



Restoration of Liberty Island and side- branch

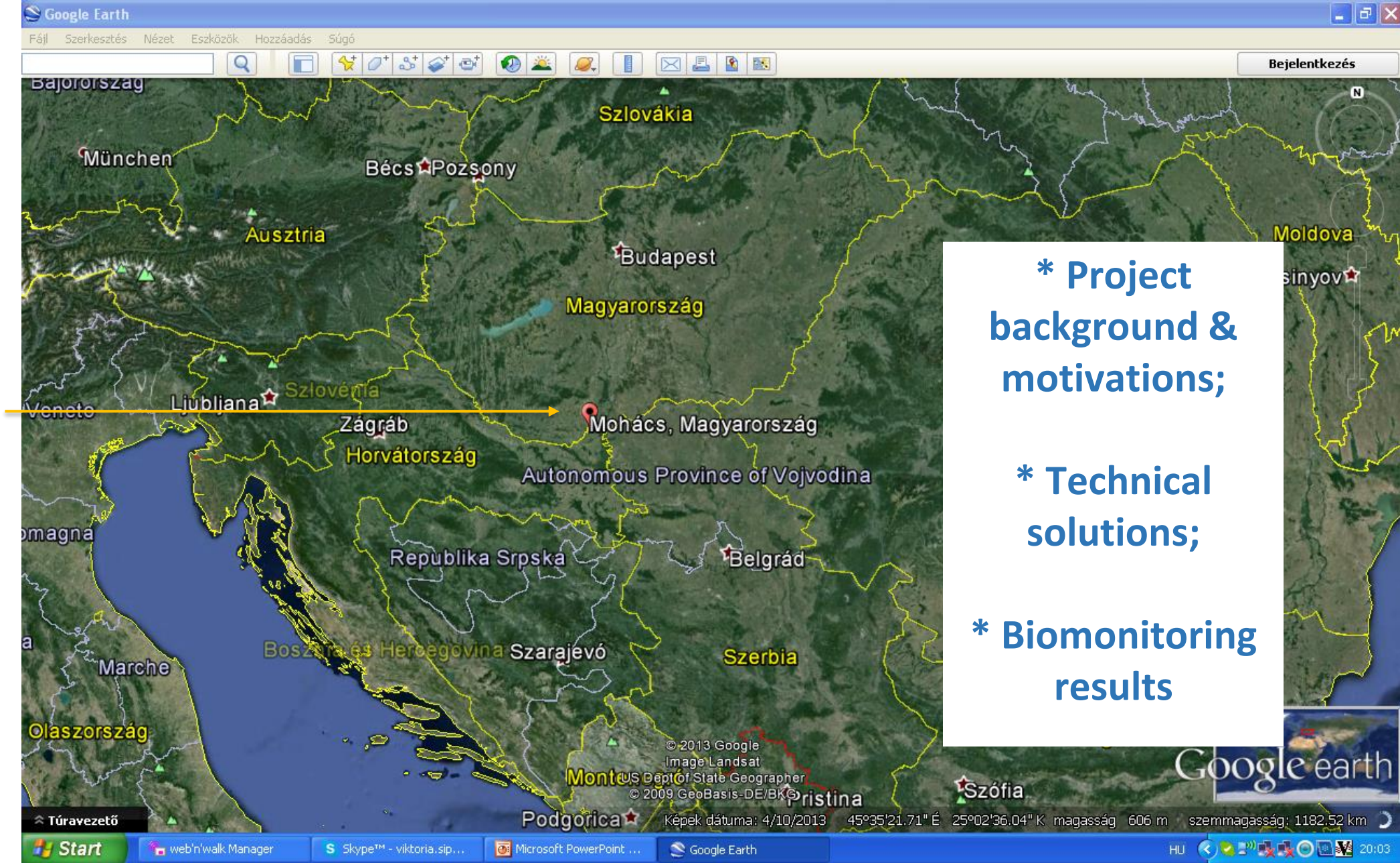
WWF Hungary
Tamas Gruber, freshwater programme
manager



Mainstreaming Ecological Restoration of freshwater-related ecosystems in a Landscape context: INnovation, upscaling and transformation



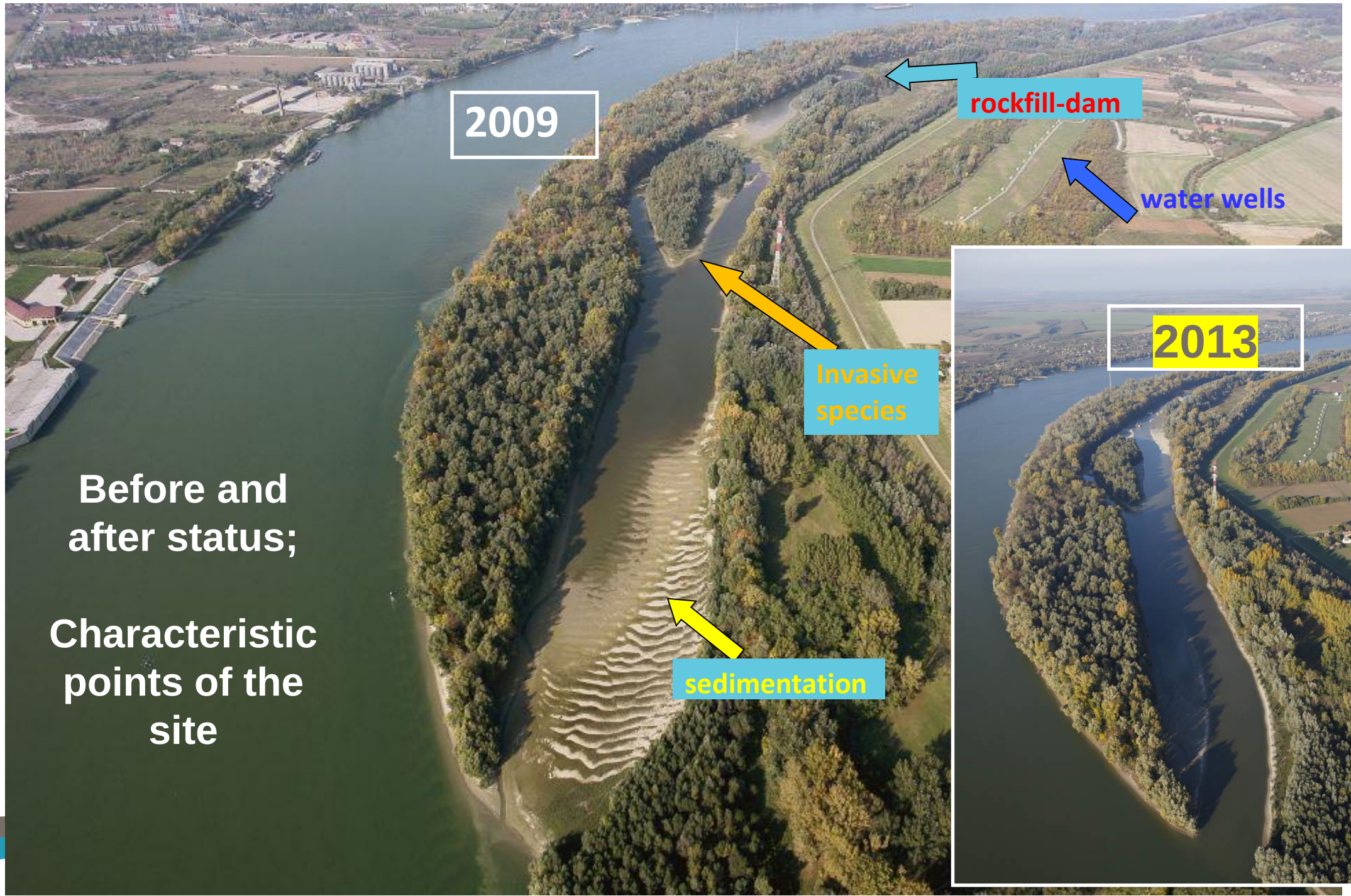
Danube,
downstream
Gemenc,
close to the
Cro-Hu
border



* Project
background &
motivations;

* Technical
solutions;

* Biomonitoring
results



2009

rockfill-dam

water wells

Invasive
species

sedimentation

2013

Before and
after status;

Characteristic
points of the
site

Background and motivations

Motivations

- Regulated Danube stretch, no more islands and side-branches are formulated
- Degraded morphological status, no water supply in side-branches
- Strictly protected National Park and Natura 2000 site, size: 47 ha, side-arm: 3 km long
- Forest was under intensive mgmt till 1990
- state owned, dedicated forever for nature conservation
- Side-branch: protection zone of drinking water wells

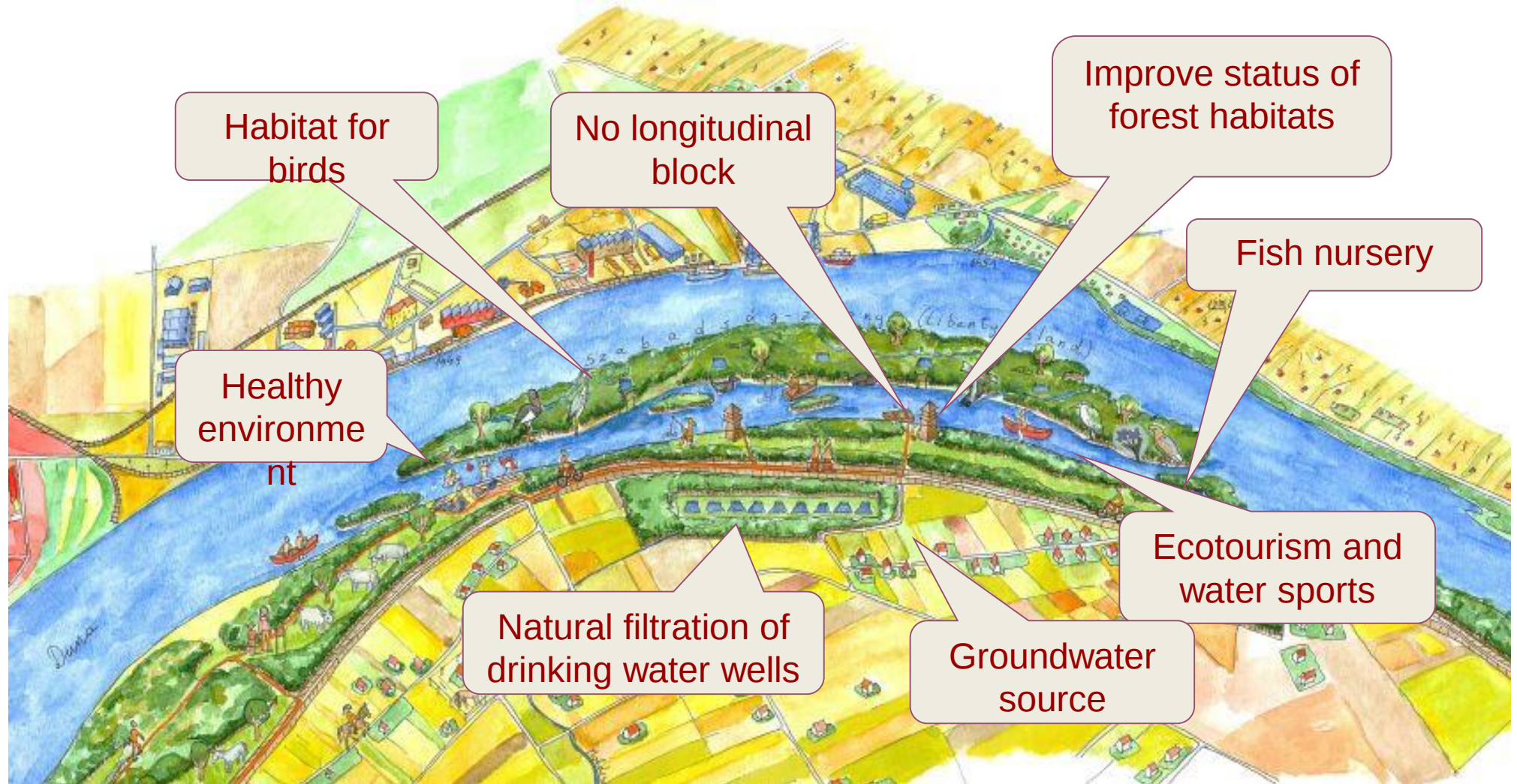
Problems and solutions

Rockfill dam causing sedimentation and disconnected river stretches	dam is opened 6.000 m ³ stone is removed
Shallow standing water in the side-branch, poor water quality and degradation of habitats	side-branch is dredged 160.000 m ³ sediment is removed
The side-branch and island would have disappeared	longitudinal connectivity, flowing water, divers valuable habitats
Sedimented side-arm vs. living river stretch as a tool for clean and safe drinking water	Bank filtration wells provide better quality and quantity drinking water
Commercial forestry	island is saved, area purchased conservation oriented, later no-go commercial forestry
Invasive tree species	80% is eliminated, maintenance goes on

What healthy ecosystems provide us?



Vision offered by the restored Liberty Island



Partners and financial structure

EU: LIFE+ Nature



NGO: WWF Hungary, project lead

State bodies

- Danube-Drava National Park Directorate
- Lower-Danube-valley Water Management Directorate
- Transdanubian Waterworks Company
- Mohács Municipality



Contribution from corporate sector:

- Coca-Cola Hungary



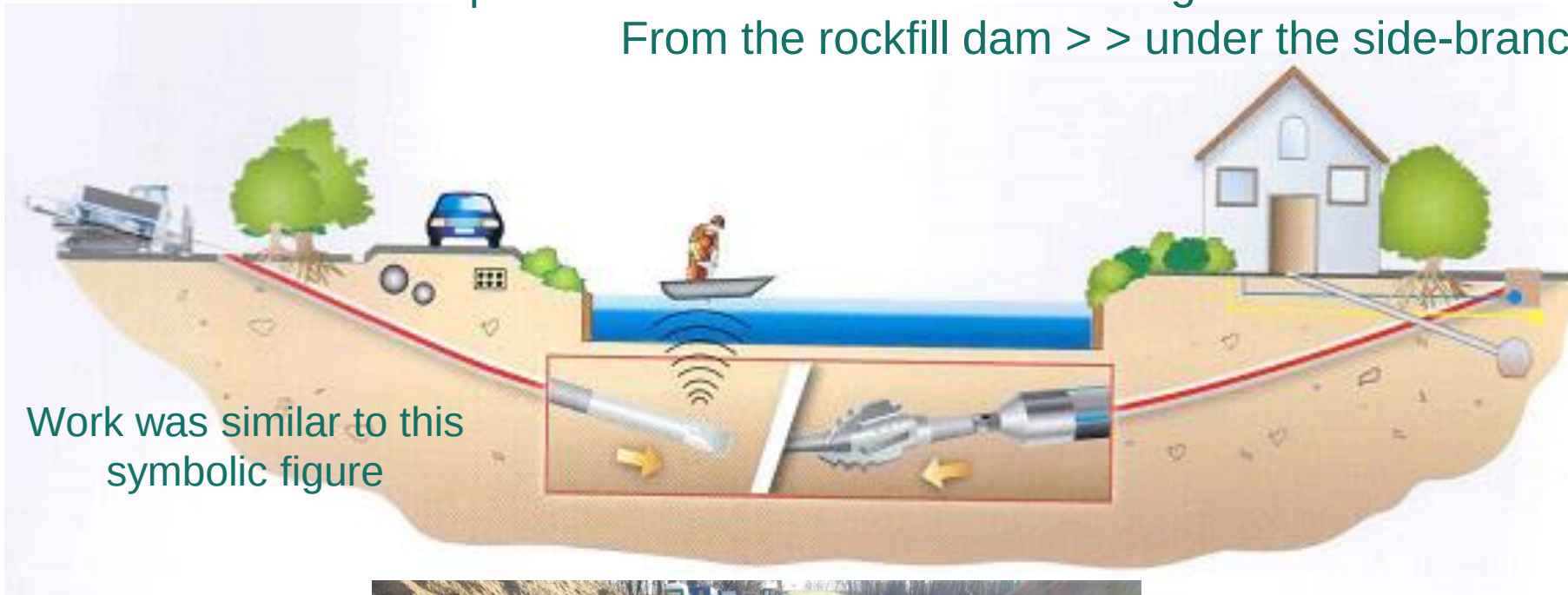
Activities: technical data

- Dredging: 160 thousand cubic metre
- Waterpipe relocation, 2 pipes of D700 mm + 1 pipe D160 mm, appr. 200 m length each
- Opening the rockfill dam: 3000 cubic metre stone
- Forest conversion: 9 ha native, semi-natural forest
- Forestry works: two seasons for planting and 3 years for nursery

This was the largest scale ecological dredging along the Hu Danube



Special technical solutions – drinking water tubes were relocated,
From the rockfill dam > > under the side-branch



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From the rockfill dam > > under the side-branch



Monitoring – Results, experiences

Fishes

Recording 10 546 specimens of 35 species

Ukrainian brook lamprey
(*Eudontomyzon mariae*)

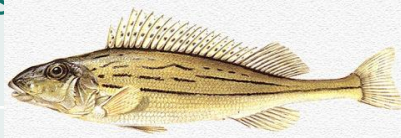
Cactus roach (*Rutilus*)



Danube whitefin gudgeon
(*Romanogobio vladykovi*)

Danube ruffe (*Gymnocephalus baloni*)

Striped ruffe (*Gymnocephalus schraetser*)



These protected rheophile species previously were missing here, now they are continuously present and spawn here

+

Invasive forbs (*Solidago gigantea*, *Aster lanceolatus*) reduced

Common oak (*Quercus robur*) seedlings survived

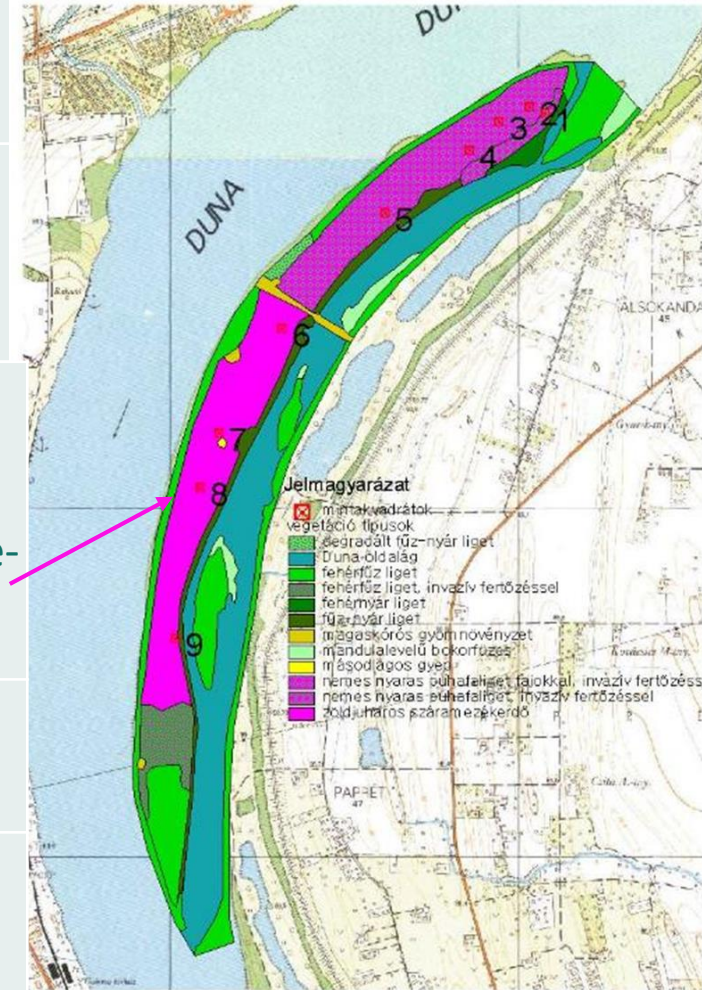
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Removed invasive tree species (*Acer negundo*, *Fraxinus pennsylvanica*) re-sprouted strongly

Planted native poplars died

False indigo (*Amorpha fruticosa*) invaded the shrub layer

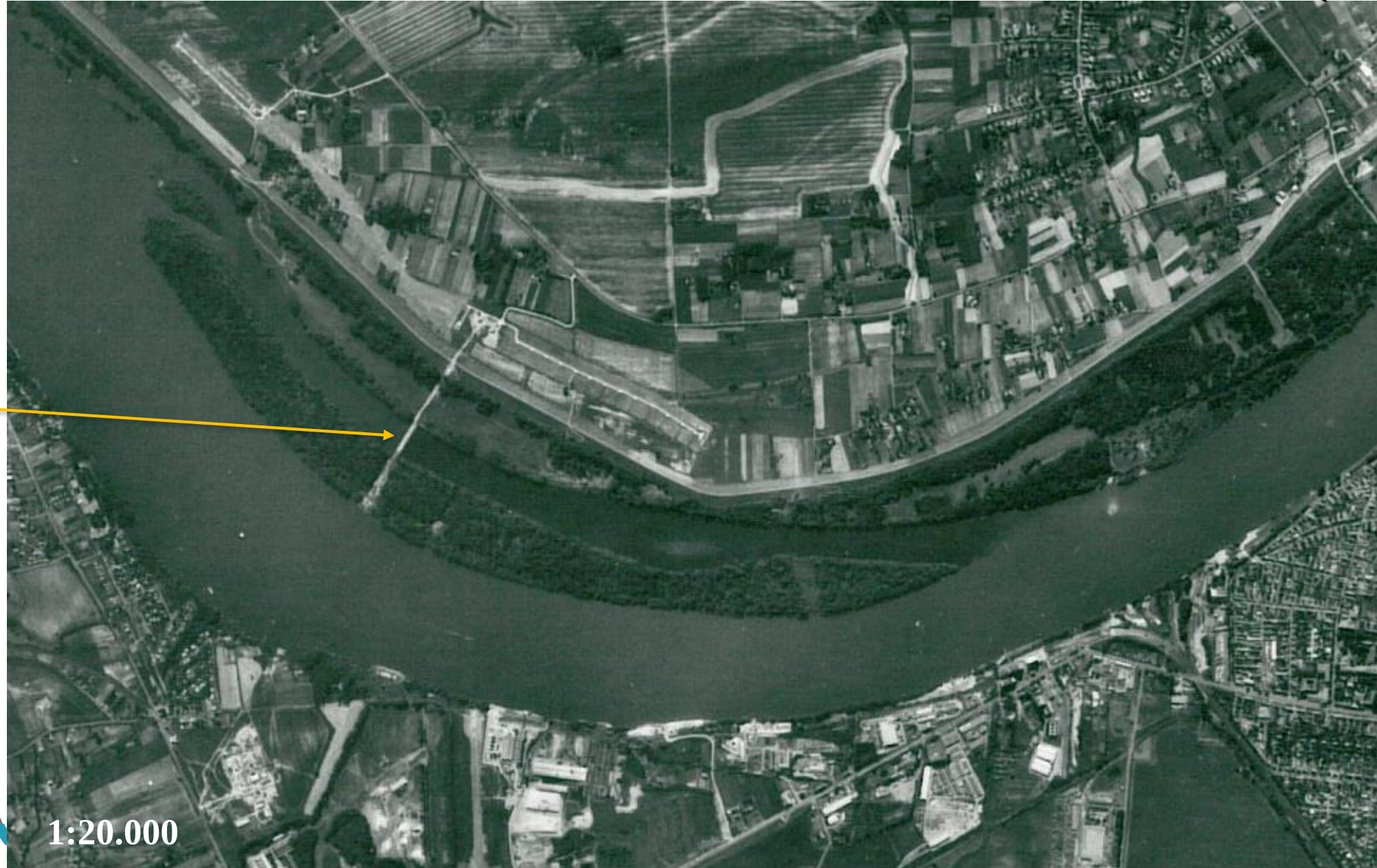
Forests





Aerial photo,
1986

After the dam
was built

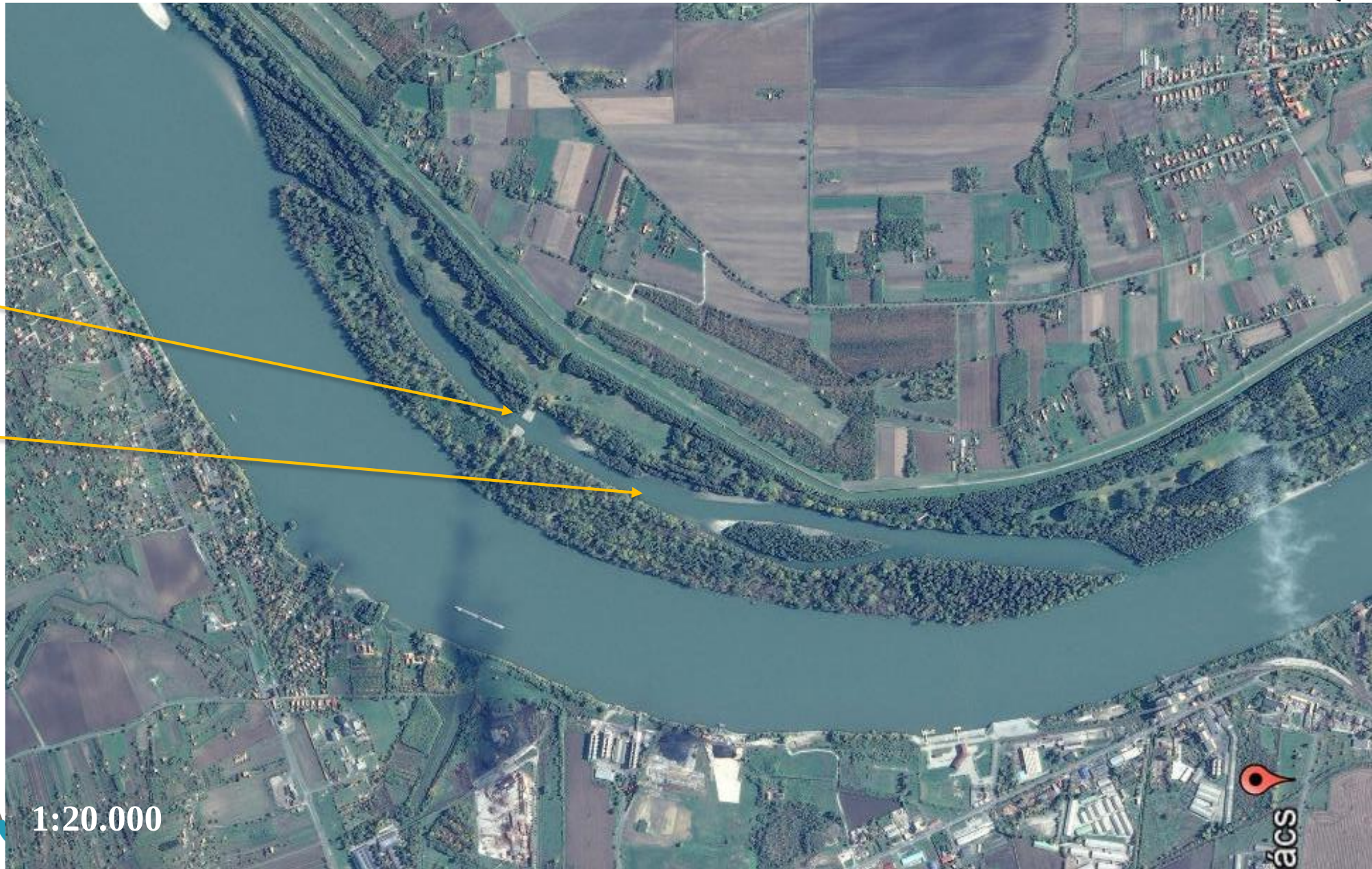




Ortophoto of the
site, 2005

Heavy
sedimentation,
no living water





Aerial photo,
17.10.2013.

Opened rockfill-
dam

Restored water
connection