

# REHABILITATION OF URBAN RIVERS FOR IMPROVEMENT OF BIODIVERSITY & HUMAN HEALTH

THE CITY OF ŁÓDŹ LTSE, POLAND



Łódź is a 19th century city, which owes its development to the industrial revolution. From a small town, within 80 years, it changed into the capital of the textile industry of Central and Eastern Europe. The rapid increase of the population and industrial development resulted in: overpopulation, land acquisition at the cost of agricultural and green areas, channelization of rivers and their incorporation into combined sewage system, shortage of good quality drinking water. The heavy industry existed until 1990's. Then political transformations led to unemployment, abandonment of industrial areas, and high emigration rate. This prompted the adoption of a new development strategy aimed at creating better prospects for citizens. However it requires solving past environmental problems: degradation of green areas, air pollution, heat island effect; critically low groundwater level; degradation of rivers, severe effect of droughts and pluvial flooding.

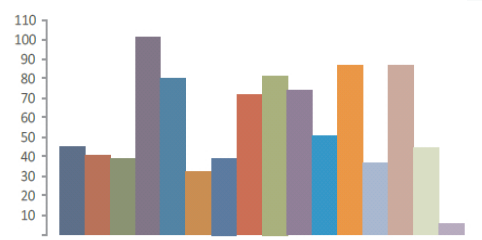


## RESEARCH

- increase of number of squares
- increase of the area of squares
- public allotment gardens
- greening the streets
- rehabilitation of city greens
- rehabilitation rivers valleys
- launching of new parks
- public transport connections
- more bike paths
- more walking paths
- more playing grounds for kids
- more ponds and fountains
- greens for open space events
- greening the buildings
- more woonerfs
- others

K. KRAUZE

### SURVEYS ON CITIZENS EXPECTATIONS TOWARDS SPATIAL PLANNING



Citizens favoured re-greening the city & supported ecohydrological solutions for improvement of quality of space and life.

### DESIGN OF NATURE-BASED SOLUTIONS FOR WATER REGULATION, SELF-PURIFICATION & MICRO-CLIMATE REGULATION



SEDIMENTATION ZONE

BIOCHEMICAL ZONE

BIOLOGICAL ZONE



PROJECT BY M. ZALEWSKI

Long-term studies of biodiversity & dynamics of wetland & river systems of Central Poland allowed the development of solutions mimicking natural processes in the degraded city rivers & their valleys. They improve aesthetics, support habitat formation, reduce nutrient & sediment loads & capture hazardous compounds such as PCBs.

## AIMS

- Rehabilitation of urban rivers for improved delivery and transfer of ecosystem services;
- Adaptation of the city to climate change;
- Increased quality of life for city inhabitants;
- Development of socio-economic feedbacks based on the ecosystem resources of regenerated urban ecosystems;
- Integration of stakeholders through capacity building, improved governance and efficient decision making for Integrated Urban Water Management (IUWM).

## OUTCOME - IMPACT

- Improved water quality;
- Restoration of habitats;
- Creation of new leisure spaces;
- Establishment of multi-stakeholder river restoration group;
- Employment of local companies;
- Development of patents and know-how.

LOCATION OF THE  
CITY OF ŁÓDŹ &  
REHABILITATION  
PROJECTS IN THE  
CITY





The City of Łódź in 1935. The industry set the framework for environmental management for 100 years. The target was provision of water, fuel and food. When the ecological system failed supplying goods, the city began to import them from nearby areas. However citizens still suffer from deterioration of environmental quality. High rates of asthma, allergies, cardiovascular diseases remain a problem. Abandonment of large industrial areas does not improve city's appearance. Low aesthetics and lack of multiple use areas results in a lack of sense of place and a feeling of detachment from the place expressed by people. It also hampers development of human and social capital.

The city, however, has great potential, possessing 22 small rivers, their valleys, green corridors, forests and over 50 parks being remnants of natural vegetation and national heritage sites. Being an academic and research centre it can also build upon local expert knowledge, innovation and know-how.



## PRIORITY THEMES



## PRIORITY ECOSYSTEM SERVICES



## AREA OF RELEVANCE, ACCORDING TO SDG



SDG - UN SUSTAINABLE DEVELOPMENT GOALS

## FURTHER INFORMATION

Wagner I. and Zalewski M., 2012. System solutions in urban water management: The Lodz (Poland) perspective. In: Howe, C., & Mitchell C. (Eds.). Water Sensitive Cities. IWA Publishing, London, pp. 231-245

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Zalewski, M., Wagner I. 2005. Ecohydrology - the use of water and ecosystem processes for healthy urban environments. In: Special issue: Aquatic Habitats in Integrated Urban Water Management.

<http://www.en.arturowek.p>; <http://www.switchurbanwater.eu>; <http://ecohydrology-ihp.org/demosites/>