

SUSTAINABLE FLOOD MANAGEMENT PROGRAMME IN HUNGARY

Eur Ing **Sándor TÓTH**

Senior chief adviser

Chairman of ICPDR FP EG

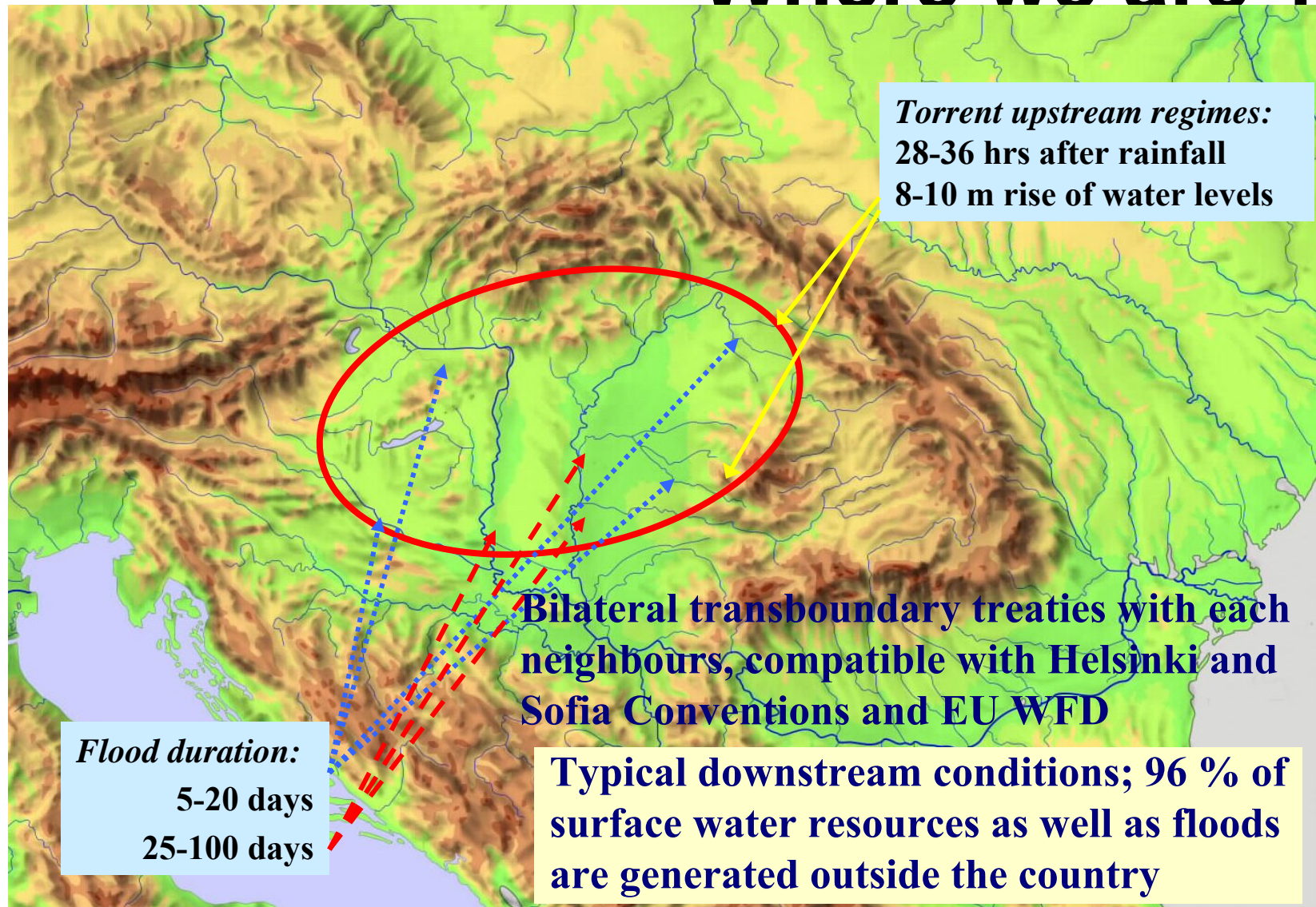
Central Directorate for Water and Environment

Budapest, Hungary

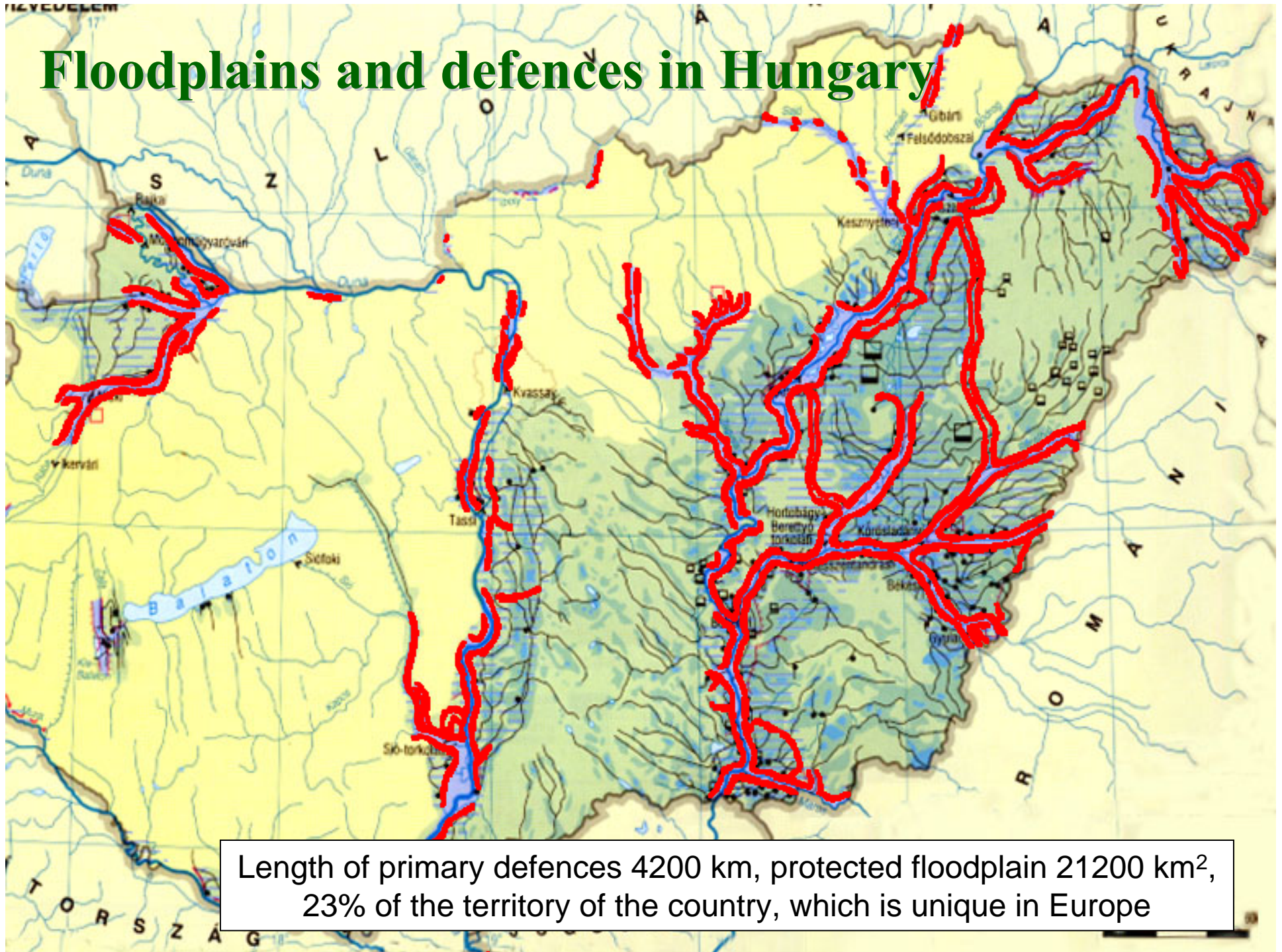
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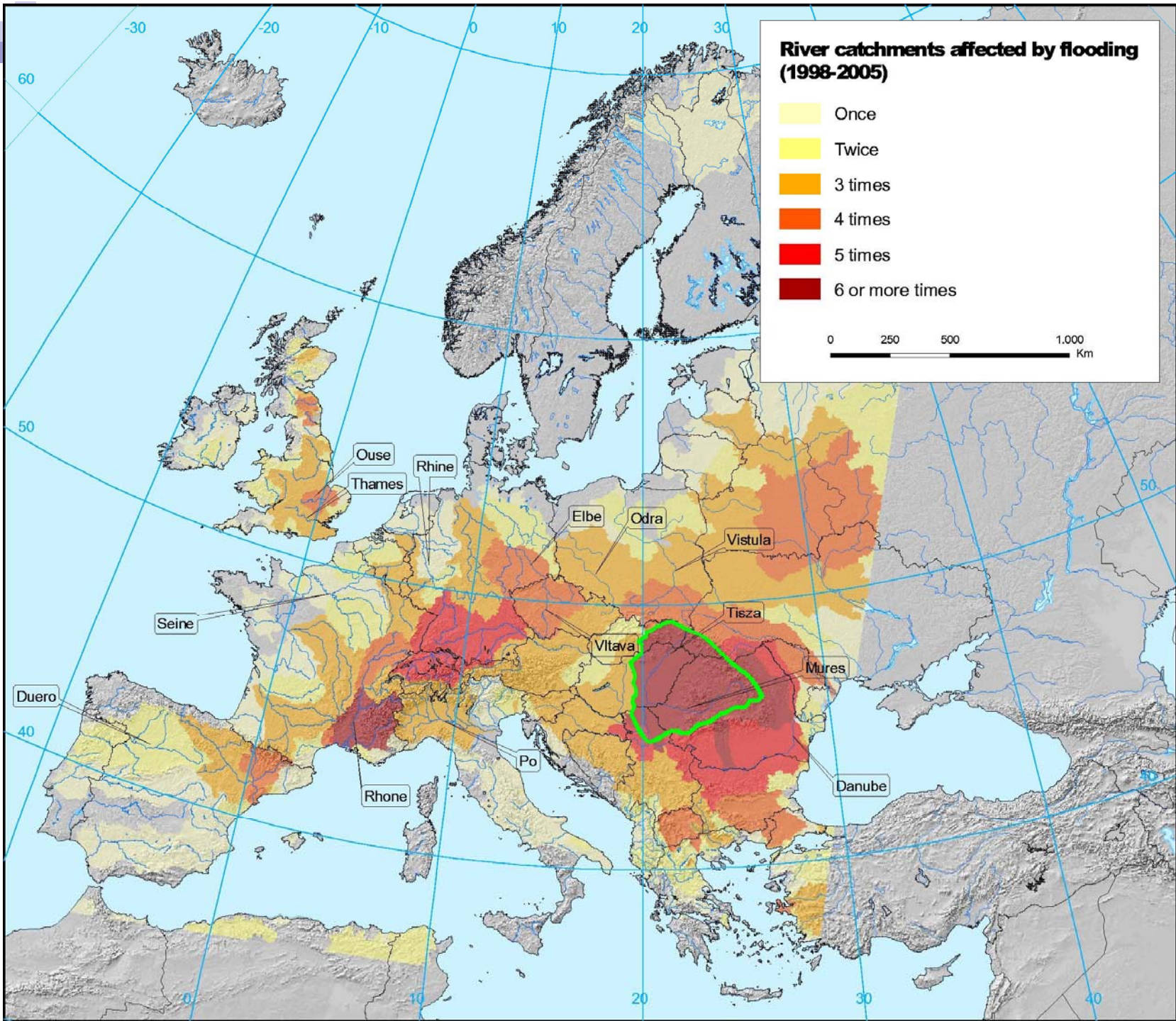
Where we are ?



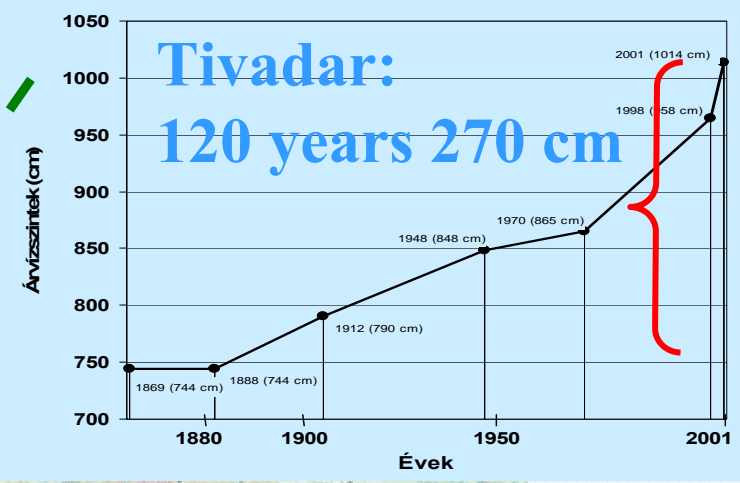
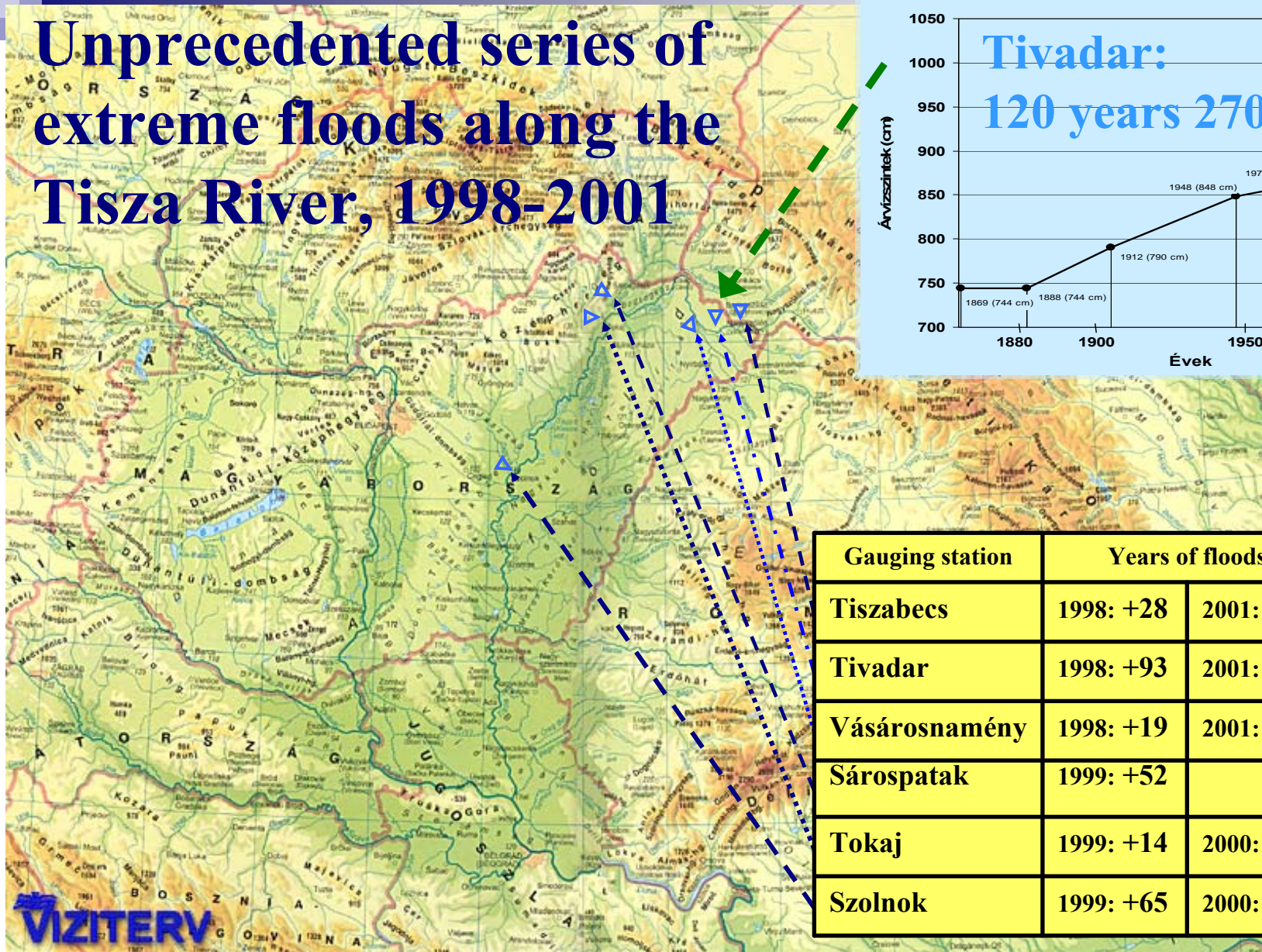
Floodplains and defences in Hungary



Length of primary defences 4200 km, protected floodplain 21200 km², 23% of the territory of the country, which is unique in Europe



Unprecedented series of extreme floods along the Tisza River, 1998-2001

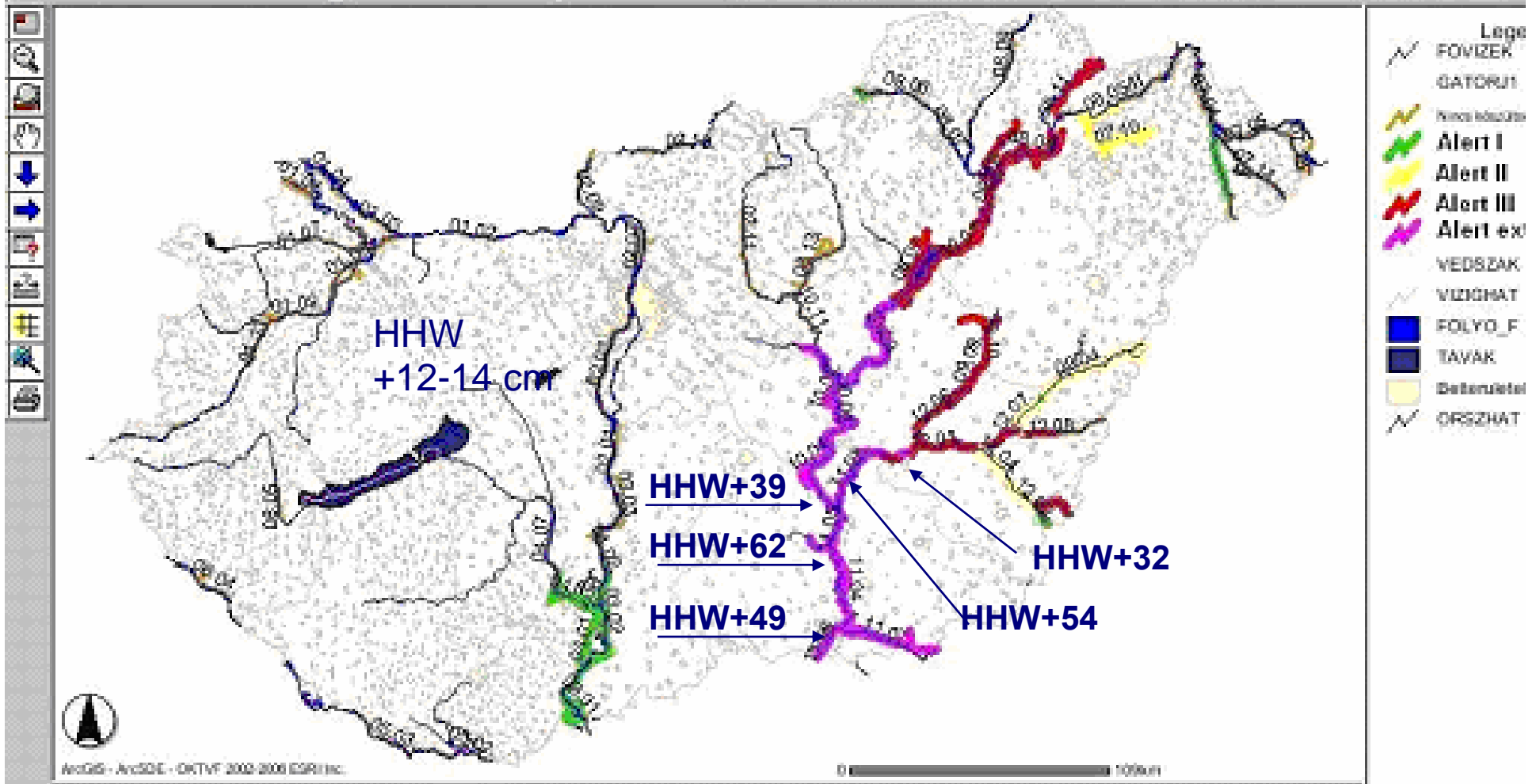


Gauging station	Years of floods		Total
Tiszabecs	1998: +28	2001: +19	+ 47
Tivadar	1998: +93	2001: +56	+149
Vásárosnamény	1998: +19	2001: +18	+ 37
Sárospatak	1999: +52		+ 52
Tokaj	1999: +14	2000: +34	+ 48
Szolnok	1999: +65	2000: +67	+132

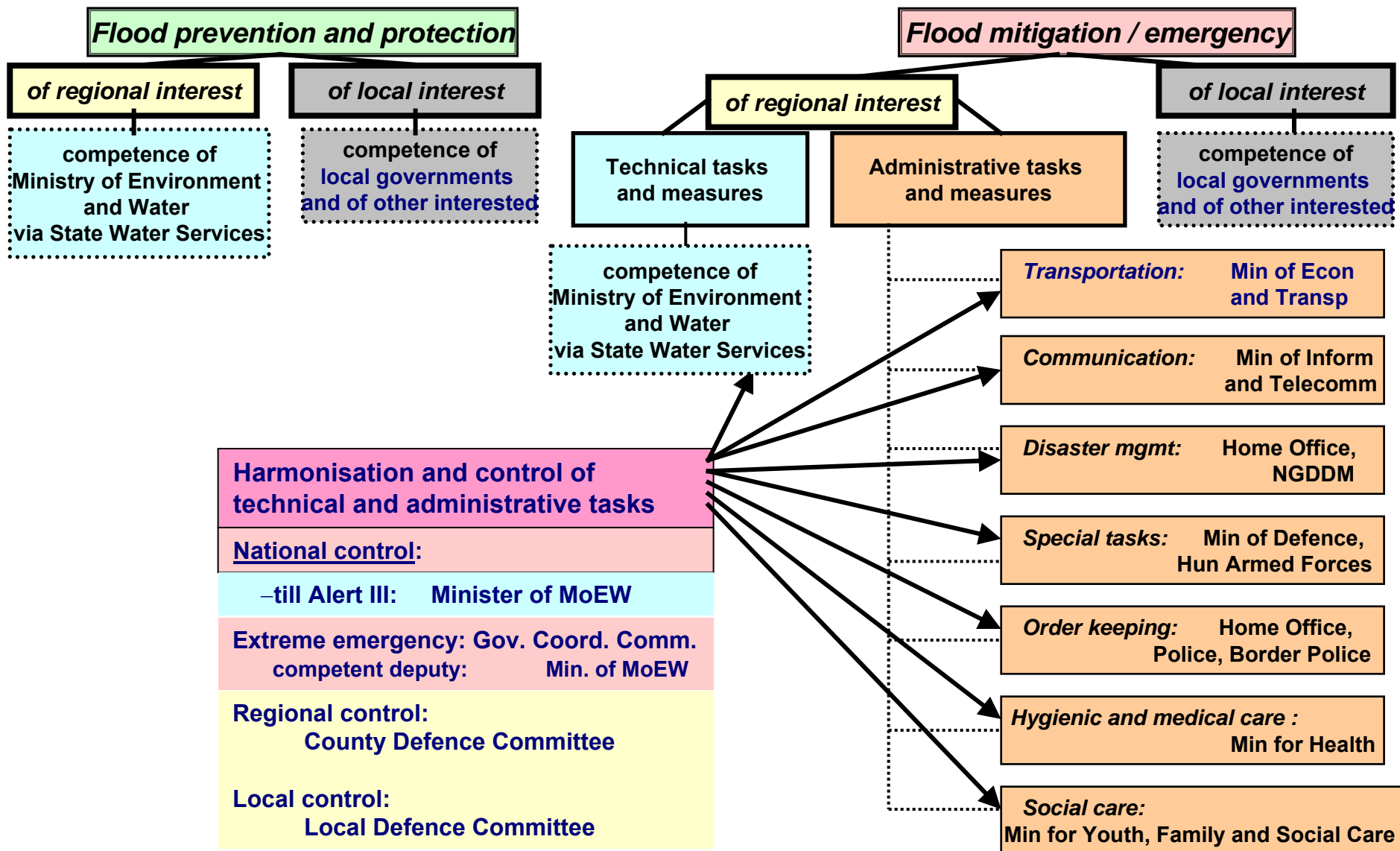


Flood emergency, spring 2006

Flood alerts in Hungary on 18 April 2006

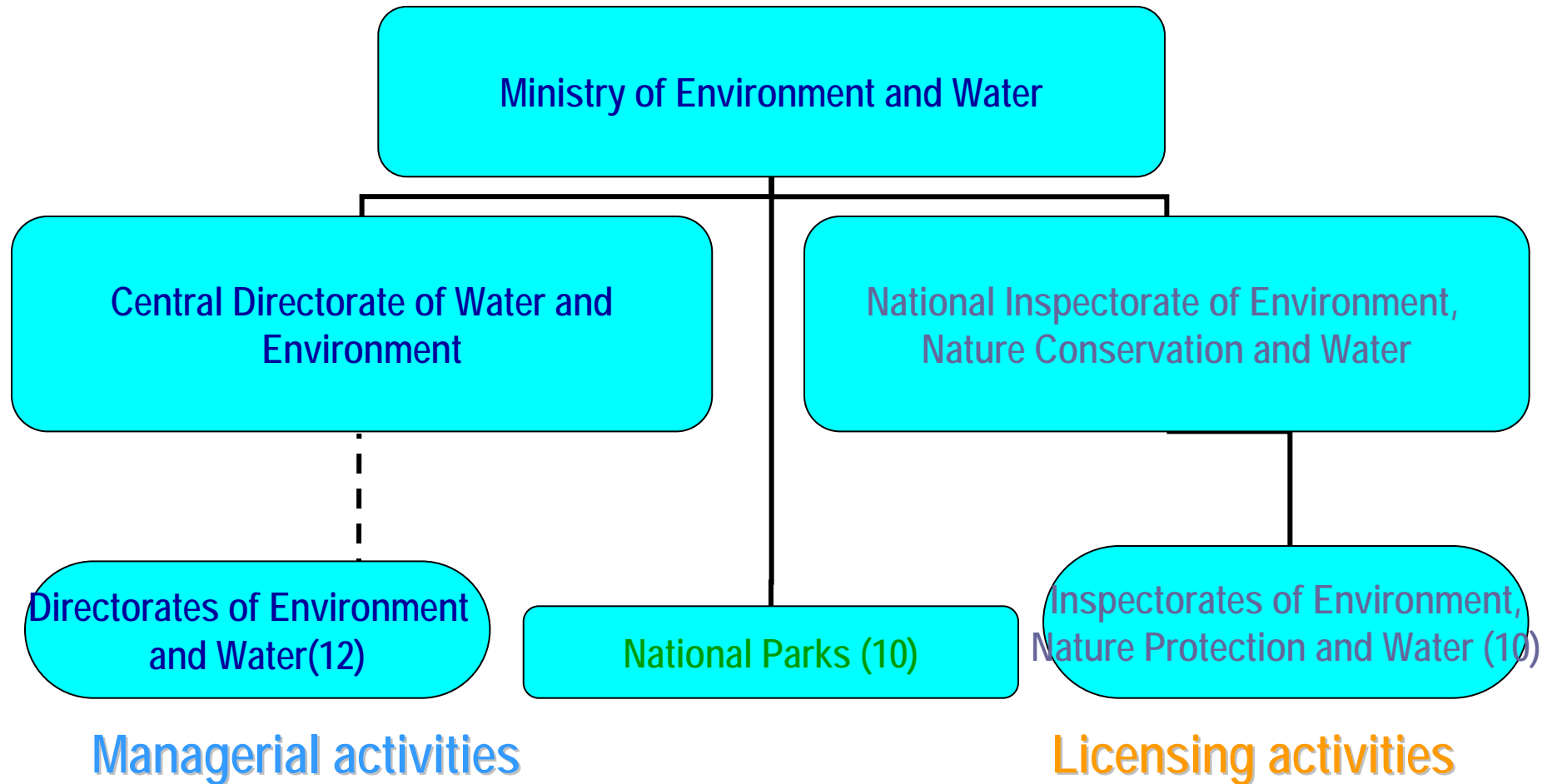


Allocation of public tasks of flood management

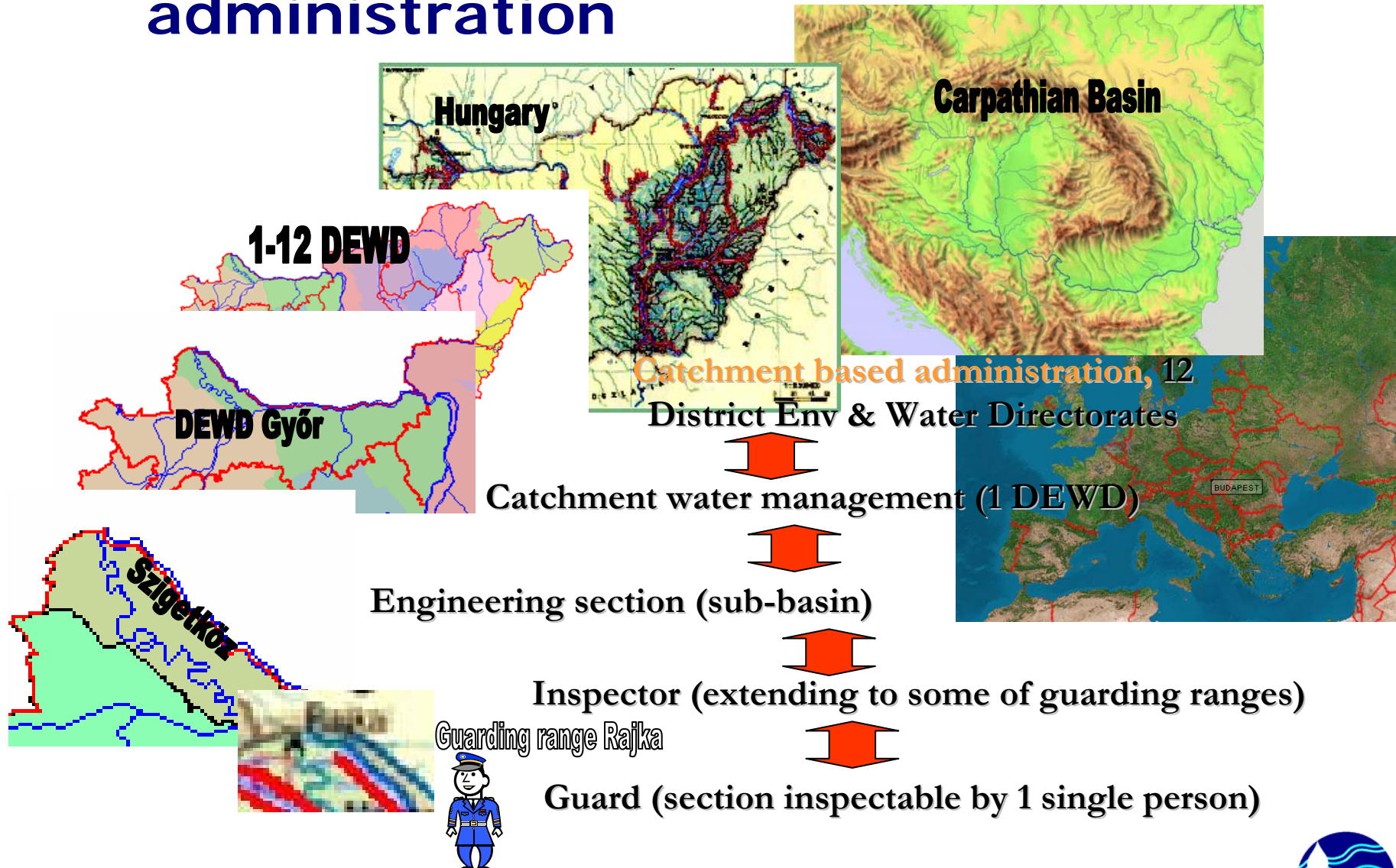


Institutional framework

Organizational structure



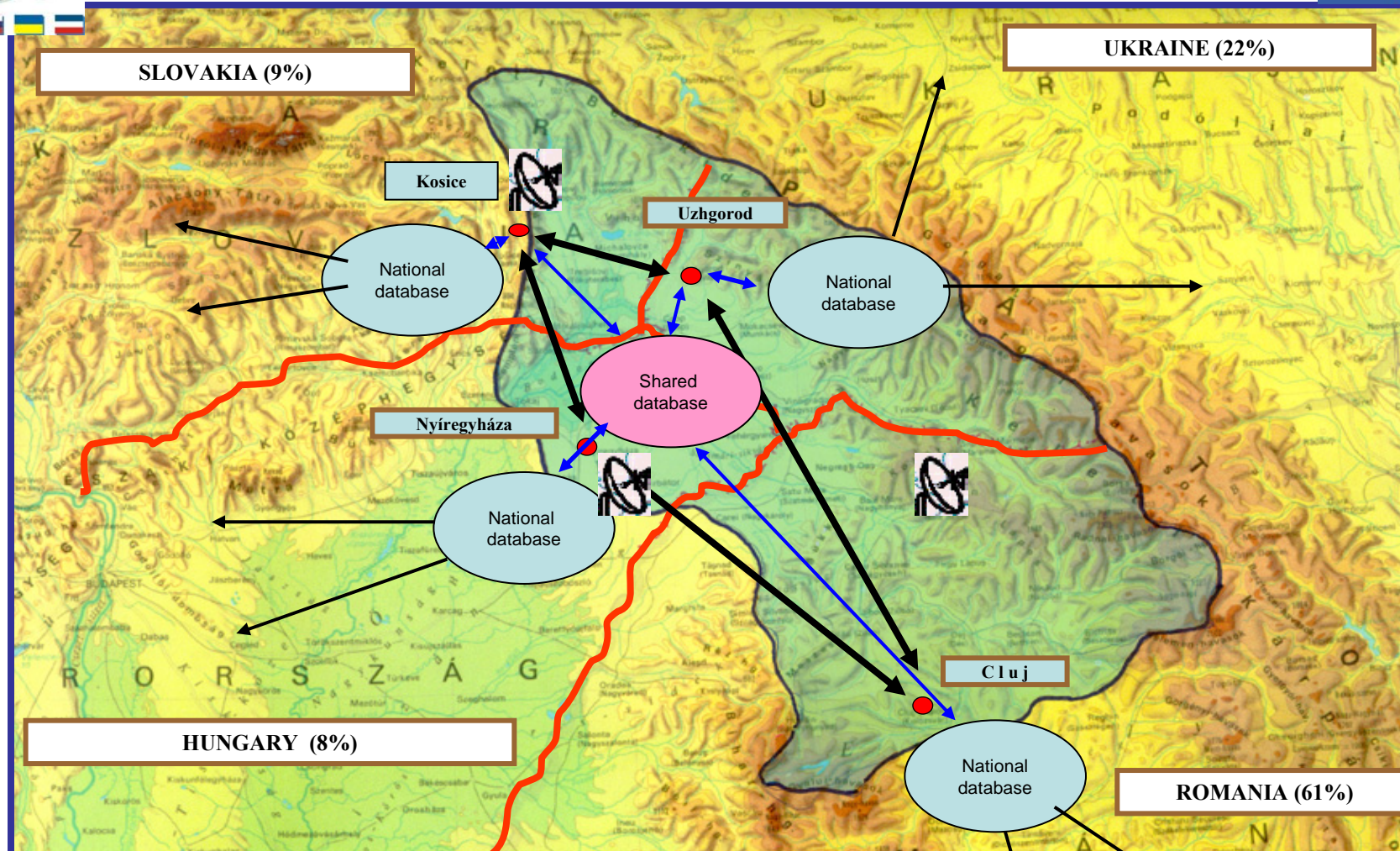
Structure of water management administration



Flood Risk Management Policy in Hungary

- River basin based strategy in planning, implementation and supervision – holistic, interdisciplinary approach integrating land use and spatial planning
 - ✓ Shift from defensive action against hazards to risk management
 - ✓ Preferred means: a good combination of
 - = Natural retention
 - = Structural flood protection
 - = Other non structural measures of reduction of hazards
- International cooperation
 - Bilateral agreements on transboundary water management
 - ICPDR
 - Implementation of WFD ⇒ RBMP
 - Implementation of DRB Flood Action Programme
 - Tisza Water Forum
 - Tisza River Basin Flood Control Concept
 - Virtual flood mgmt centre – see example next slide
 - EU Flood Risk Management Planning Action Programme
 - Best Practice Document of flood prevention, protection and mitigation (F, NL, DE, HU, EU Commission)
 - EU Floods Directive –Stakeholder Group, WPE, WG F





Virtual flood mgmt centres common geospatial, hydromet data
(based on automated monitoring and radar images), forecast and simulation





NEW APPROACH IN SUSTAINABLE FLOOD MANAGEMENT IN THE TISZA VALLEY



Possible interventions to raise flood safety

Abroad

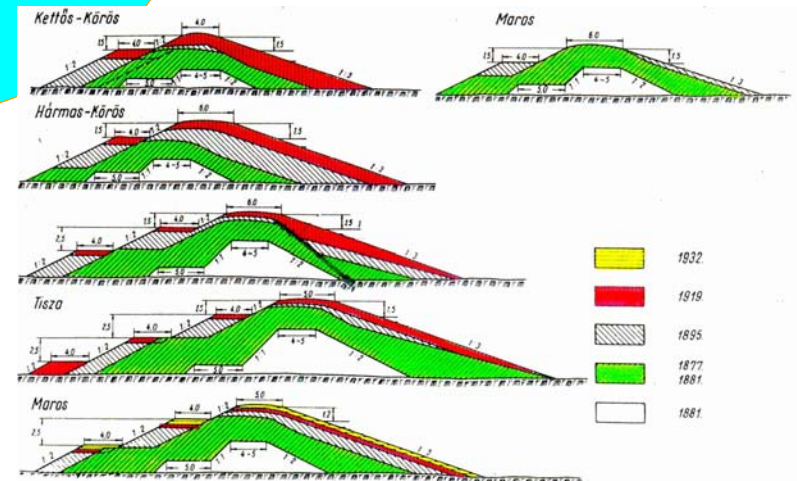
Home

Raising dikes...
But how much?

- Enhance flood retention upstream, both natural and structural

- Afforestation

- Catchment flood management in international environment





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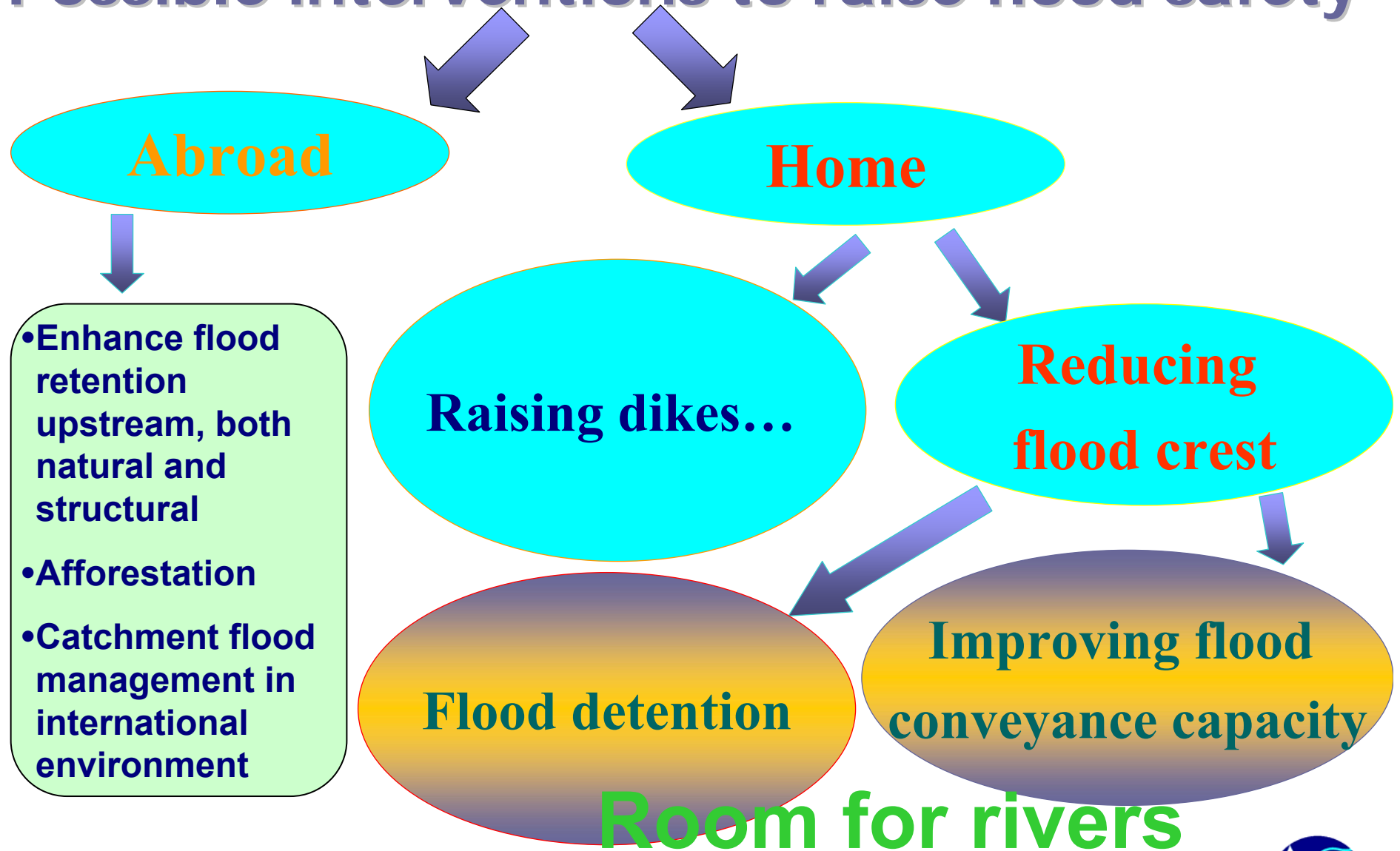


Tiszasülv. April. 2000

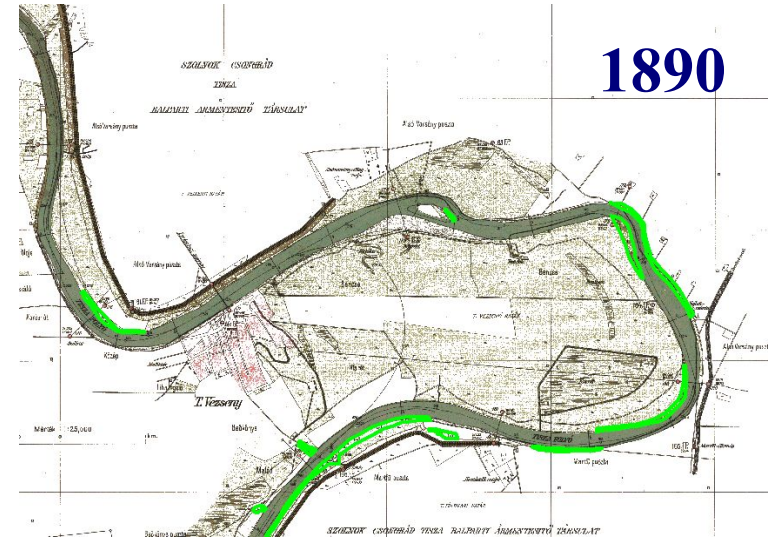
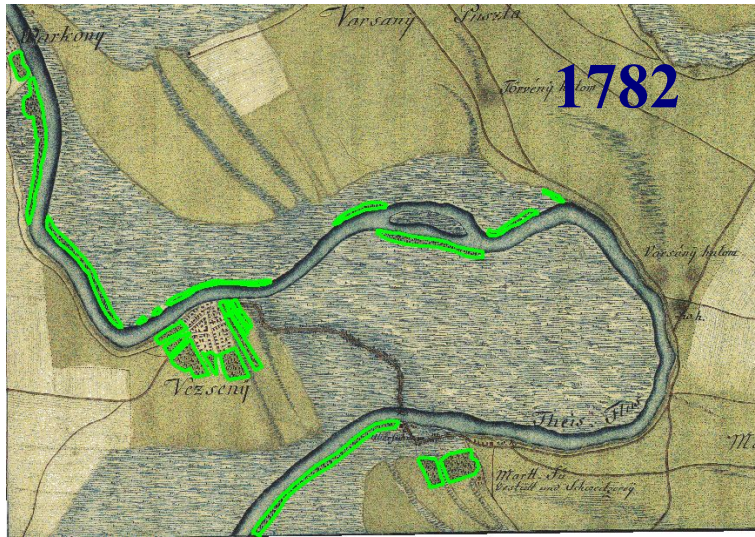


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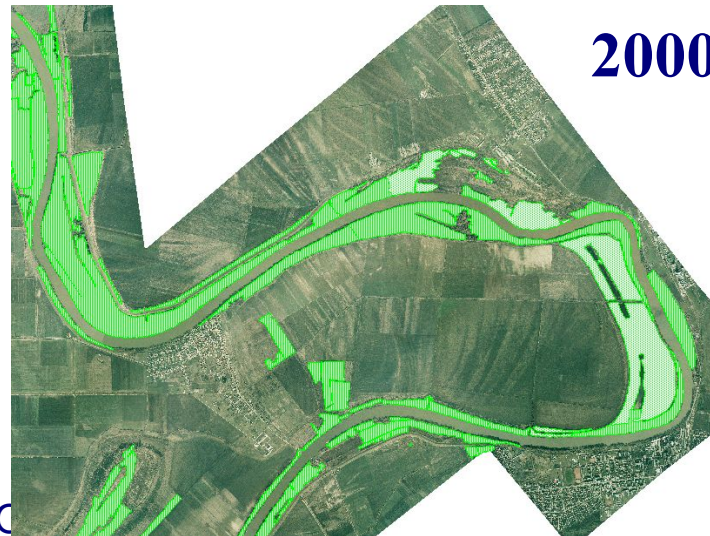
Possible interventions to raise flood safety



Examples on flood bed capacity reduction

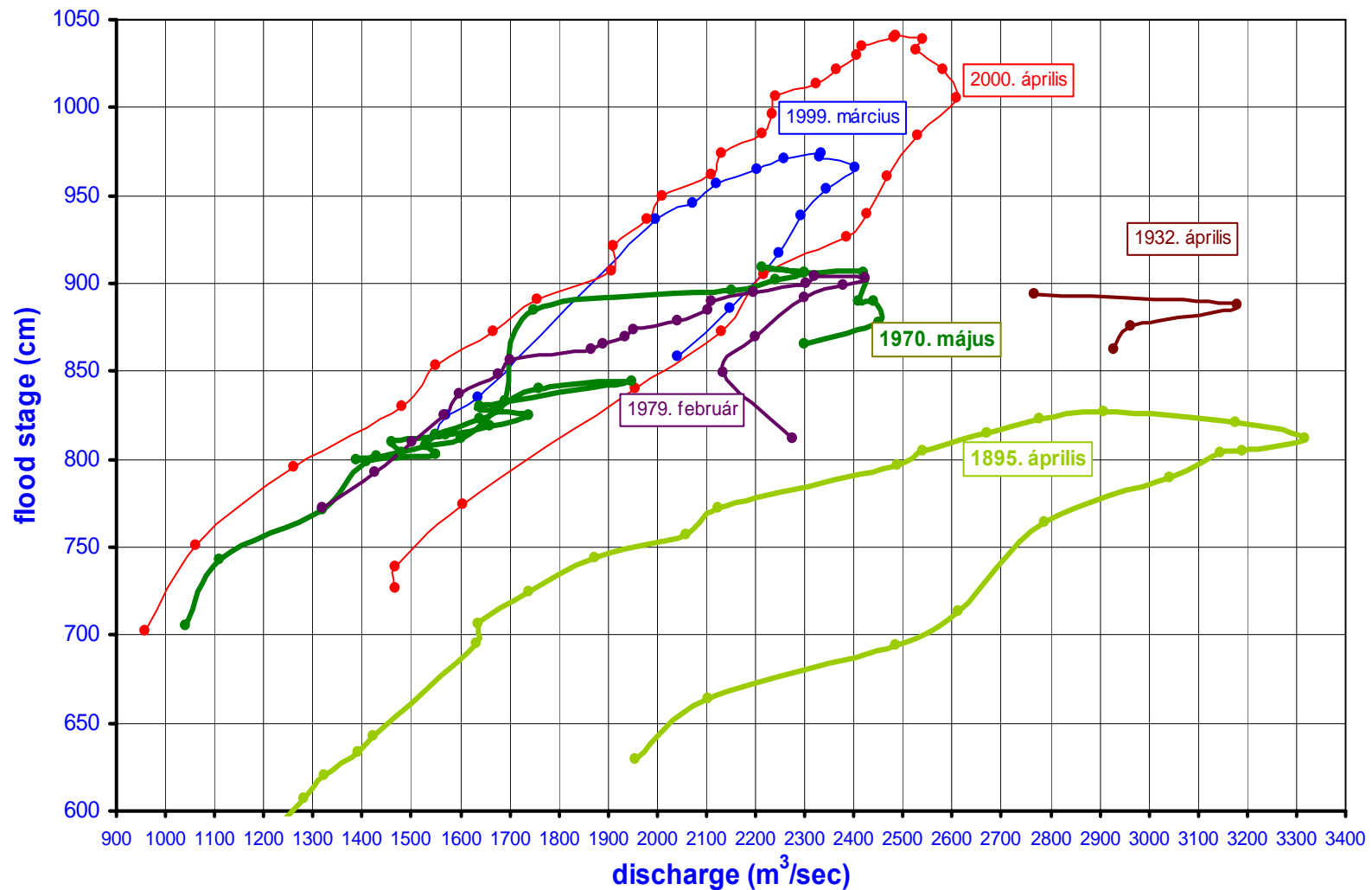


Changes in
forestry
patterns



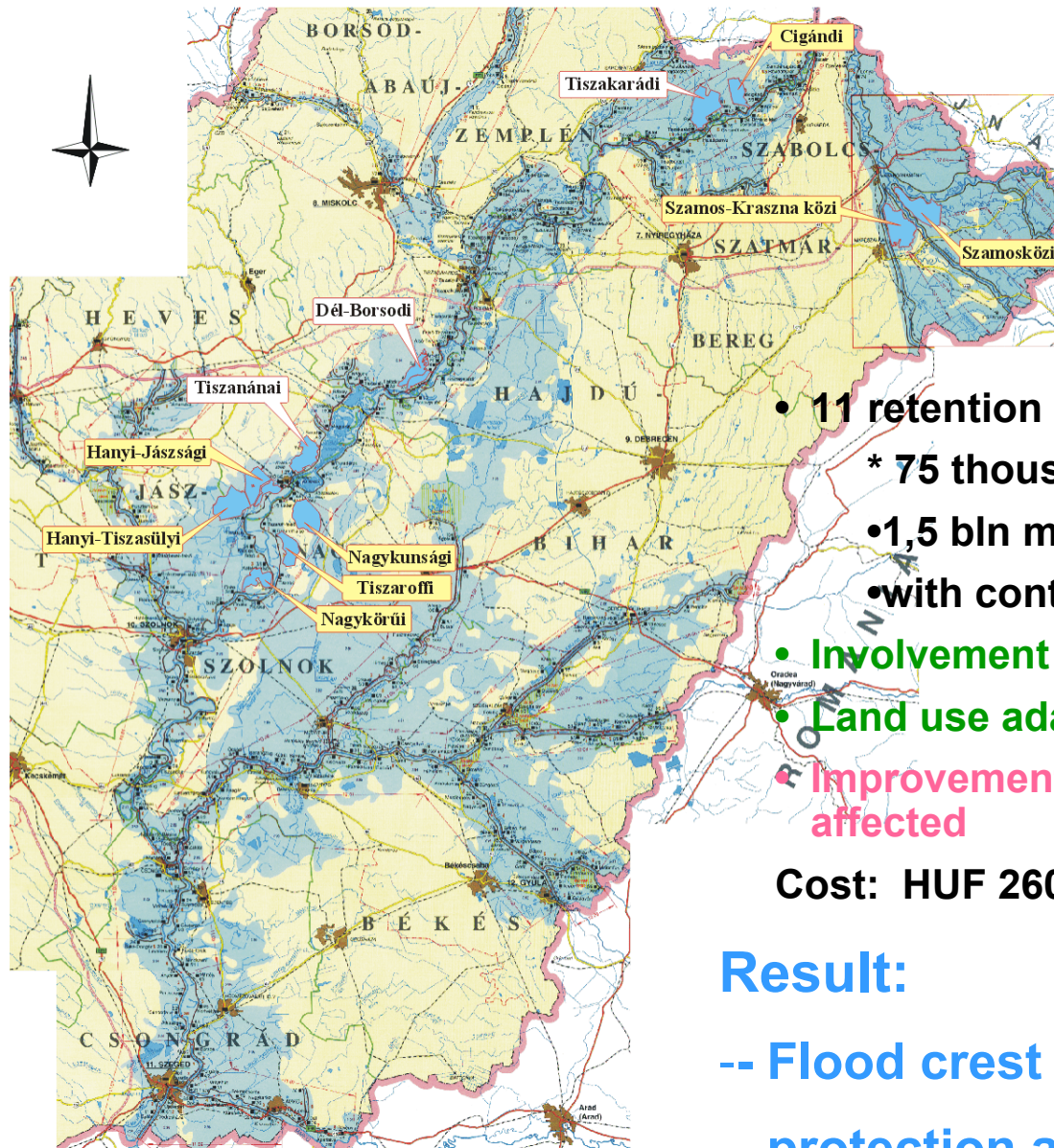
INBC

Evidence on flood bed capacity reduction



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Partial floodplain reactivation



- 11 retention area selected from 30 possible locations
 - * 75 thousand ha → 3.5 * that of IRMA
 - 1,5 bln m³ capacity → 7.0 * that of IRMA
 - with controlled inundation
- Involvement of oxbows, wetland development
- Land use adaptation to risks
- Improvement of living conditions of the population affected

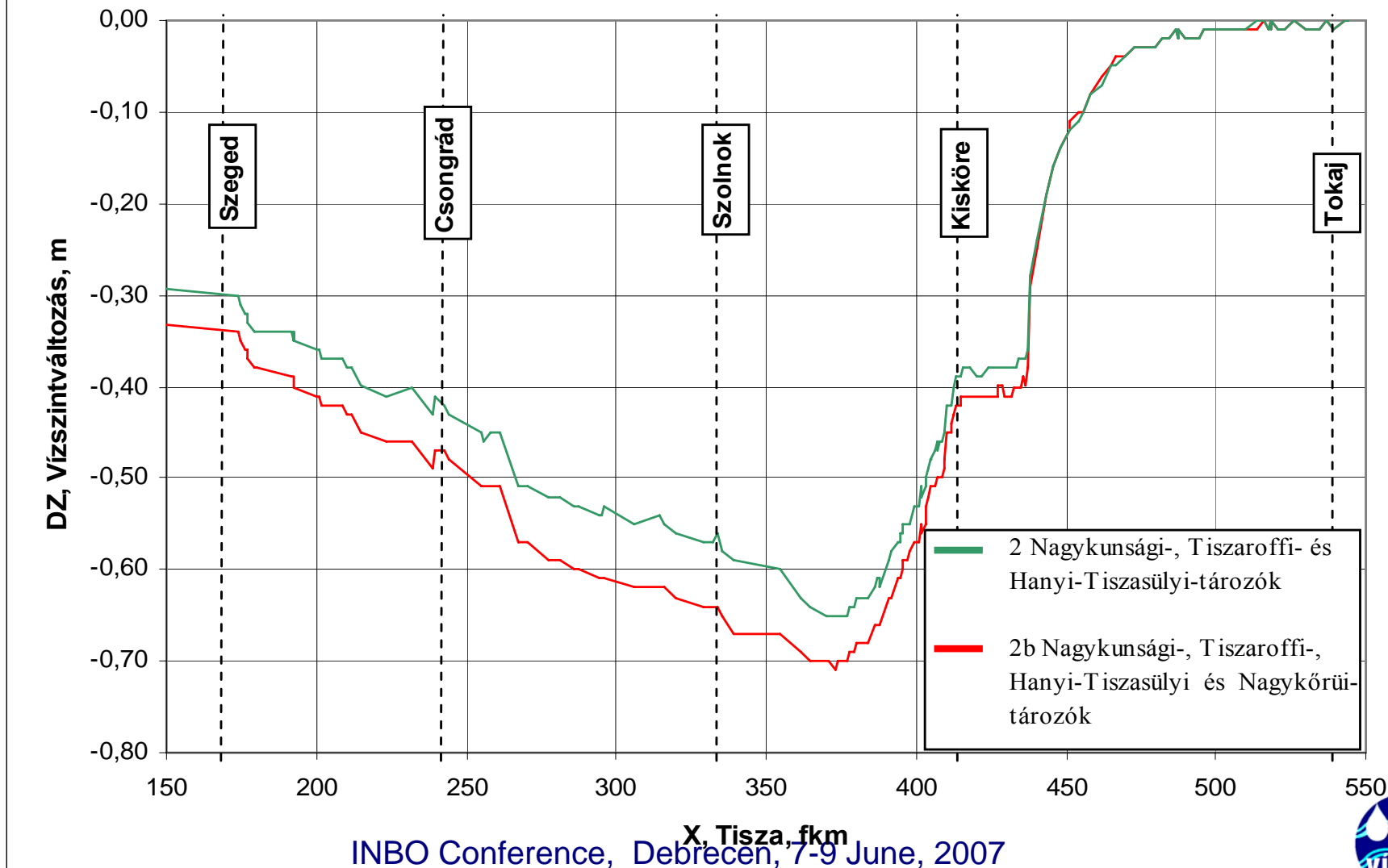
Cost: HUF 260 billion (€ 1000 M)

Result:

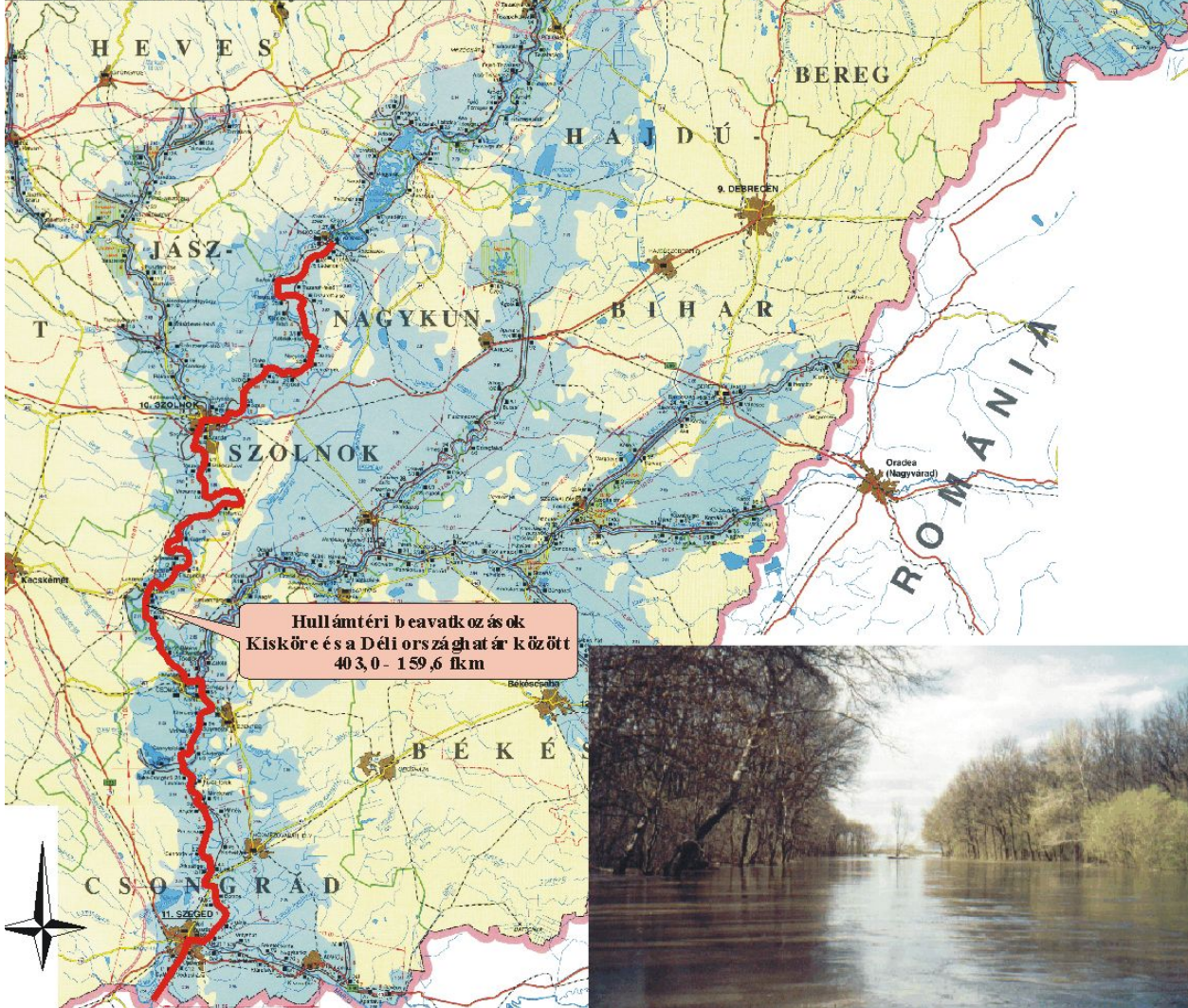
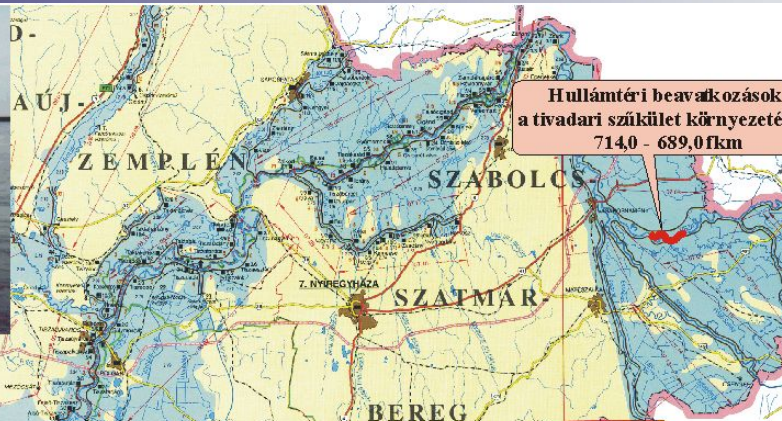
- Flood crest reduction by ~ 0,6-1,0 m;
- protection against 1 in 1000 yrs floods

Depression of flood crests by the flood detention basins planned in Phase I of the programme along the Middle-Tisza

A Közép-Tiszai tározók vízszintcsökkentő hatása



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River capacity improvements



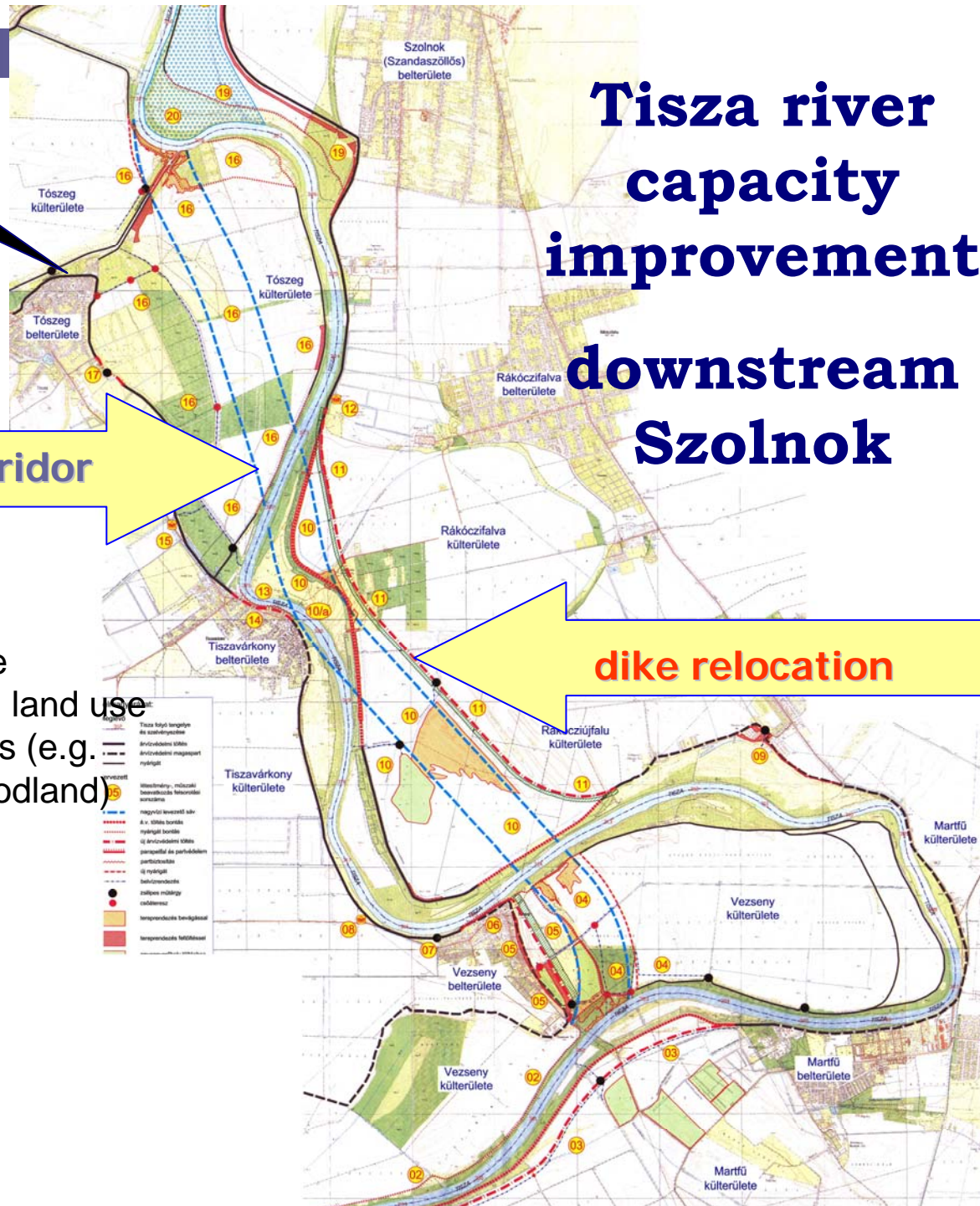
New dike for Tószeg

hydraulic corridor

Tisza river capacity improvement downstream Szolnok

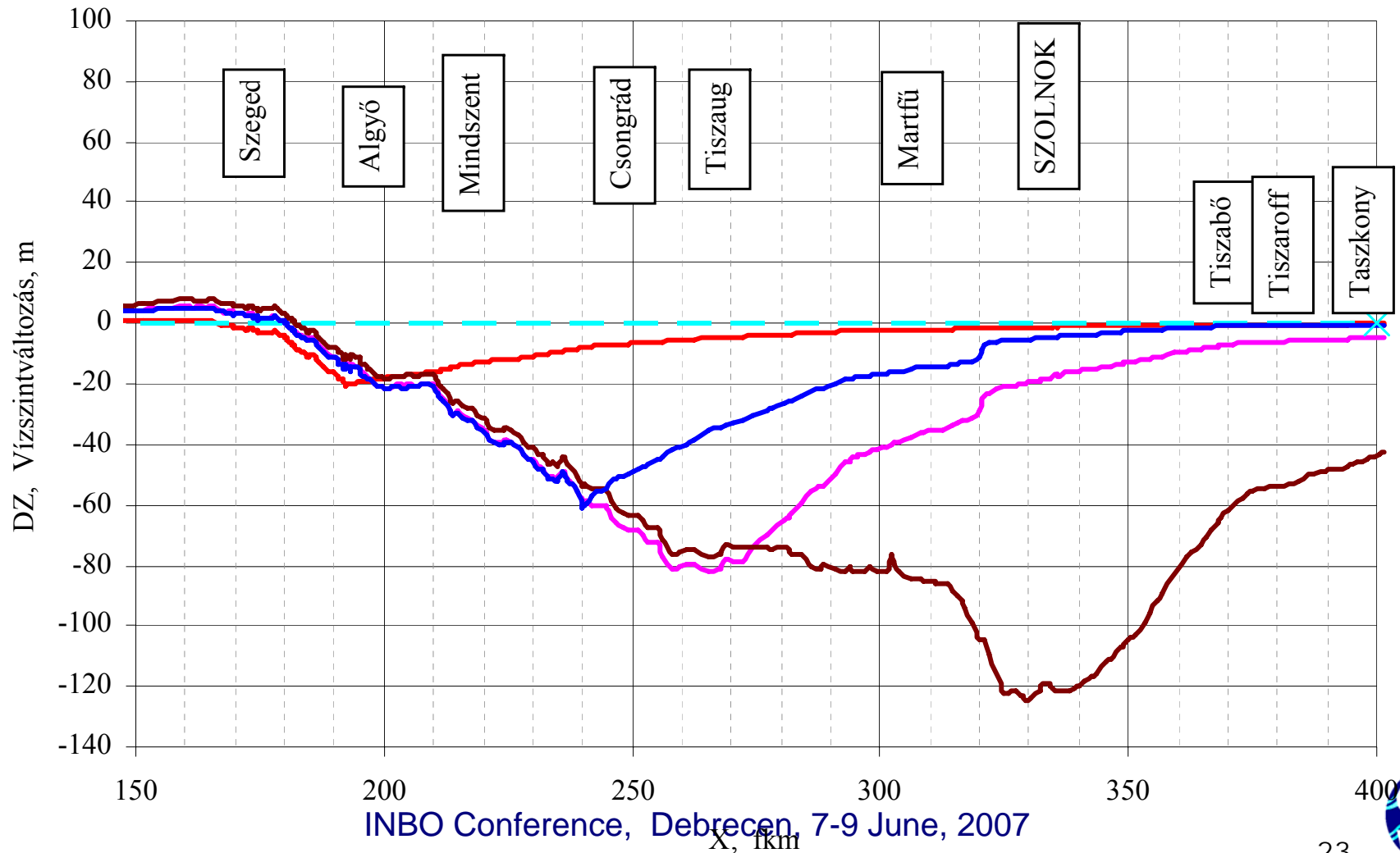
dike relocation

Hydraulic corridor (demolishing man made obstacles and changing land use to ensure low roughness (e.g. pasture with sparse woodland))



Evaluation of the hydraulic effect of the flood routing improvements downstream Kisköre

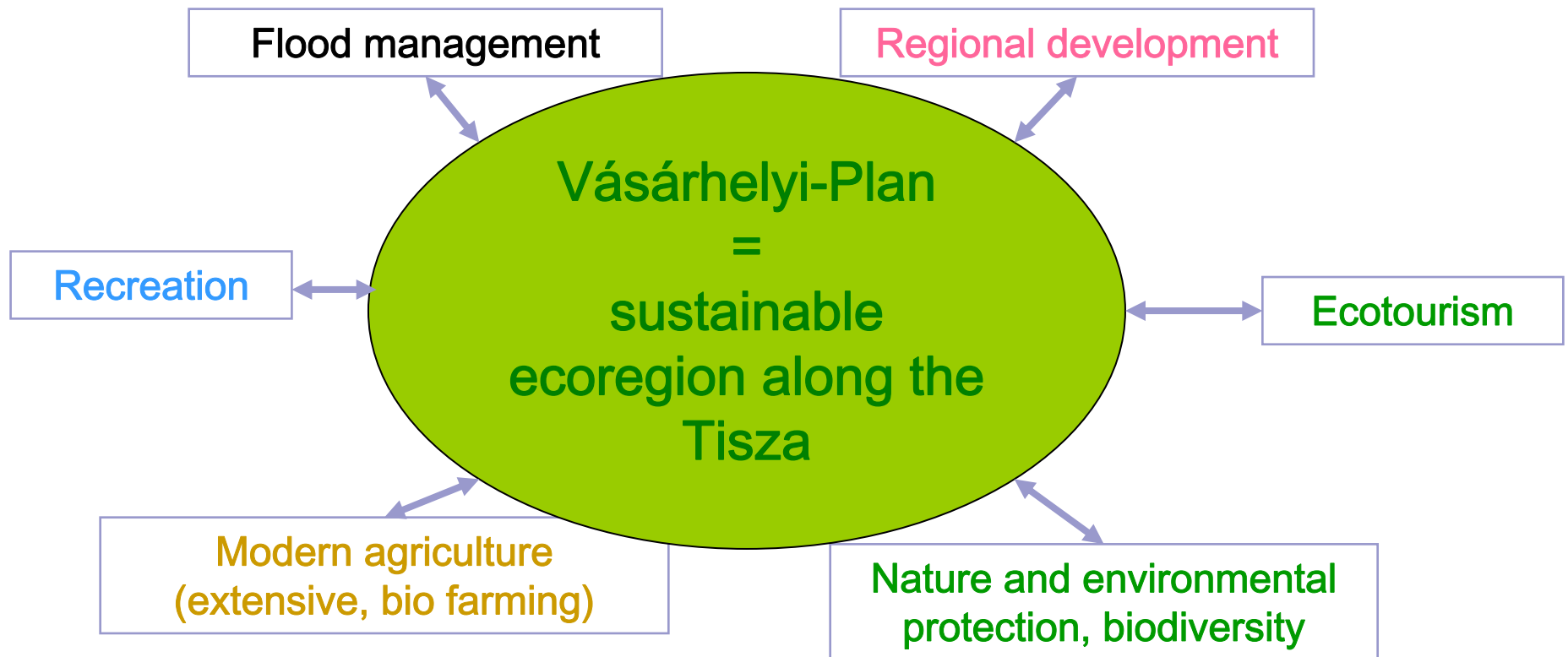
Algyő-, Csongrád-, Tiszaug- és Szajol alatti hullámtér-rendezés hatása a 2000. évi tetőzési vízszintekre



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Complex programme, not just flood safety improvement



Firm legal basis: Act on Implementation of the Vásárhelyi Plan

A large flock of birds, likely terns, is seen flying over a body of water. The birds are scattered across the sky, with some appearing to be landing or taking off from the water. The water is a deep blue color, and the background shows a grassy shoreline. The text "Thank you for your kind attention!" is overlaid in the center of the image.

Thank you for your kind attention!