Multifunctional riverside buffer parks

– the research on nature-urban revitalisation of river valleys

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Poznan waterfront
– Ostrów Tumski, high water in May 2010, phot. A. Januchta-Szostak

Poznan waterfront

– low water 2011, phot. A. Januchta-Szostak

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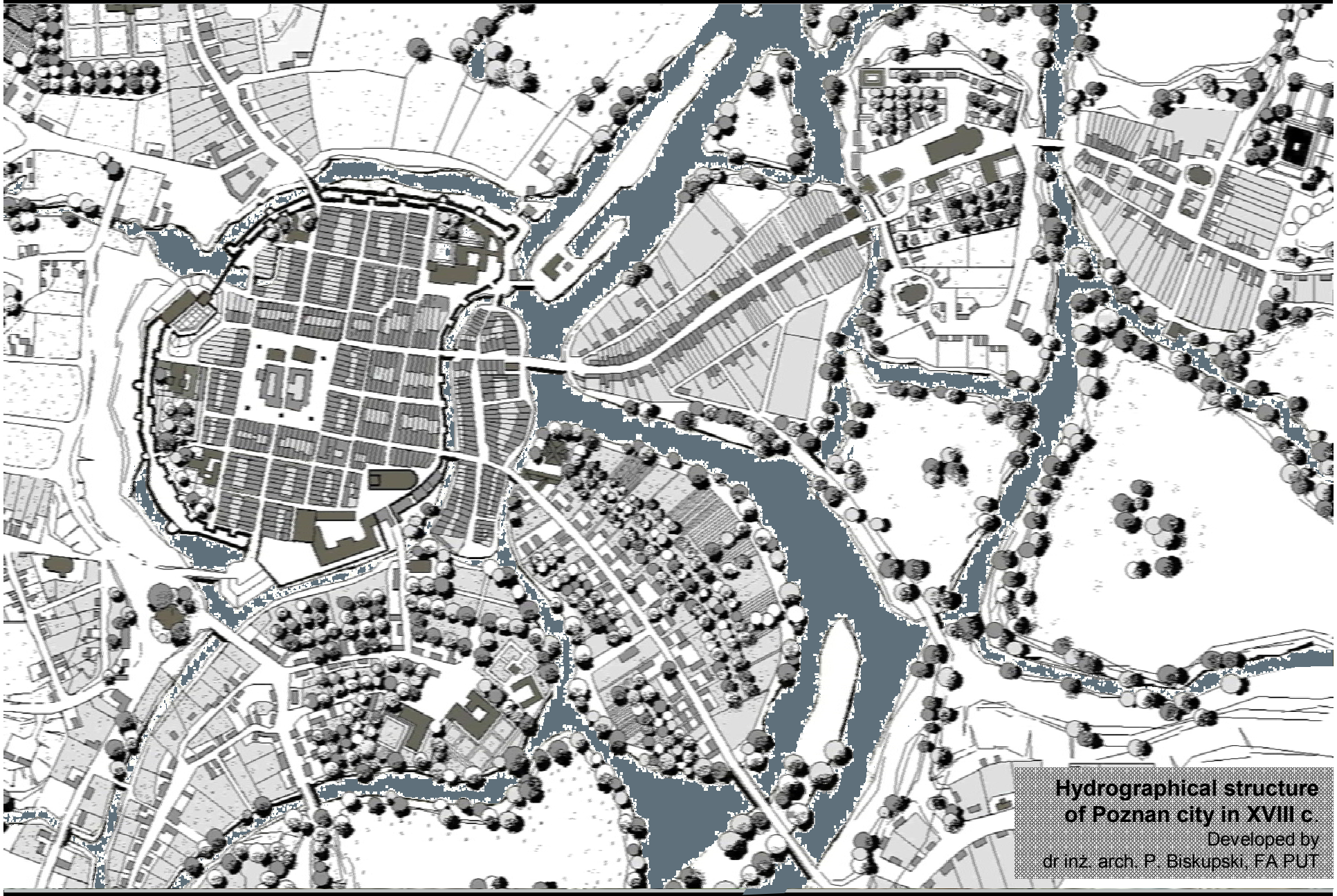

Hydrographical structure of Poznan city in XVIII c.
Developed by
dr inż. arch. P. Biskupski, FA PUT

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Multifunctional riverside buffer parks

– the research on nature-urban revitalisation of river valleys

contents:

1. REURIS

1. European project REURIS

aimed to indicate multifunctional solutions and models of complex nature-urban revitalisation of river valleys

2. RBPs

2. Riverside buffer parks (RBPs)

- idea and rules of spatial arrangement of RBPs in urban environment

3. WARTA RBP in POZNAN

3. Warta-side buffer park along the 'Warta' Campus of PUT

- application of the RBP idea in spatial layout of flood plains in Poznan

REURIS – Revitalisation of Urban River Spaces

Revitalisation of Urban River Spaces

REURIS

Partners

GIG

Katowice

Plzen

Stuttgart

Bydgoszcz

Brno

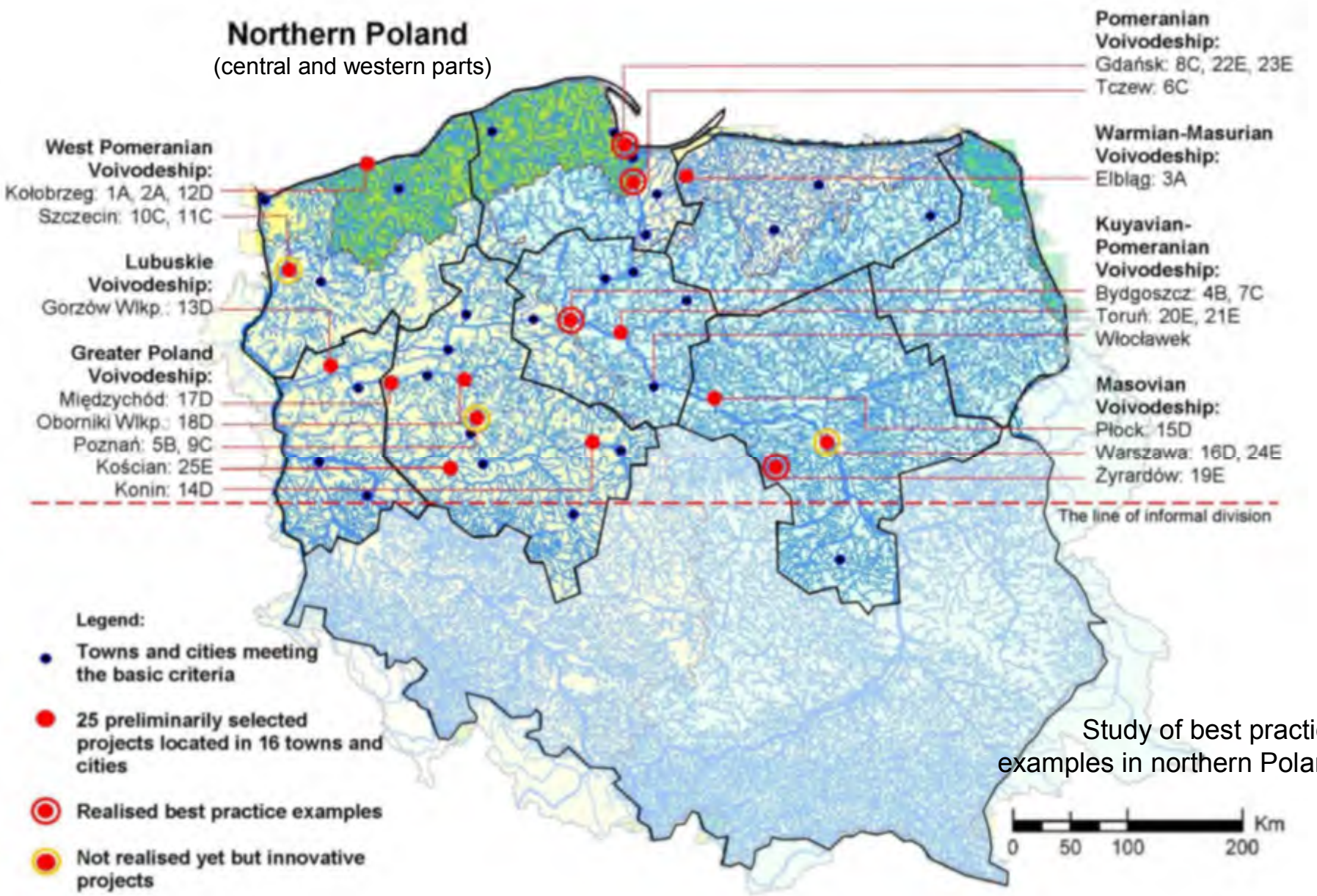
Aufbauwerk

Leipzig

CENTRAL EUROPE

http://www.reuris.gig.eu/en/home.html

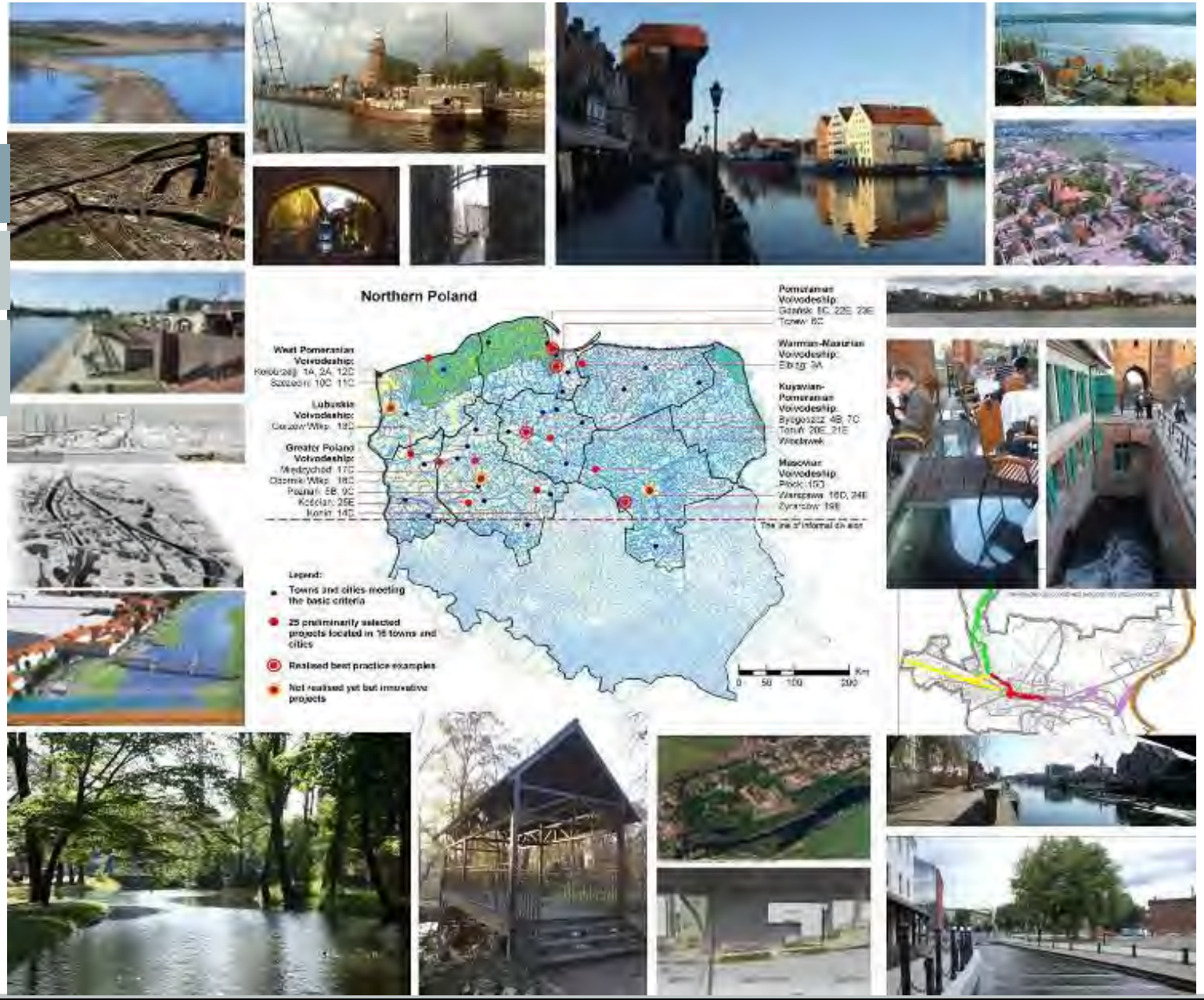
Project was dedicated to meeting the growing demand for attractive and accessible watercourses in urban areas by developing sustainable river revitalisation tools through transnational cooperation.



Study of best practice examples in northern Poland

developed by A. Januchta-Szostak

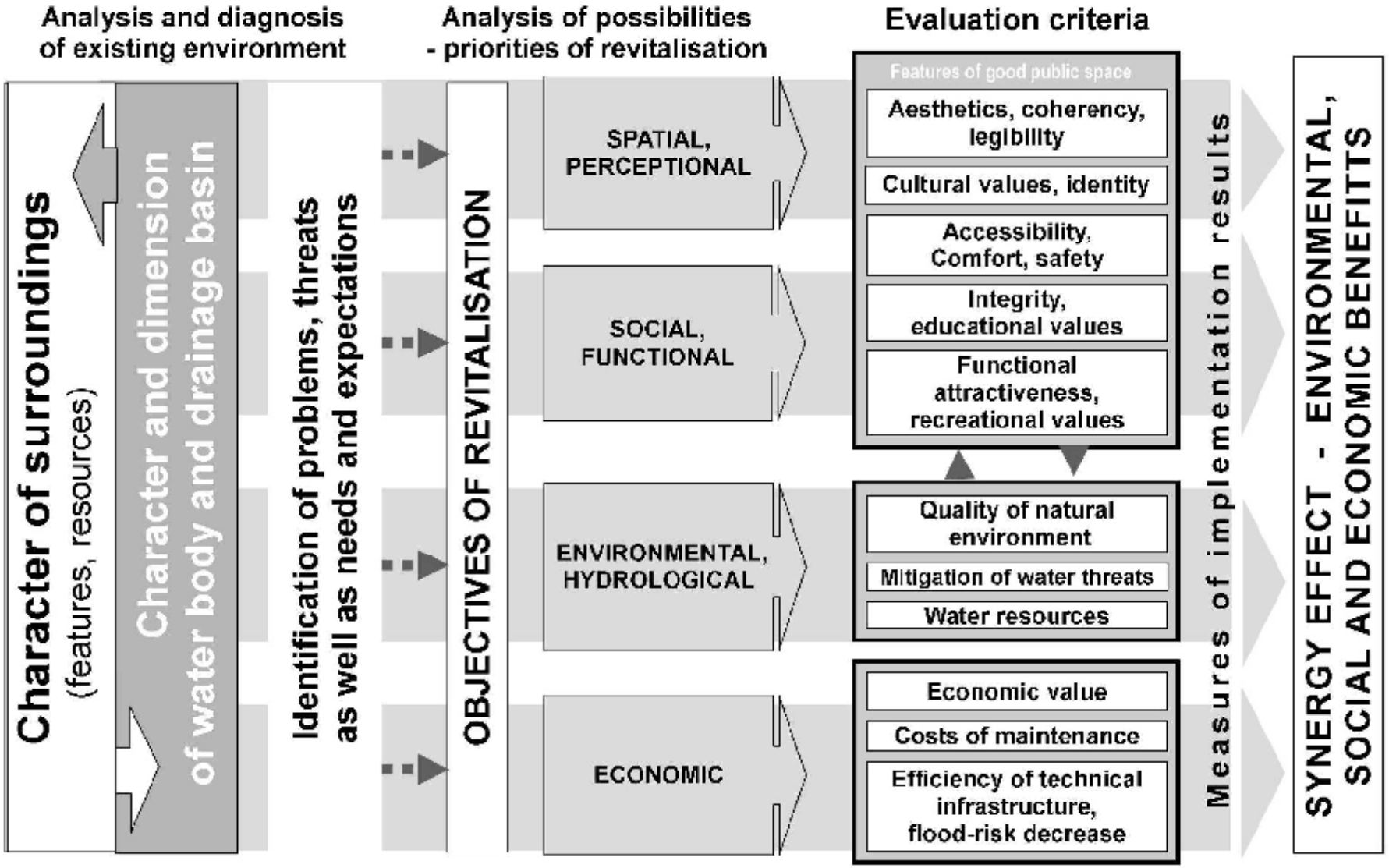
contents:



Study of best practice examples in northern Poland (central and western parts)

developed by
A. Januchta-Szostak

WIQUS methodology application in the analysis and evaluation of the revitalisation projects' results



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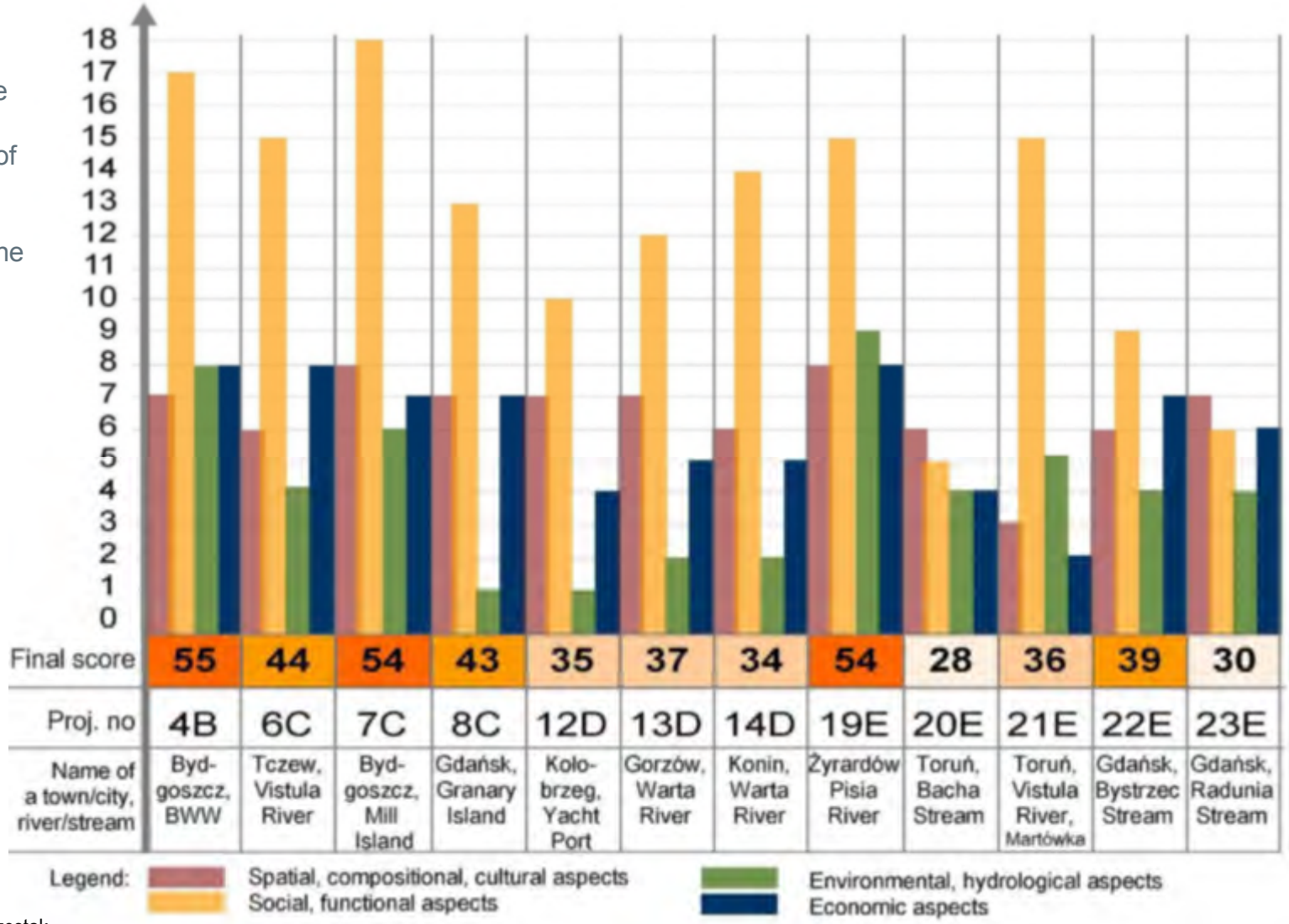
The main criteria and final scores of evaluation of the riverside space revitalisation projects (2009)

The diagnosis of the existing situation revealed that most of the analyzed cases represented a one-sided approach to the transformation of urban river valleys

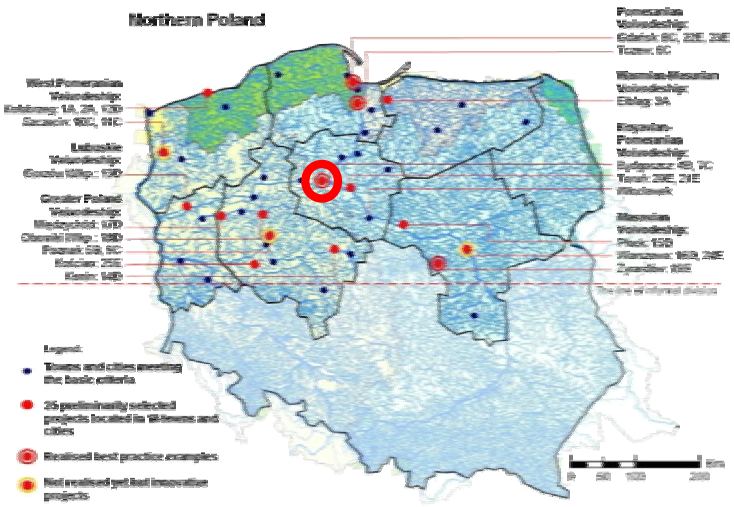


developed by A. Januchta-Szostak

7C. Bydgoszcz – revitalisation of the „Mill Island" on the Brda River (54 pkt)

contents:

Investor: City of Bydgoszcz
Preparation: 2004 – 2005 / Realisation: 2006 – 2010 (2013) - 4 phases/projects Basic aims of the project: transformation of degraded post-industrial area into the space of culture, leisure and tourism.




Reconstruction of the 'Międzywodzie' Canal

4 stages of realisation

1. Revitalisation of the Mill Island for enterprise development (2006-2007)

The 1st stage covered:

- the construction of three footbridges linking the Island with the city,
- a construction of a complex of park docks recreating the historical Międzywodzie canal
- and the renovation and adaptation of a historical building at 6 Mennica Str. for the needs of a new job and enterprise centre.

2. Renovation of items of cultural heritage on the Mill Island in Bydgoszcz (2007-2009)

The project PL0019 has been implemented by the City of Bydgoszcz and funded by the European Economic Area Financial Mechanism within the Priority Area of Conservation of European Cultural Heritage

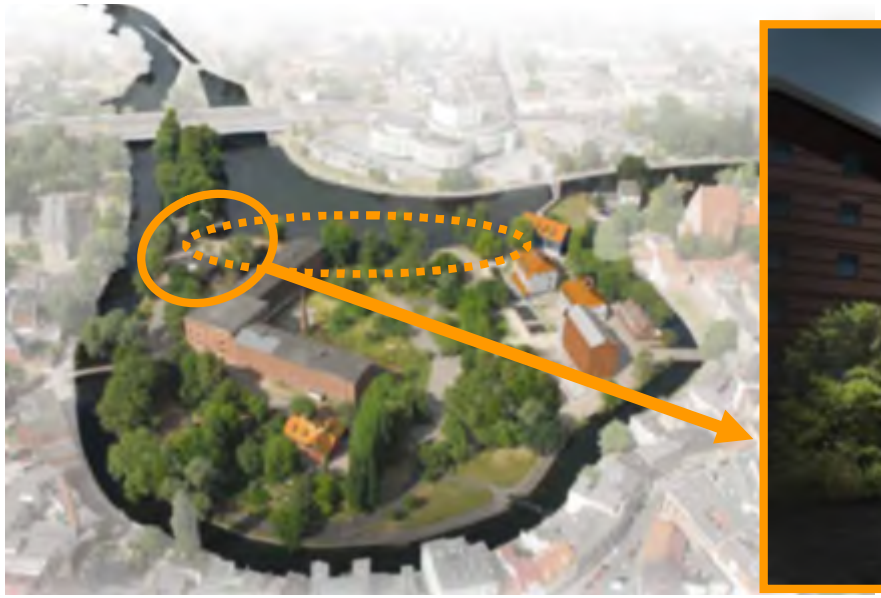
The project realisation protected and recreated the values of five unique historical buildings forming a complex of industrial architecture on the Mill Island:

the **White Granary** at Mennica str 2, the former **Royal Mint** at Mennica str 4, the building at Mennica str 7, the **Miller's House** and the **Red Granary** at Mennica str. 8 and 8a.

3. Construction of leisure infrastructure on the Mill Island and in its closest surroundings (2008-2010)

The project consisted in development of green areas, construction of an amphitheatre and a playground, the renovation of a historical street, and reconstruction of wharfs.

4. Revitalisation of degraded sports areas on the Mill Island (2009-2012).



The project assumes creation of a new marina and reconstruction of wharfs in the northern part of the Island.

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Bydgoszcz, Mill Island, phot. M. Roszatycka

contents:

Conclusions resulting from analysis of best practice examples as well as experiences from REURIS pilot projects made it possible to highlight **the most effective actions leading to restoration of eco-hydrological potential and natural regeneration of river valleys,** such as:

- uncovering formerly piped watercourses

the Pleißemühlgraben mill stream in **Leipzig** / Germany

Before
(fot. A.Januchta-Szostak)

After
(fot. A.Januchta-Szostak)

contents:

-restoration of riverbanks and riverbeds, as well as their natural plant and animal habitats with bio-engineering measures

(e.g. renaturalisation of Sokolowka River in Lodz in the framework of SWITCH project);

regeneration of the Slepiotka river in **Katowice** / Poland

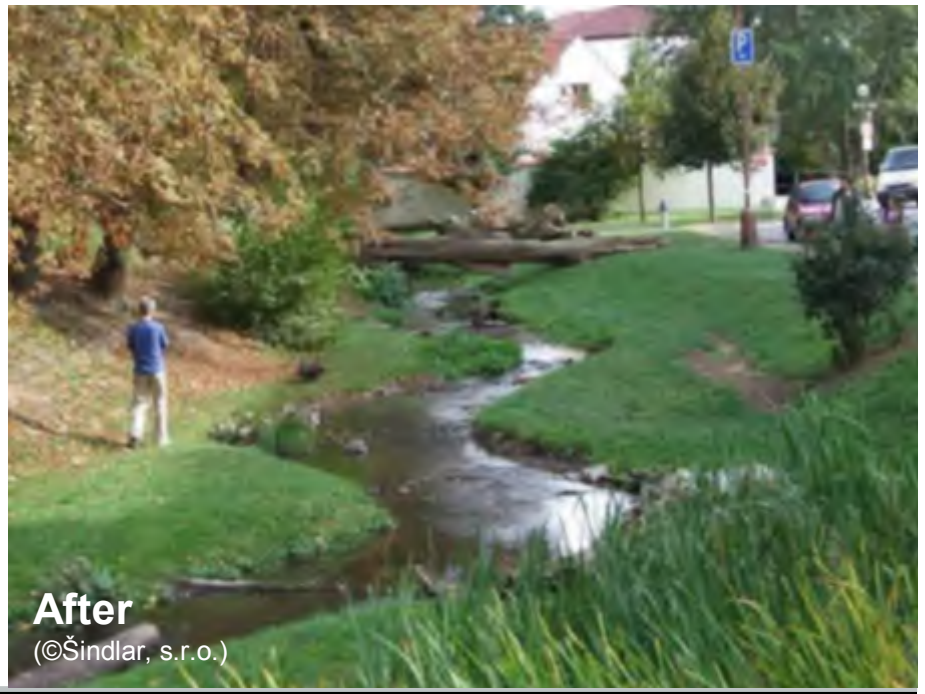
contents:

-increasing river valley retention capacity and waters' self-cleaning capability by lengthening watercourse (meandering), restoring old riverbeds and wetlands

(e.g. regeneration of the Slepiotka river in Katowice, the Botic Stream in Prague, the Feuerbach valley in Stuttgart, the Biala River in Bialystok);

the mill stream in **Chrudim** / Czech Republic

Before
rervitalisation in 1995 (©Šindlar, s.r.o.)



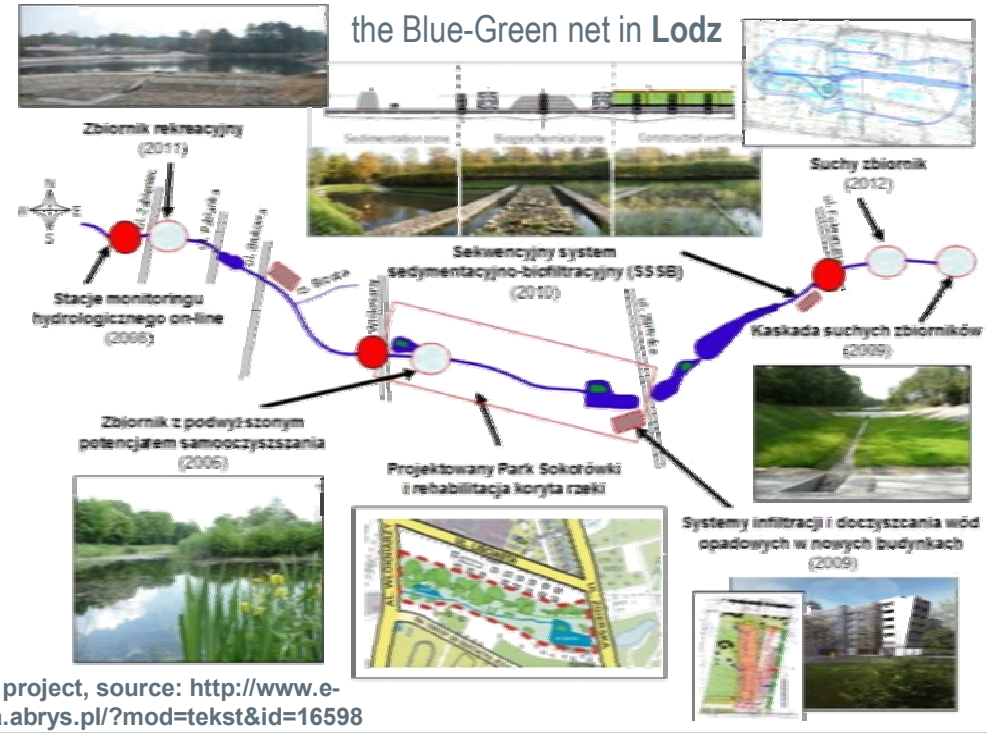
After
(©Šindlar, s.r.o.)

the mill stream in **Chrudim** / Czech Republic /2009, l. 1,700 m, 560 000 €

Situation after revitalisation (©Šindlar, s.r.o.)

contents:

- improving availability and ensuring continuity of water and tributary migration corridors and tourism routes
(e.g. revitalisation of the Old Ponavka watercourse in Brno, Sokolowka River in Lodz – the blue-green net).



SWITCH project, source: http://www.e-czytelnia.abrys.pl/?mod=tekst&id=16598

The blue-green axis of the Old Ponavka in **Brno** (REURIS project)

contents:

The guidelines for urban river revitalisation projects:

(Urban Rivers… 2012)

1. **Planning**: revitalisation projects should be incorporated into relevant regional and local spatial management plans and strategies. They might also serve as a compensation measures for other investments.
2. **Enhancing the ecological functionality** of watercourses as an ecosystem.
3. **Providing flood protection** – restoring retention capacity of the landscape.
4. **Increasing residential, cultural and recreational values** of urban sections of river valleys.
5. **Achieving sustainability through public involvement**.

Riverside Buffer Parks (RBPs)

contents:

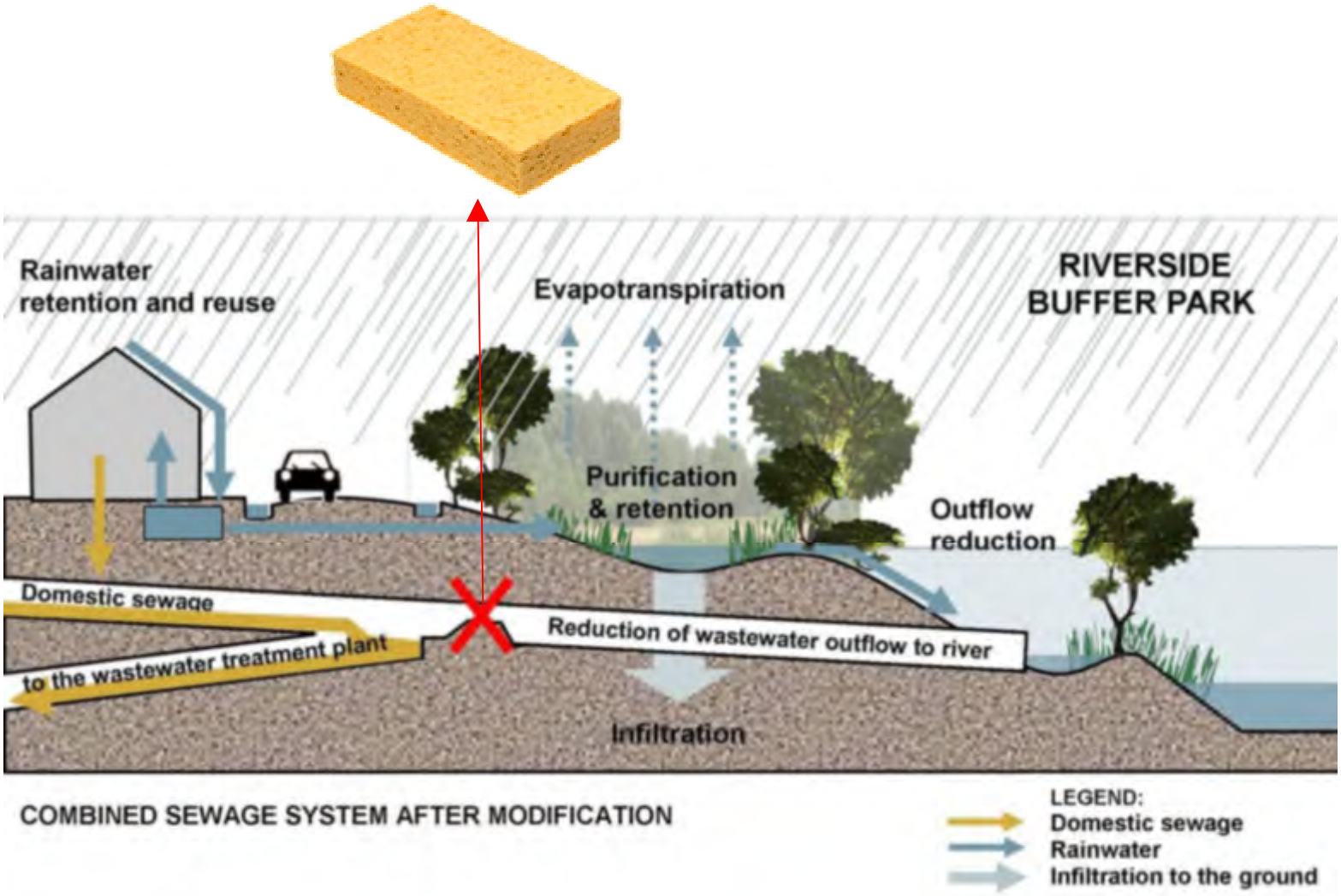
Multifunctional riverside buffer parks (RBPs) seem to be the most sustainable and complex way of development and management of flood plains in urban environment.

RBPs make it possible to effectively protect natural environment, prevent urban floods and to achieve a synergy effect in appealing riparian public spaces.

Toruń – Vistula River, fot. A. Januchta-Szostak

The diagram of combined sewage system with the use of riverside buffer parks

RBPs facilitate elimination or substantial reduction in the capacity of storm water runoff into combined sewage systems and increase the capacity of river valley retention



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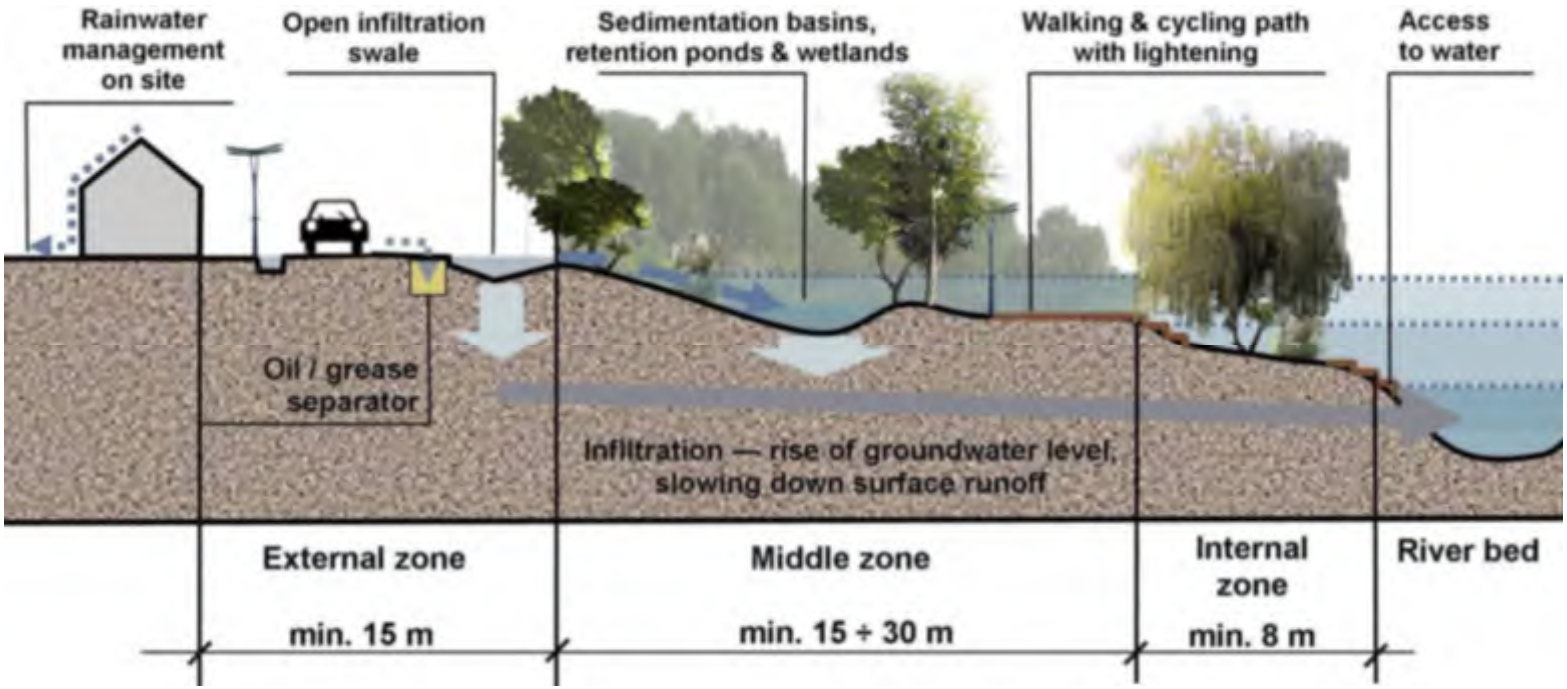
The zones of riverside buffer parks

Properly arranged RBP consists of 3 zones which facilitate the protection of watercourses from the flow of contaminated rainwater as well as protection of urbanised areas from floods.



The external zone
- reduction of storm water run-off, protection of the catchment area and pre-purification;
- physical and visual accessibility and functional connection with the city

The middle zone
- increasing the capacity of river valley retention,
- retaining and pre-cleaning storm water runoff,
- attractive dev. of flood plains
- securing the continuity of migration corridors

The internal zone
- accessible side paths, while sustaining ecological values of the littoral zone,
- protecting the banks from erosion

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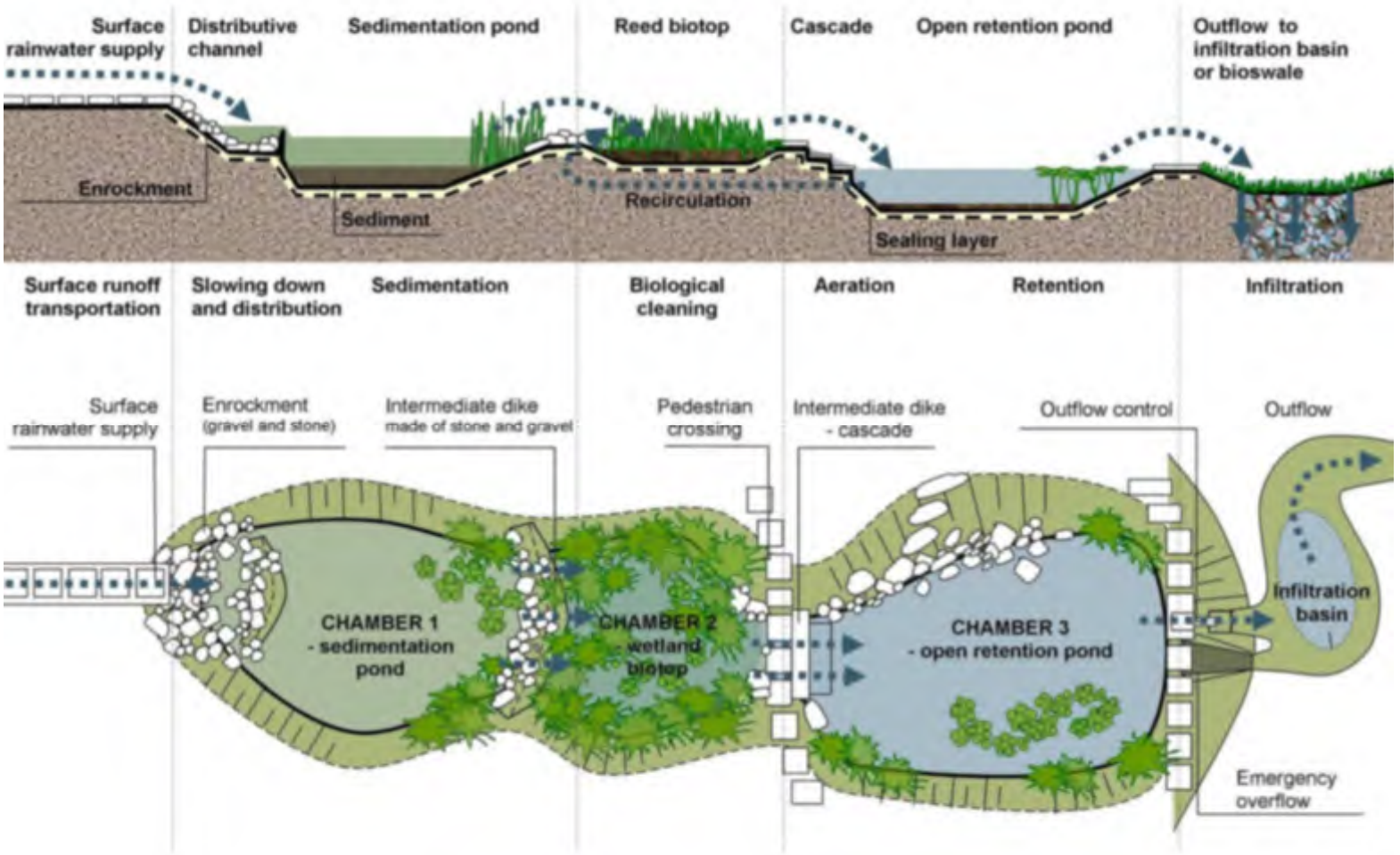
Schematic representation of a system of reservoirs for rainwater retention, infiltration and purification



Owing to the open storm water retention and purification systems, RBPs considerably enhance the surface water quality and prevent rapid flood wave in small urban waterbodies.

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contents:

Warta-side buffer park along the 'Warta' Campus of PUT

- application of the RBP idea in spatial arrangement of flood plains in Poznan

The application of the RBP idea in spatial arrangement of flood plains in the area of the Warta Valley in Poznan along the 'Warta' Campus of Poznan University of Technology.

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Spatial arrangement of flood plains along the 'Warta' Campus of Poznan University of Technology in Poznan

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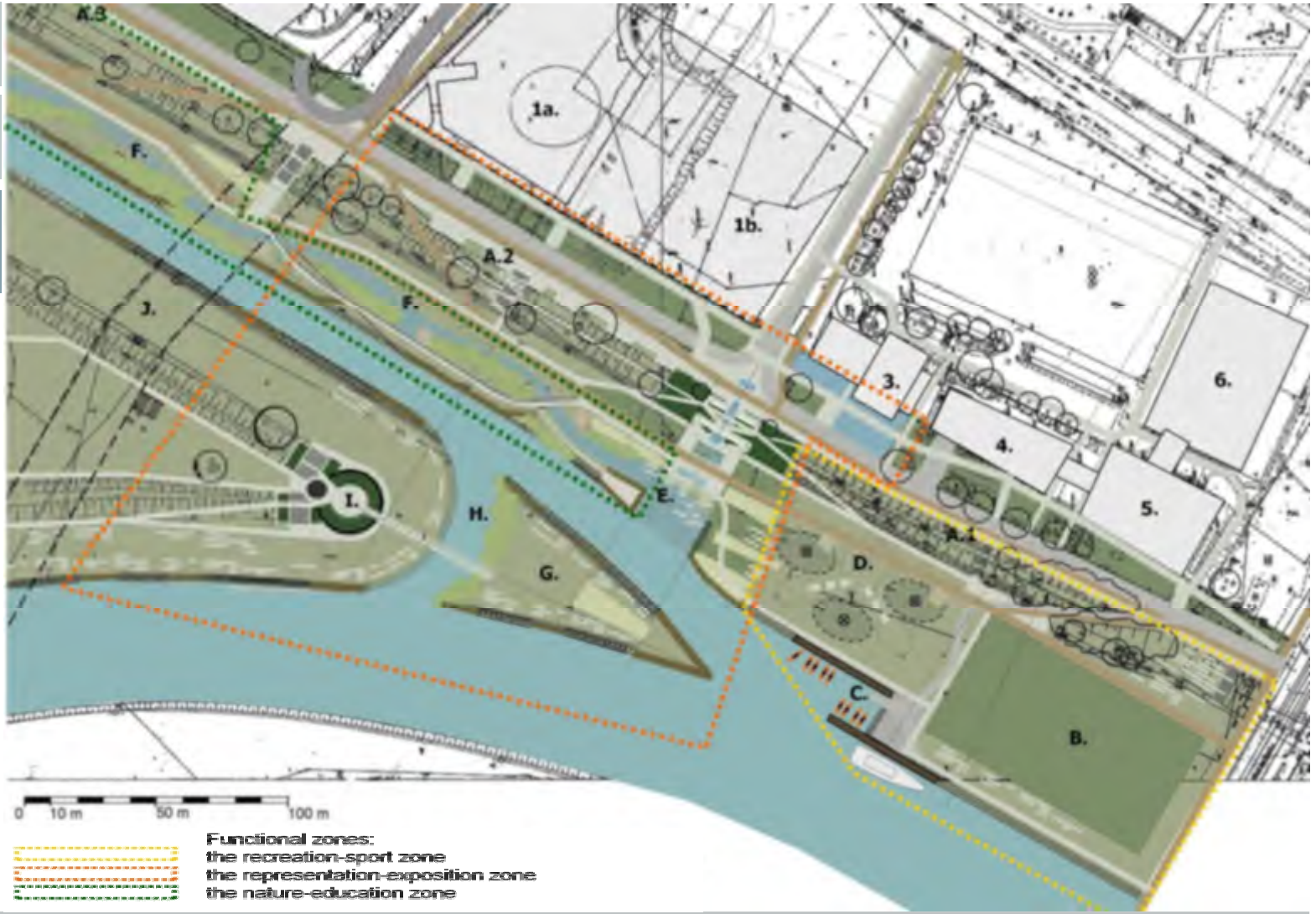
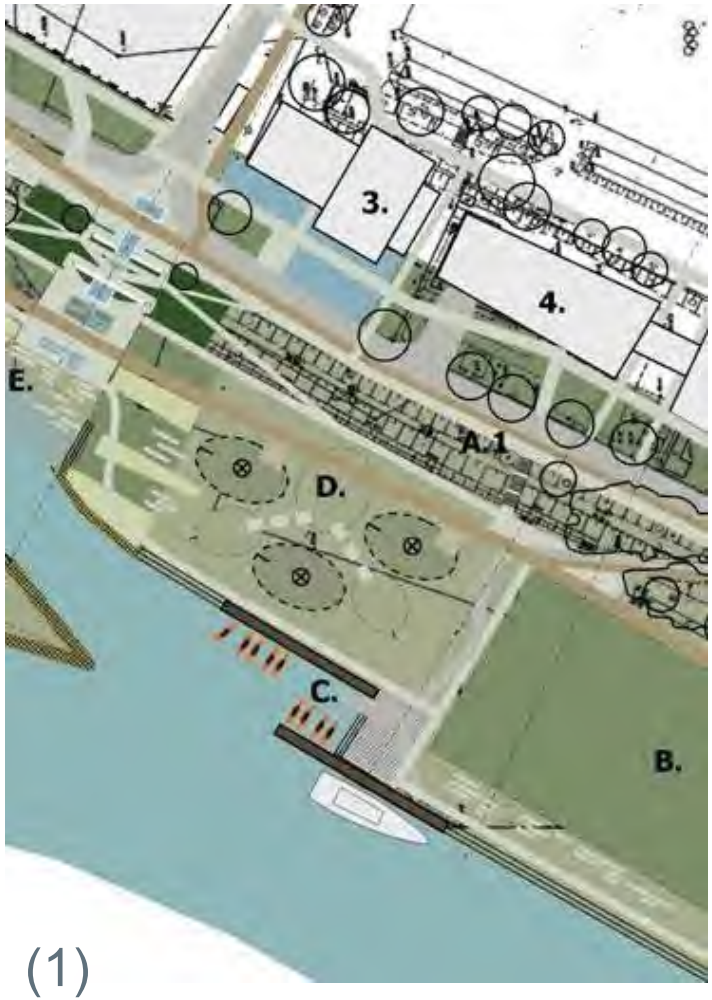
contents:

The aims of the project are compatible with the strategic goals of Poznan city development



The Project covers three main functional zones:

Warta-side buffer park along the ‘Warta’ Campus of PUT



(1)
recreation-sport zone

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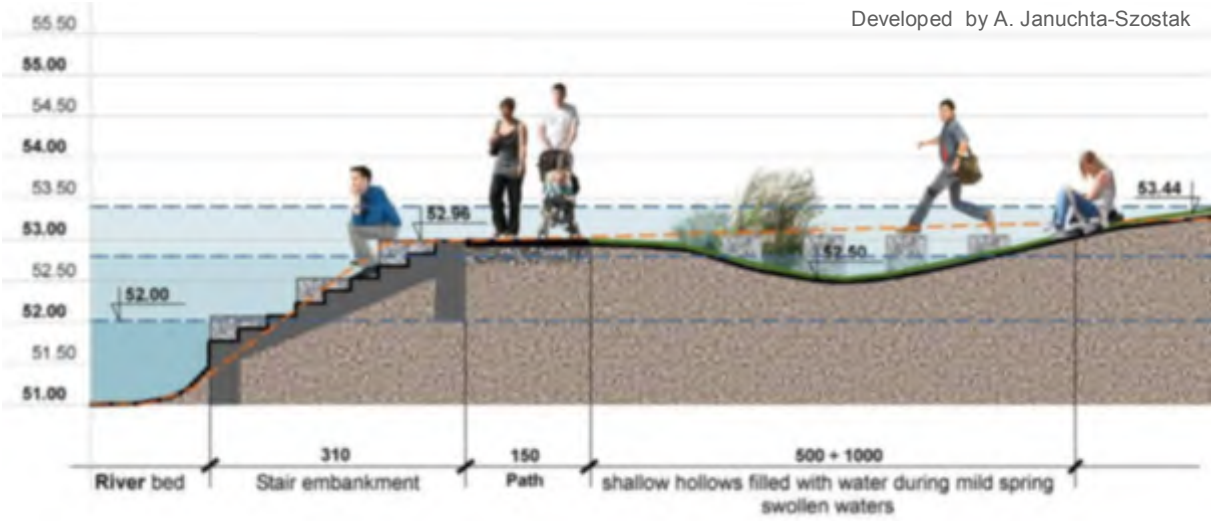
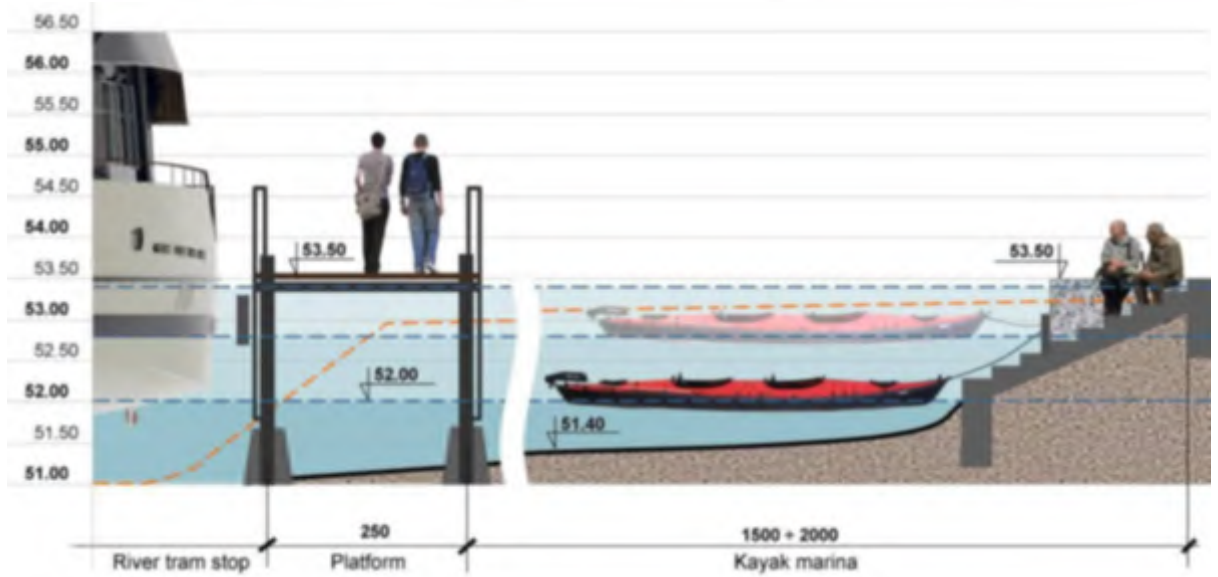
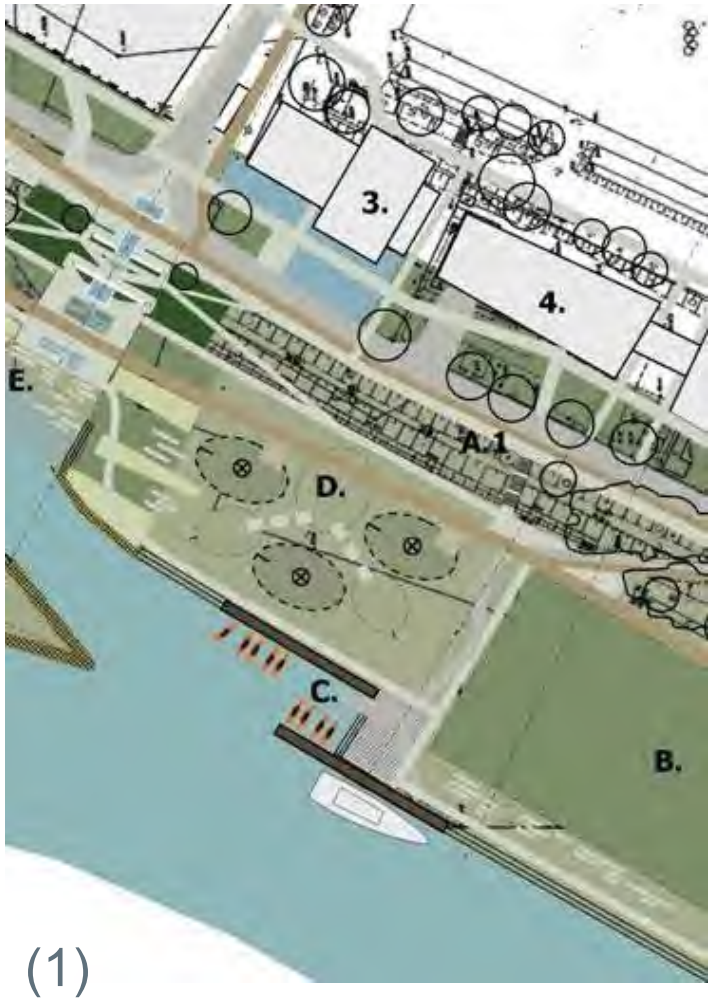




Warta-side buffer park along the ‘Warta’ Campus of PUT



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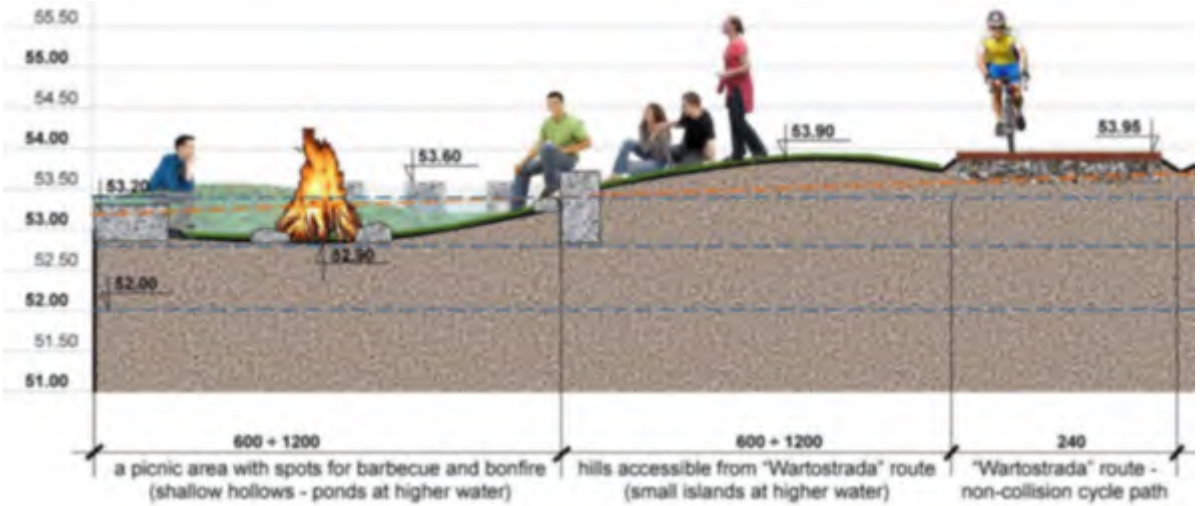
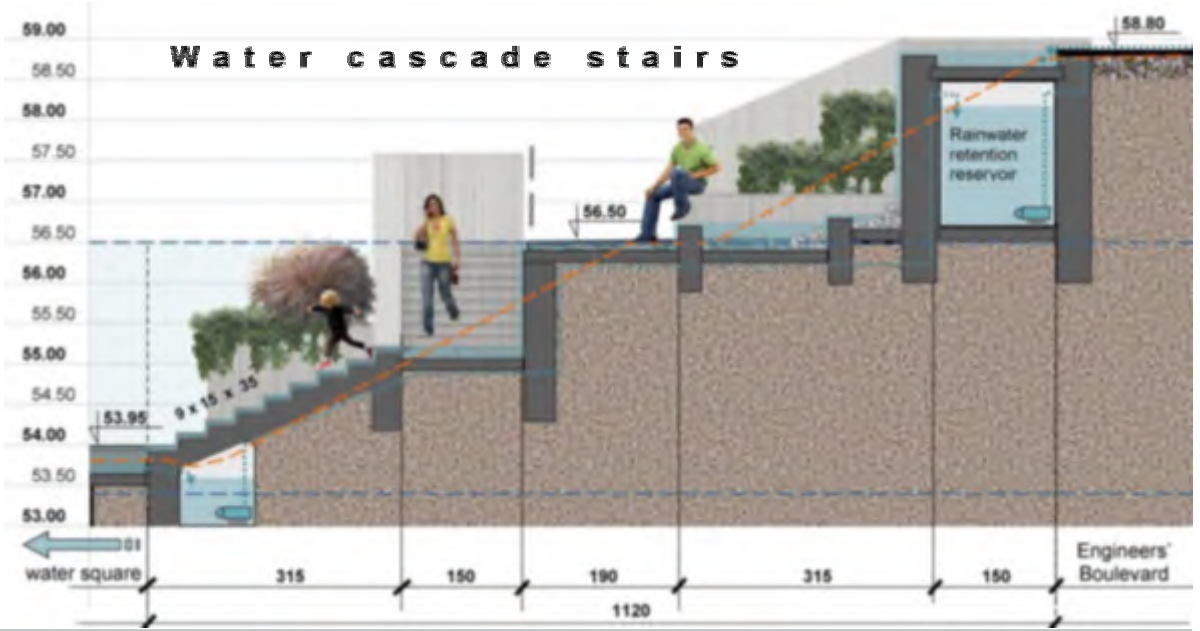
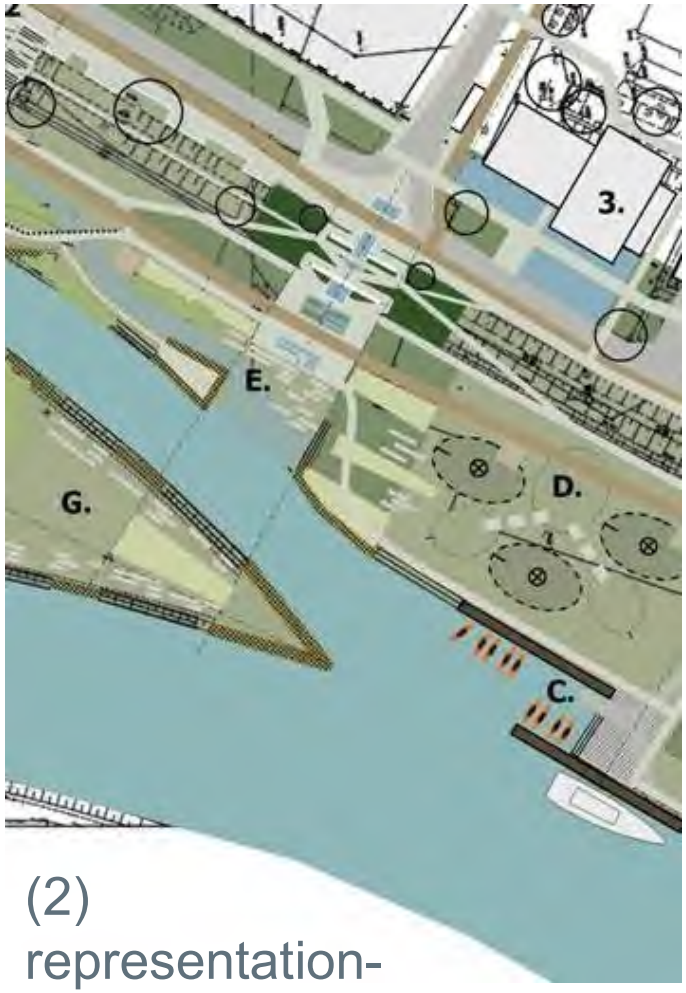




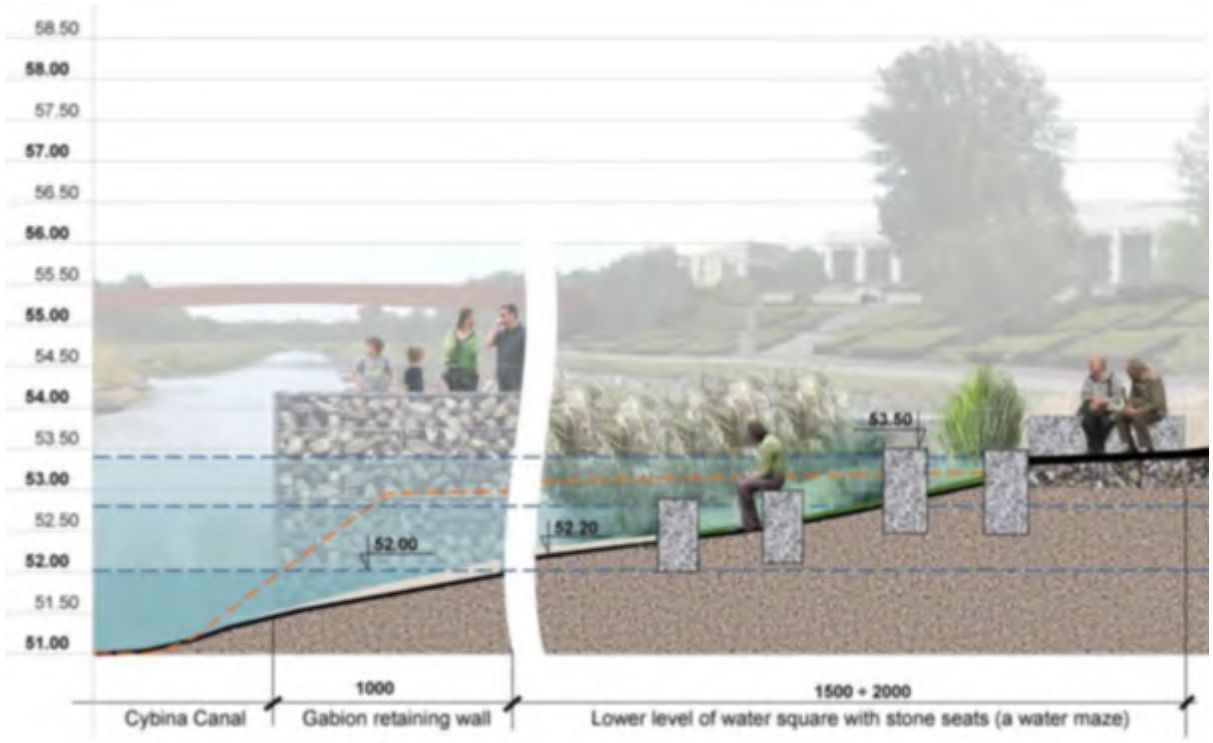
Warta-side buffer park along the ‘Warta’ Campus of PUT

Developed by A. Januchta-Szostak



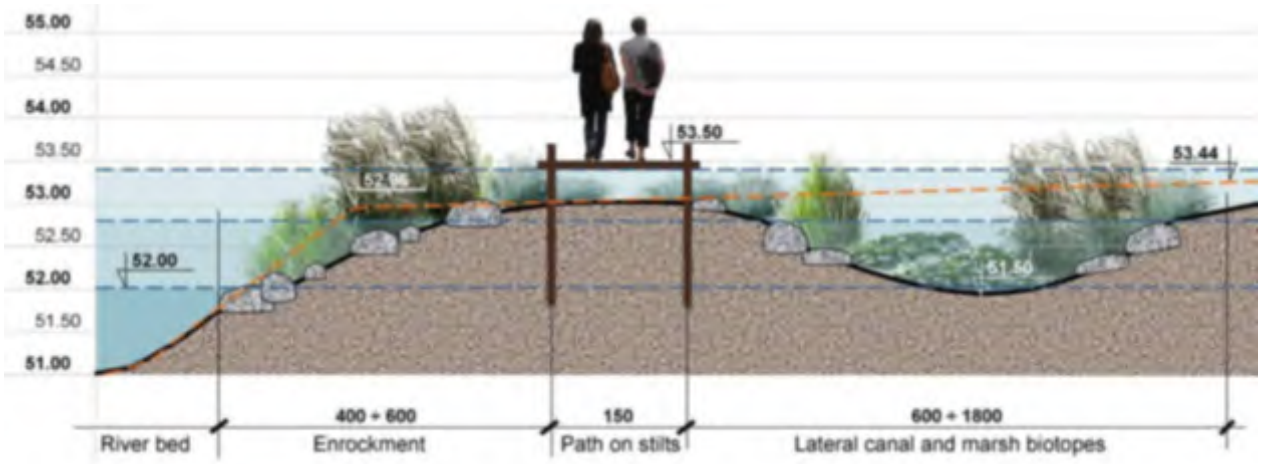
(2)
representation-
exposition zone

The water square with stone seats will constitute a kind of a water maze during spring waters.
The layout will change along with the changing water level in the river.



Warta-side buffer park along the ‘Warta’ Campus of PUT

Developed by A. Januchta-Szostak



An educational trail lifted on stilts, 50 cm above the terrain surface, provided with information boards, places to sit on (floating platforms) and fishing bridges.

(3)
nature-education zone

Warta-side buffer park along the 'Warta' Campus of PUT - flood simulations

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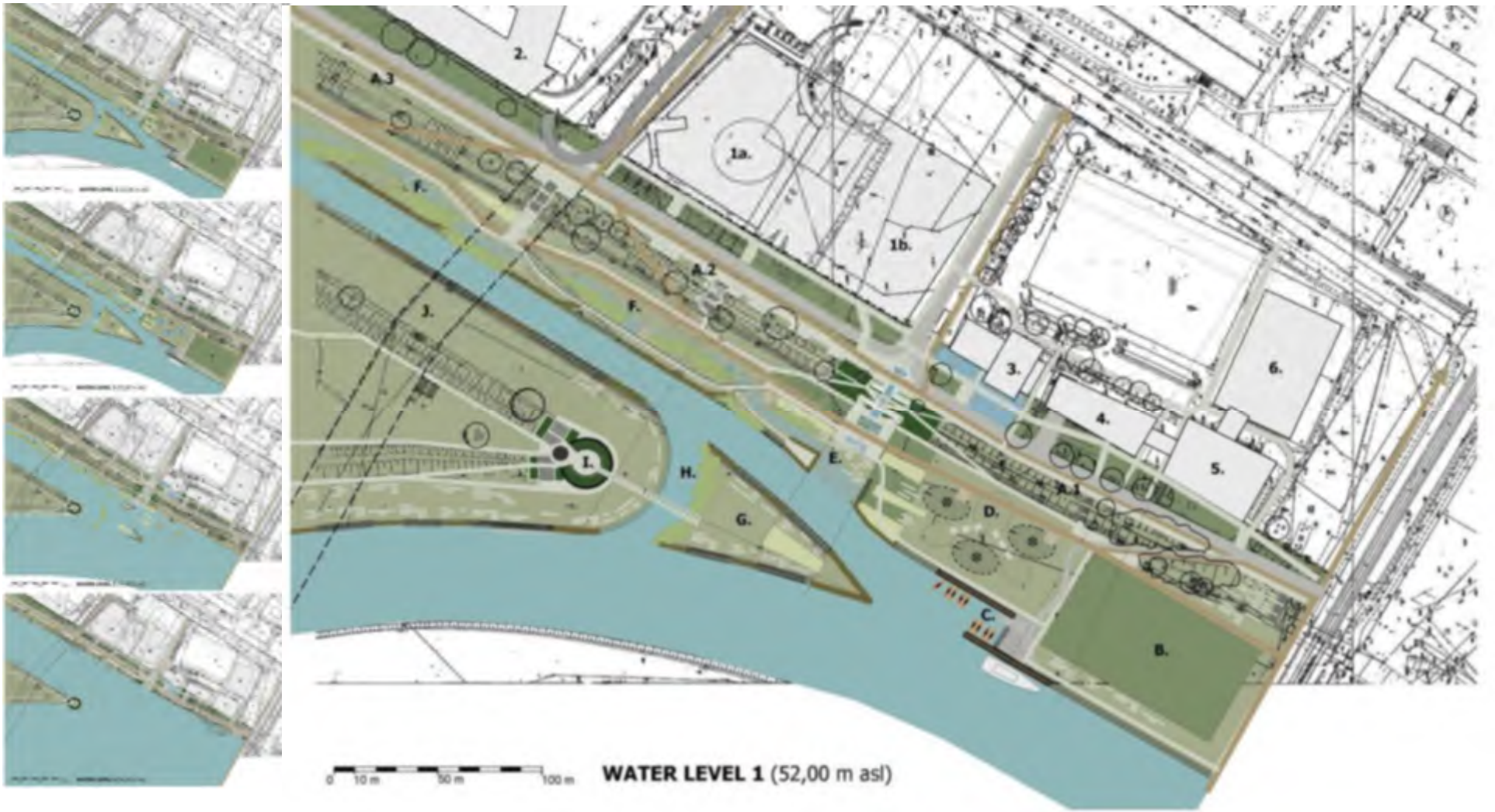

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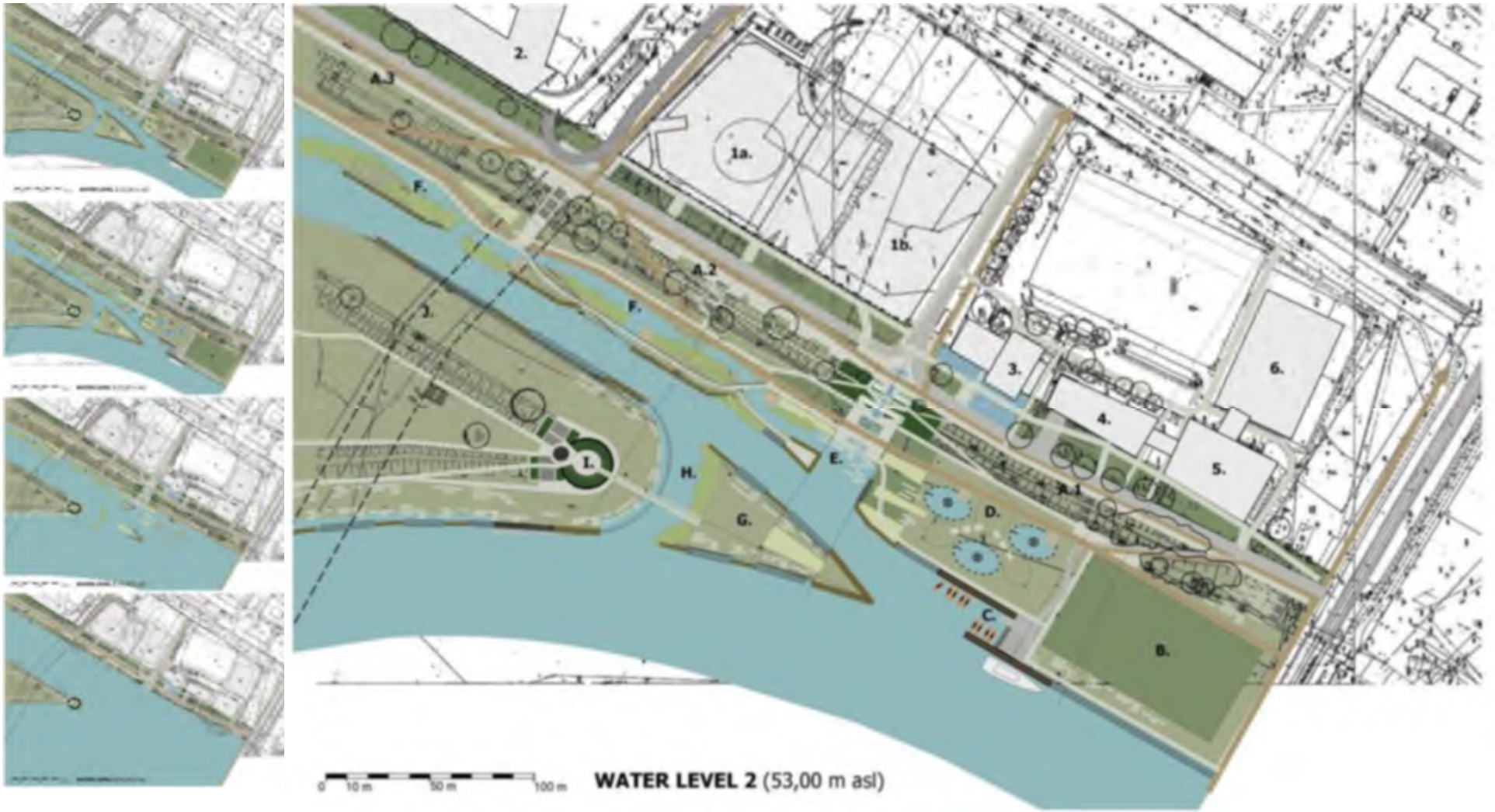

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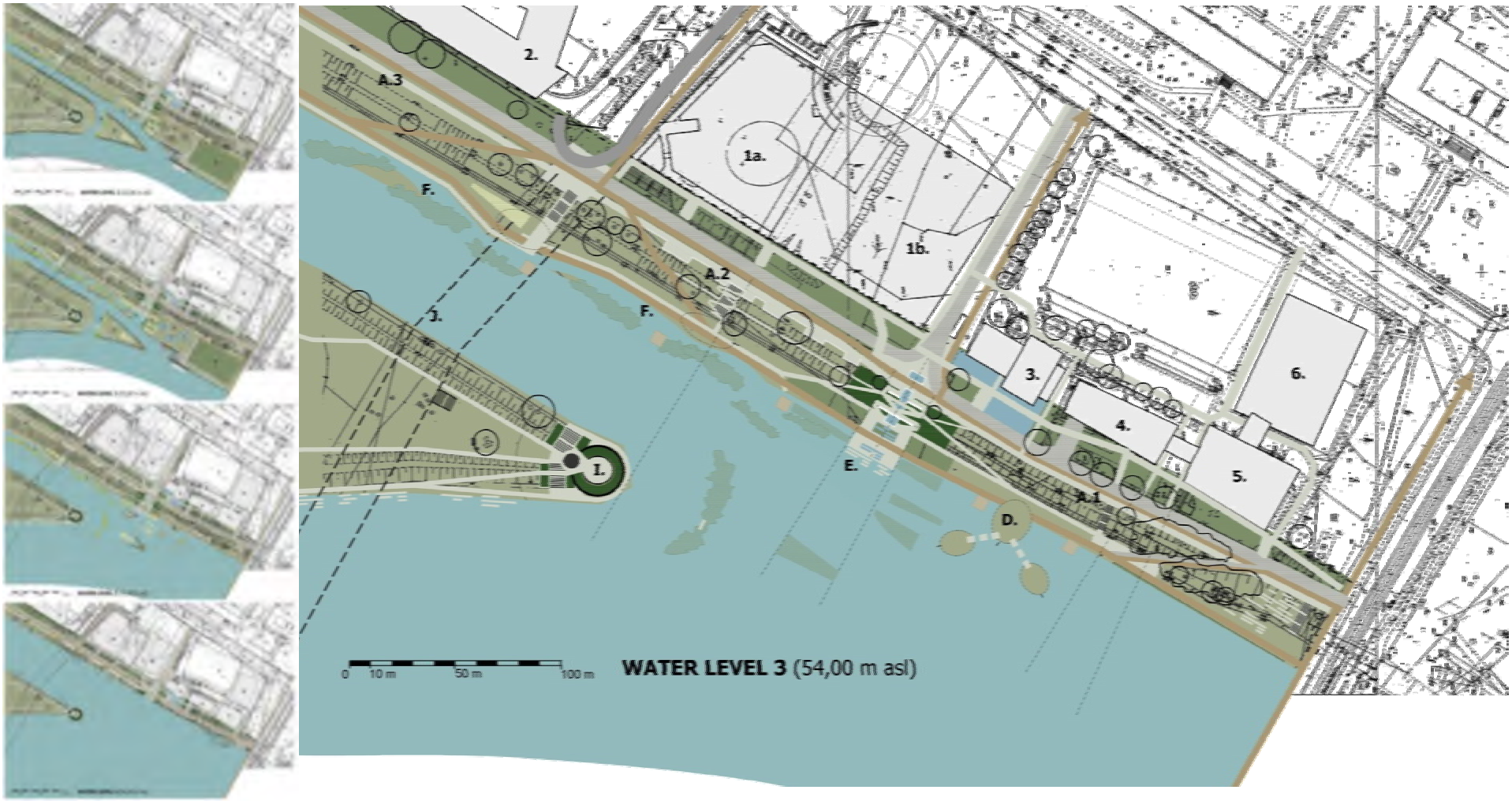

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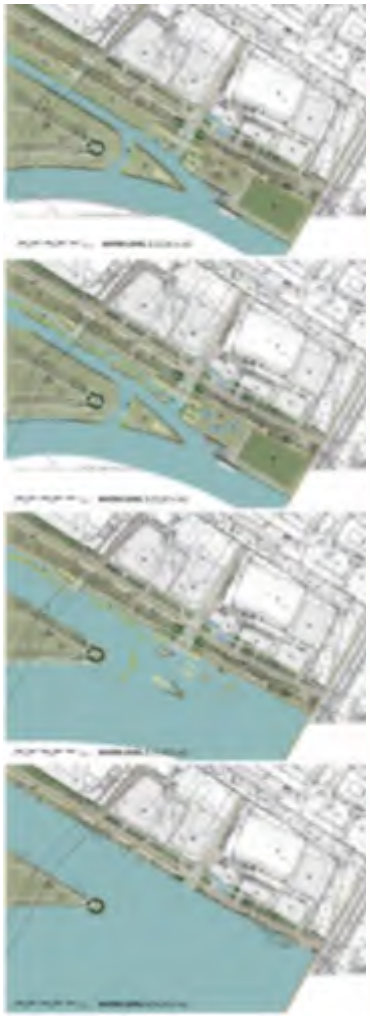

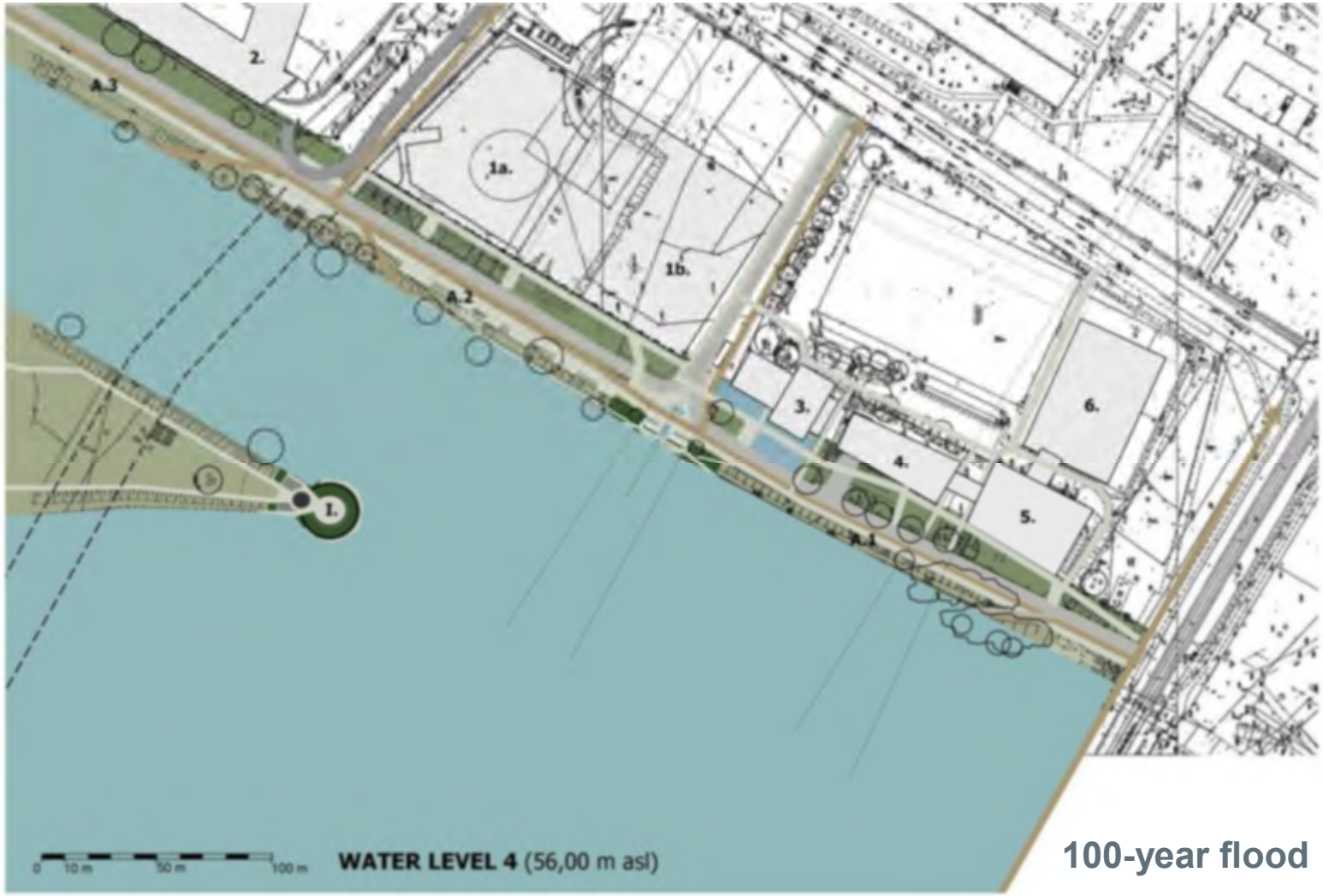

100-year flood

The view toward the ”Warta” Campus of PUT in Poznan (in the pictures: above – the present conditions, below – the project design)

Primum non nocere

["first, do no harm„]

That should be the principal precept of architectural and urban ethics.

Thank you for attention

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