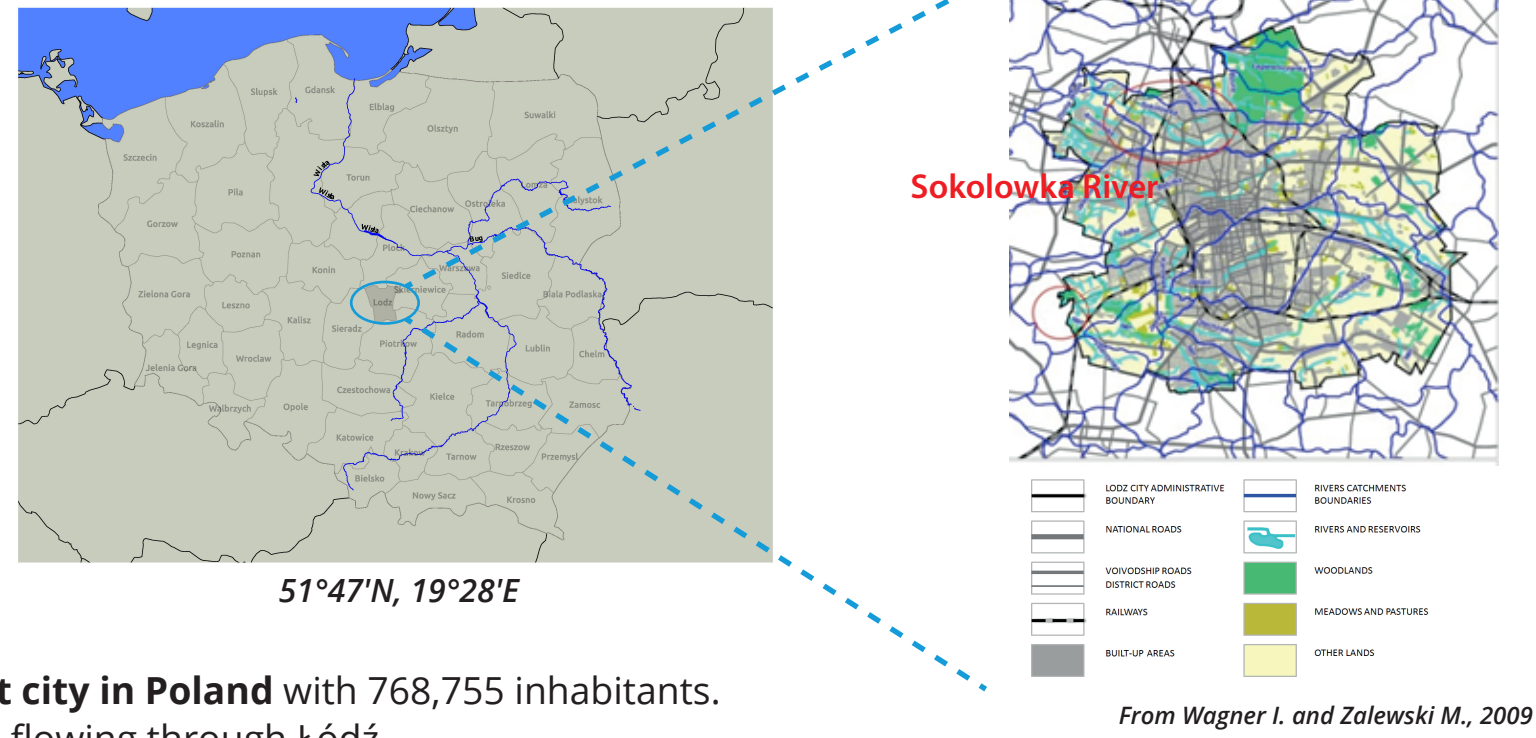


ECOHYDROLOGY BASED URBAN WATER MANAGEMENT AND CITY PLANNING FOR HUMAN HEALTH AND SUSTAINABLE DEVELOPMENT (CITY OF LODZ, POLAND) - SOKOLOWKA RIVER

Up-dated in July 2015

Demosite description



Main description:

- ▶ **Łódź is the second biggest city in Poland** with 768,755 inhabitants. There are 18 small streams flowing through Łódź.
- ▶ **The Sokołowska River** flows across the northern part of Łódź and is supplied with about 50 stormwater outlets. **The middle and lower section of the river valley has maintained patches of meadows, wetlands and forests (semi-natural environment)**
- ▶ The ecohydrological river rehabilitation took part in three projects: **EU SWITCH project (GOCE 018530), EHREK (LIFE08 ENV/PL/000517), Blue-Green Network (City of Łódź).**

Conserve Ecohydrological processes in natural ecosystems

✗ NO

Enhance Ecohydrological processes in novel ecosystems

✓ YES

Apply complementary Ecohydrological processes in high impacted systems

✓ YES

Ecohydrology Principles and Solutions

EH IMPLEMENTATION PRINCIPLES

- * Quantification of the hydrological processes at catchment scale and mapping the impacts
- * Distribution of ecosystems and their relevant processes
- * Ecological engineering

EH SOLUTIONS

Construction of reservoirs to mitigate the extreme stormwater flow (fig.1)



Stormwater purification in sedimentary-biofiltration system



Phytotechnology in reservoirs for the development of blue-green network in urban areas to improve sustainability, health and quality of life (fig.2)



Lifetzones

Life Zone
Cool temperate
Moist Forest

PPT (mm/yr) 600

T (°C) 7,8

PET ratio: 0,83
Elevation: 200 m
Humidity: humid

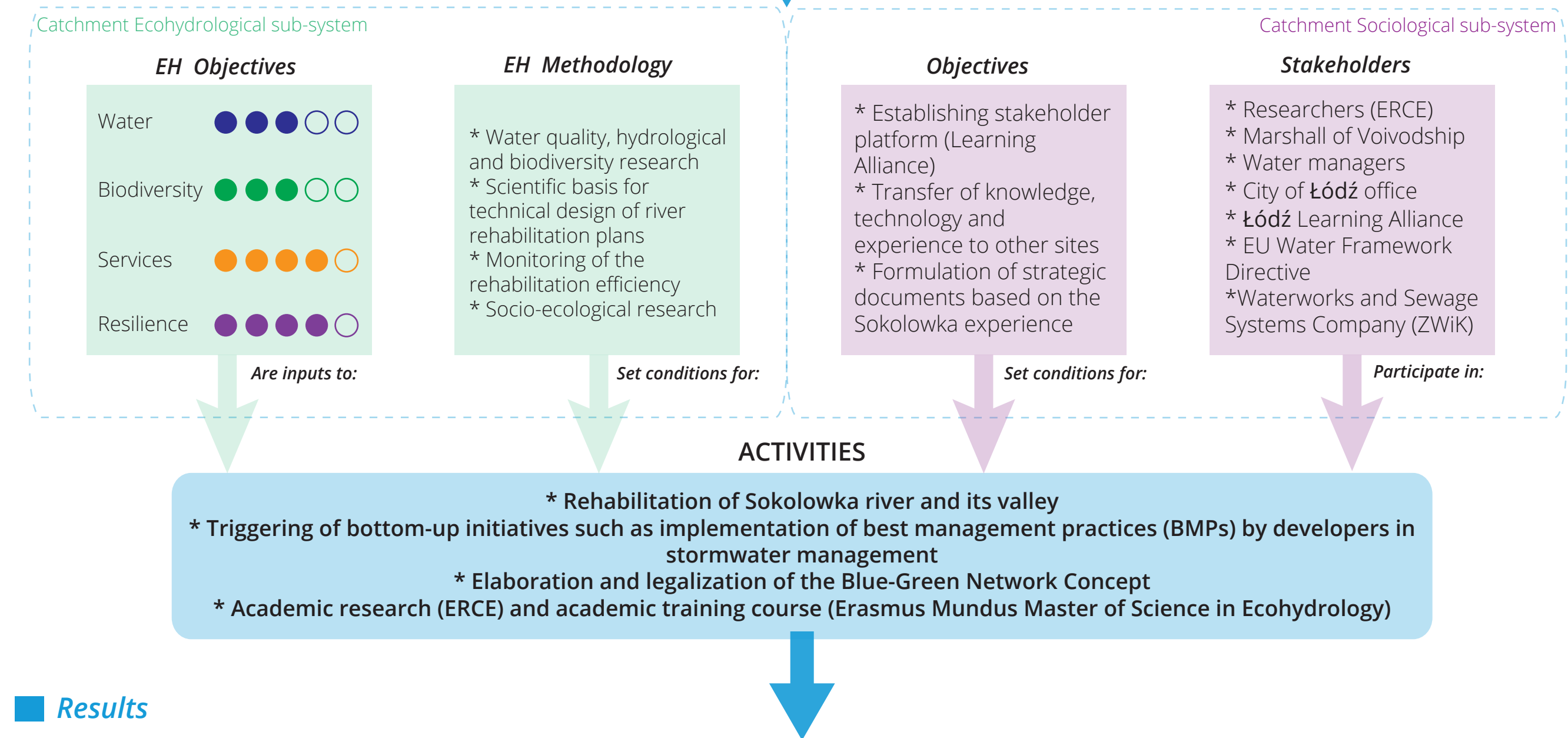


Fig.1- Teresa reservoir in the Sokołowska River Cascade (From Wagner I. and Zalewski M., 2009)

Major Issues

- * Low water quality and ecological status (presence of persistent organic pollutants, POPs)
- * Channelization of the Sokołowska River
- * Urban floods and droughts

Social-Ecohydrological System



Results

MAIN EXPECTED OUTCOME

Revitalization of aquatic ecosystems and improvement of water quality.

LATEST RESULTS

- ▶ The Sequential Stormwater Purification System (SSPS) reduced the concentrations of total nitrogen and phosphorus by **up to 60%**, the technology was transferred to another river system in Łódź (Arturuwek, EH-REK project), (Wagner and Breil, 2013).

[CLICK HERE TO SEE THE REFERENCES](#)



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