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Rhine and Tisza Basins
Insights from the NeWater Project

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New approaches to adaptive water management under uncertainty

Transdisciplinary Research Project: FP6 EU

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35 project partners

www.newater.info

NeWater Case Studies

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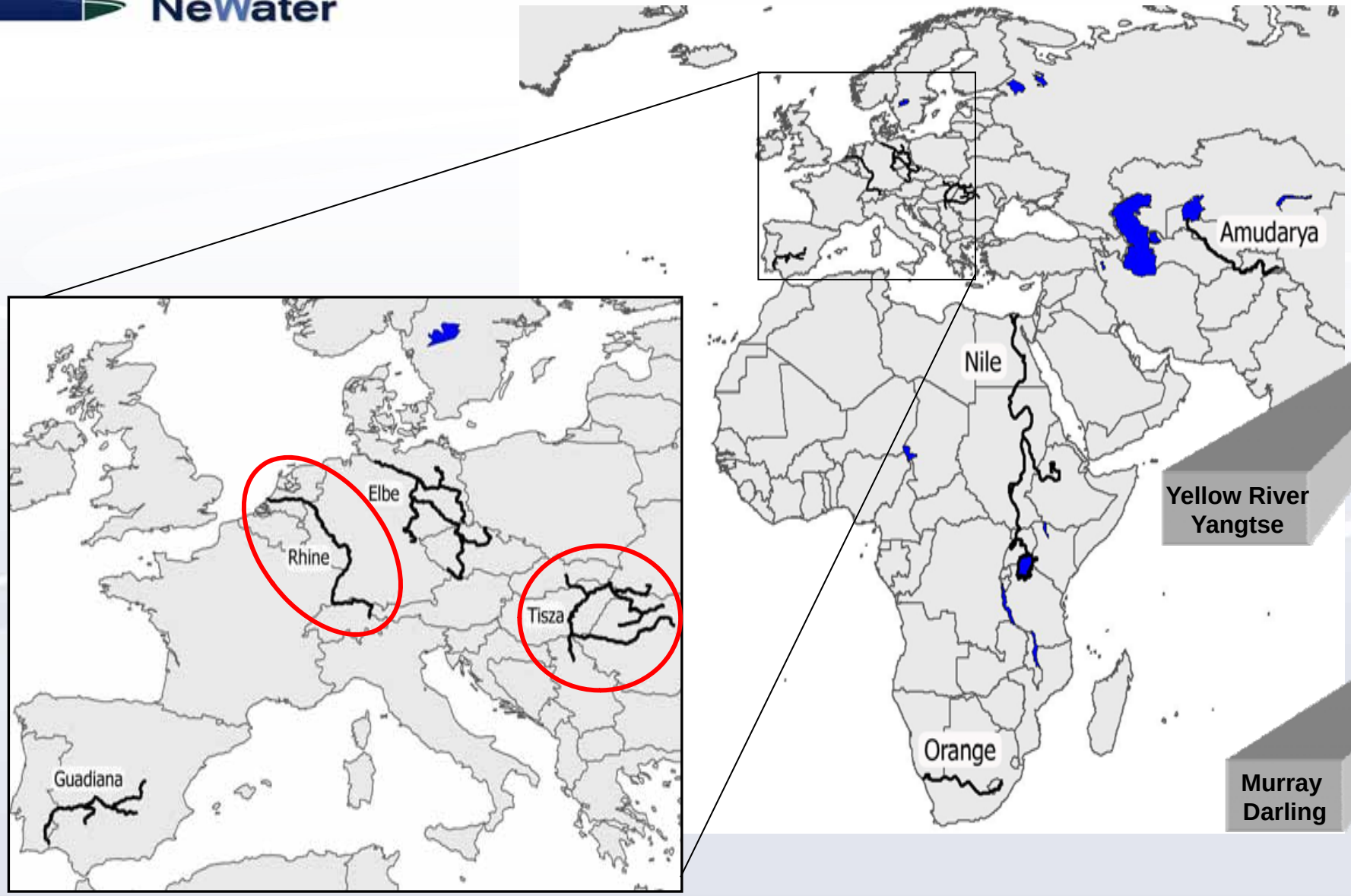

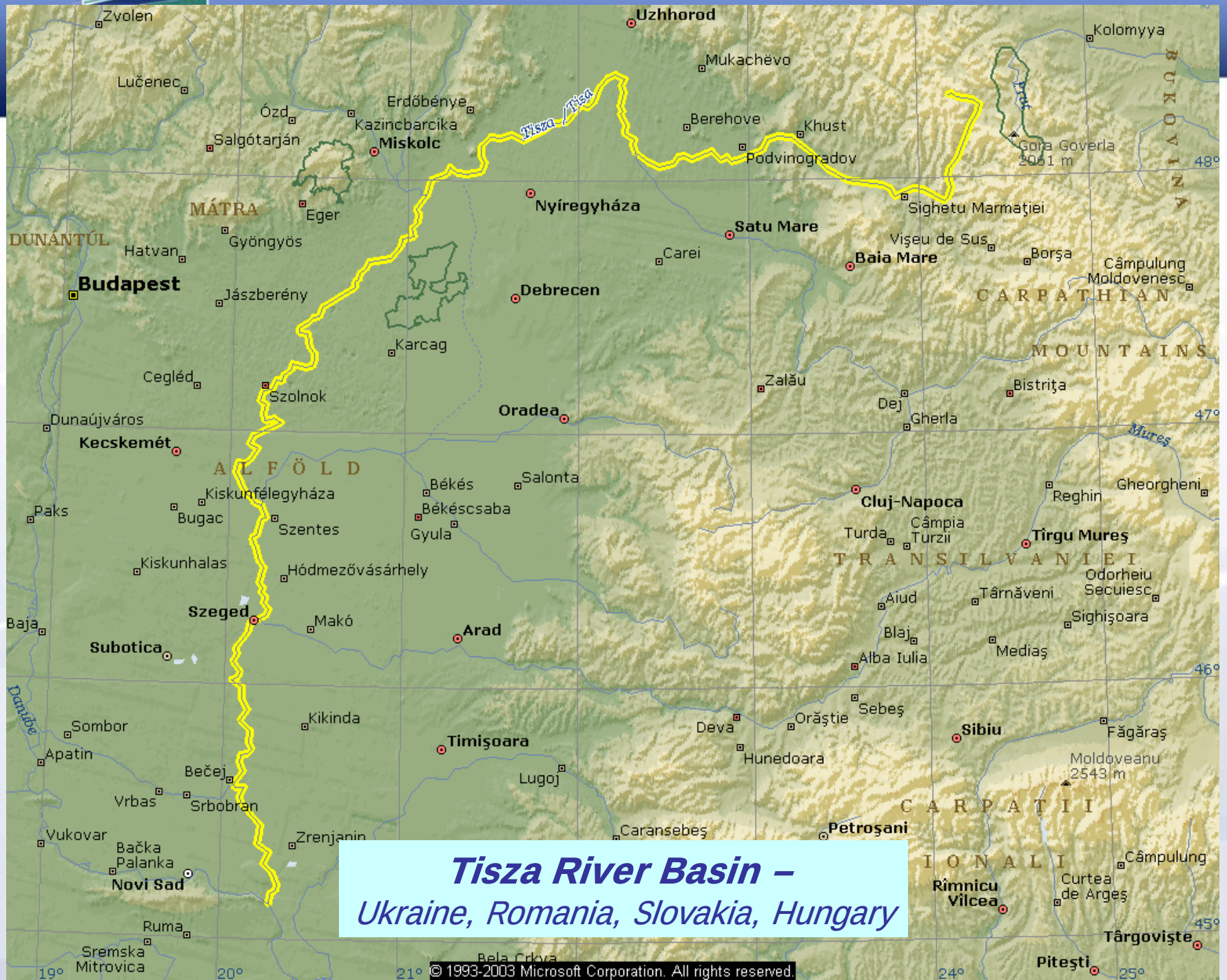

Tisza River Basin –

Ukraine, Romania, Slovakia, Hungary

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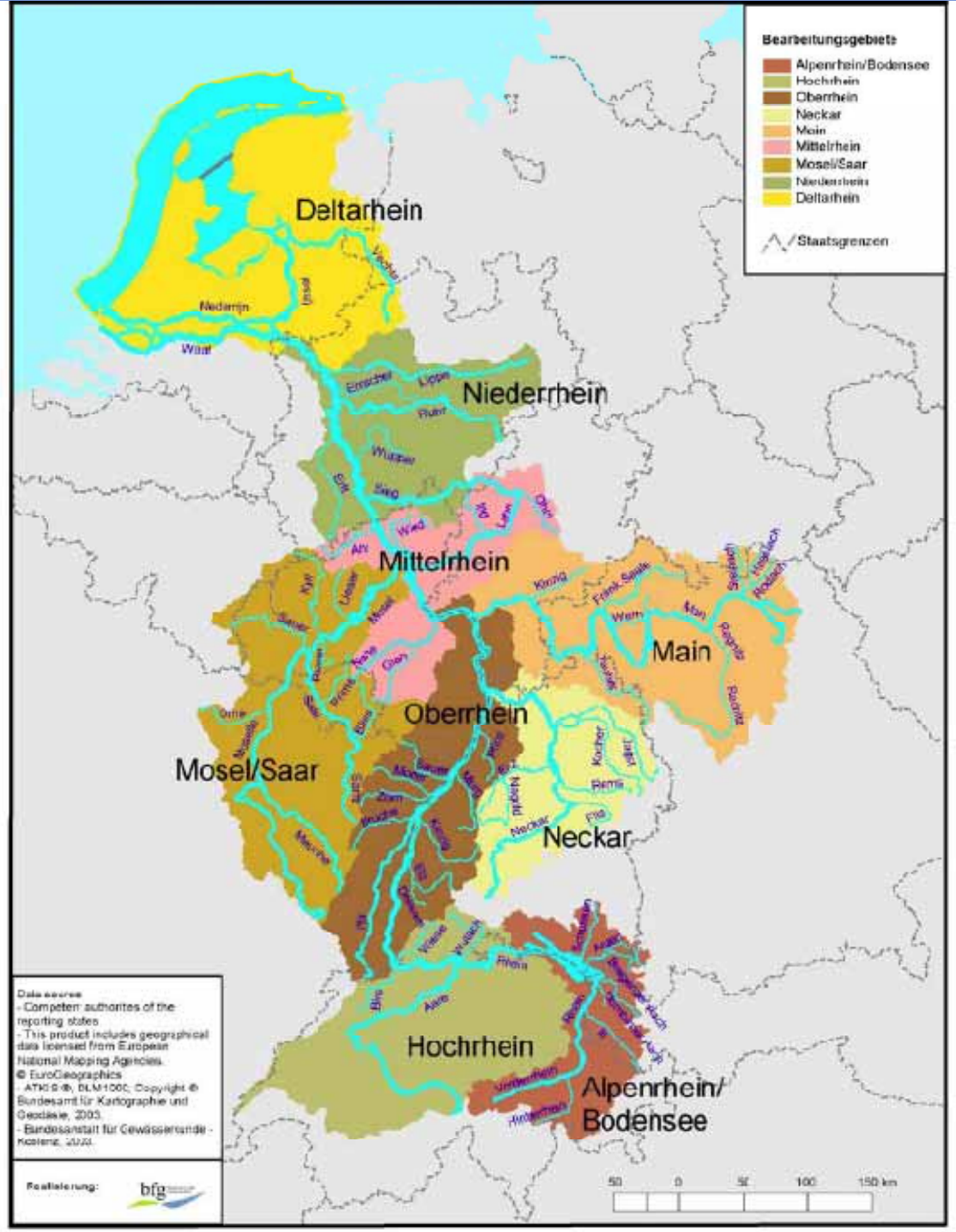
Rhine basin WFD coordination areas



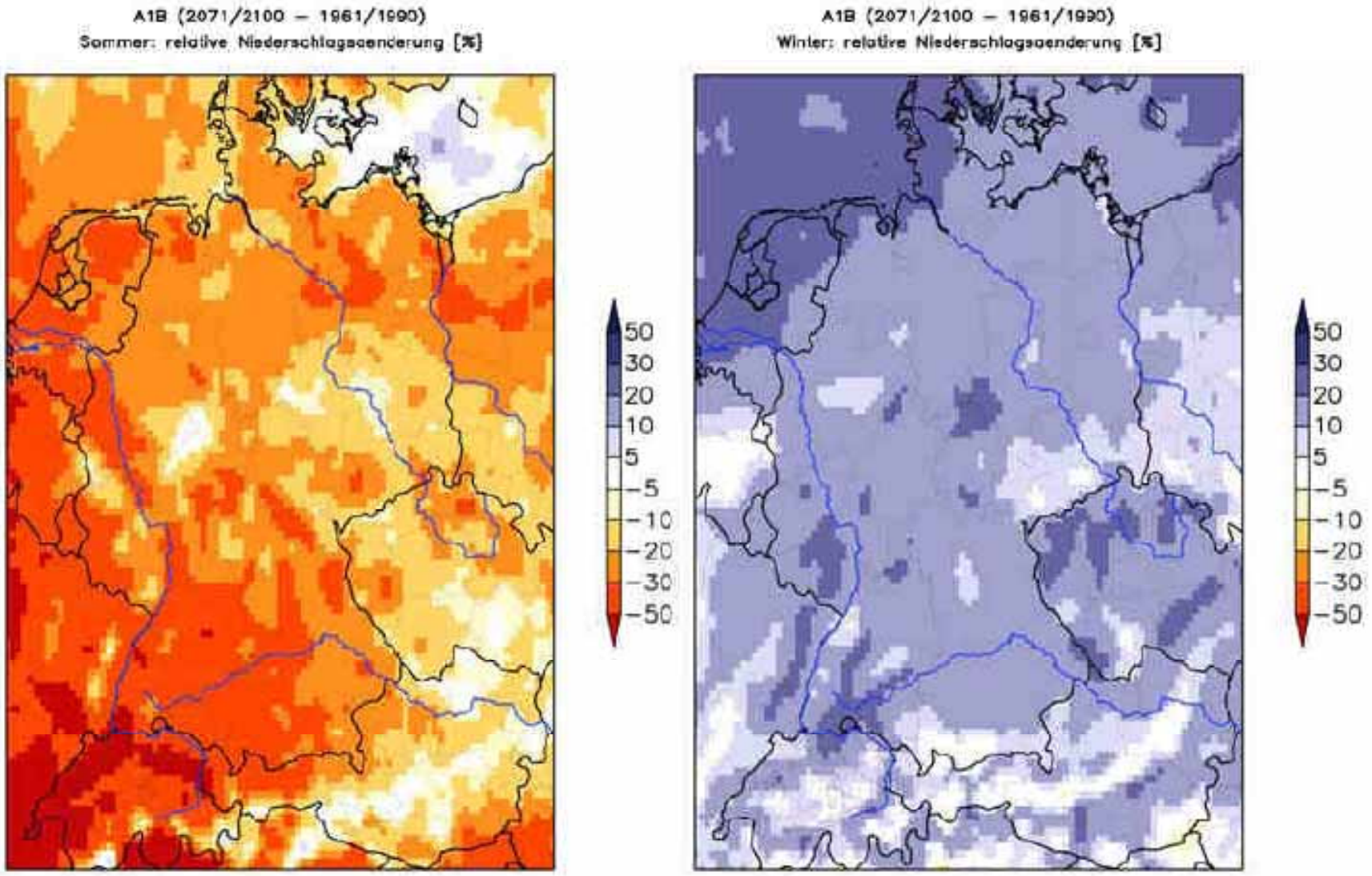


Figure 12: Changes in precipitation [%] in summer (left) and winter (right) for the years 2071-2100 compared to the reference period 1961-1990 (REMO 10 km x 10 km, A1B)

A few figures.....

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Variable	Rhine	Tisza
Water System		
Size Catchment Area [km^2]	185000 (D 58%, NL 12%)	~ 150.000 (H 29%, Uk 8%)
Length river [km]	1320	~1000
Population [p per km^2] Av, min - max	270 264-5000	92 78-102
Societal System		
GDP per capita (PPP corrected)	$34 200 (D) $38 500 (NL)	$6,900 (Uk) $19,000 (H)
HDI (Human development index)	0,935 (D) 0,953 (NL)	0,788 (Uk) 0,874 (H)
CPI (Corruption perception index)	7.9 (D) 8.9 (NL)	2.5 (Uk) 5.1 (H)

Similarities

- ***Highly regulated rivers – history of floods***
- ***Catastrophes trigger change***
  - ***major flooding events***
  - ***pollutions accident***
    (Rhine 1986 Schweizerhalle, Tisza 2000 Cyanide Spill)
- ***Paradigm shift in water management promoted***

Hungarian Tisza River Floodplain

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Pre- and Post- Engineering under original Vasarhelyi Plan (1870)

Tisza's length was lowered by more than 400 kilometers
Floodplain area was lowered from 38500 km^2 to 1800 km^2 (whole basin)

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From Flood Control to Adaptive and Integrated Floodmanagement

Claims for paradigm shift in the Hungarian Tisza and the Dutch Rhine

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Change of management paradigm

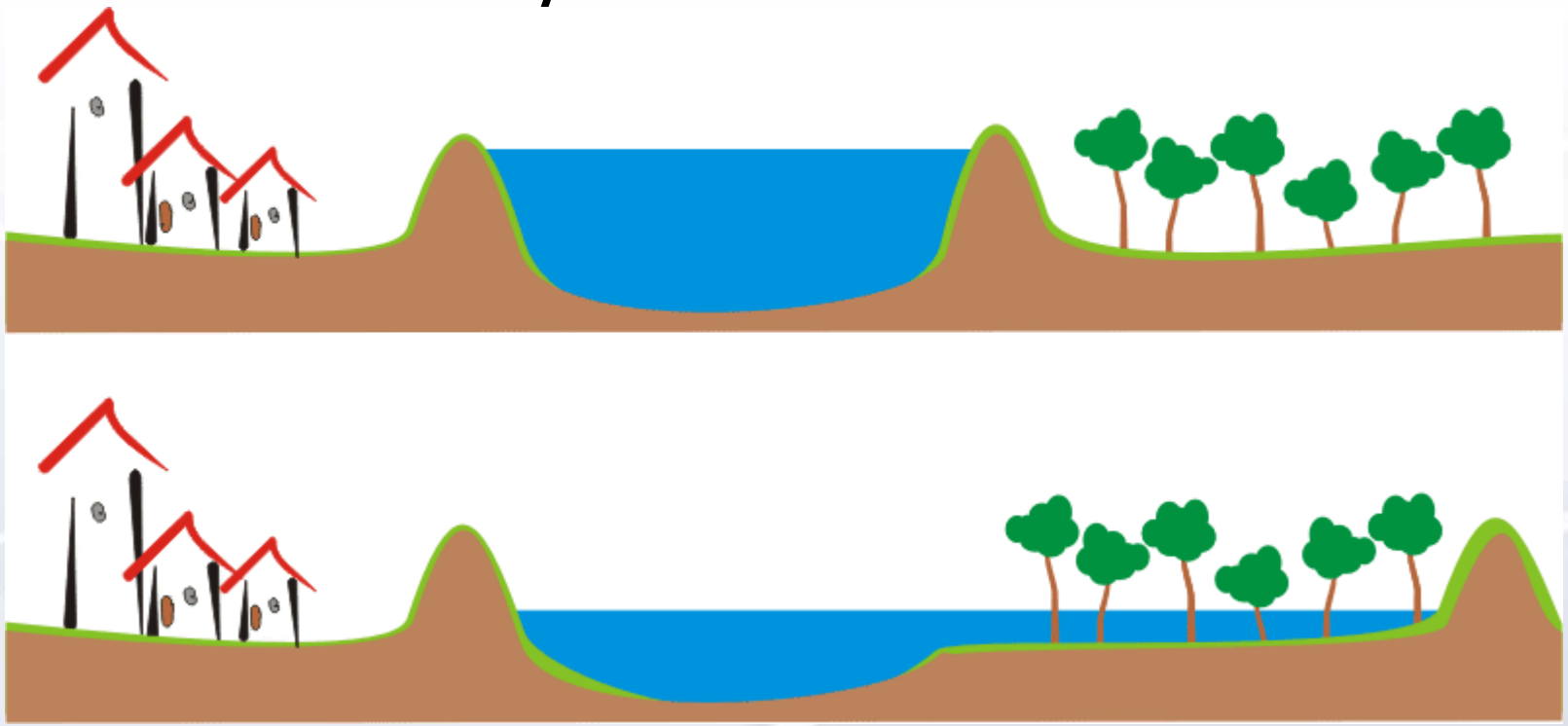
Currently dominating „Controlling water“	New approach „Living with water“
Risiks are quantified and optimal technical solutions are implemented	Participatory risk evaluation and negotiation about integrated solutions
Large-scale technical infrastructure (reservoirs, dams)	Multi-functional landscape with flooding areas combining ecosystem services and technology

„Win-Win“ situation – improve environmental conditions and profit from ecosystem services

Integrated human-environment systems are less vulnerable to climate change

Climate adaptation as an opportunity: Innovations

.... sustainable planning – Space for the river



Attempts for restoration…

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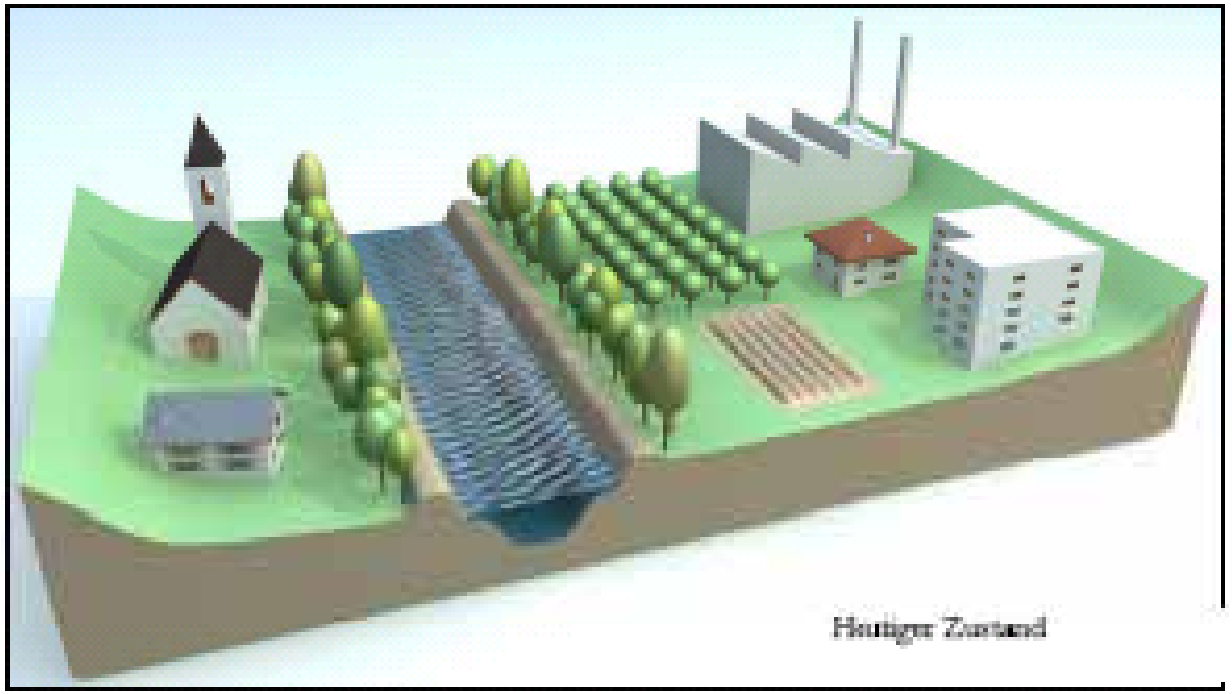
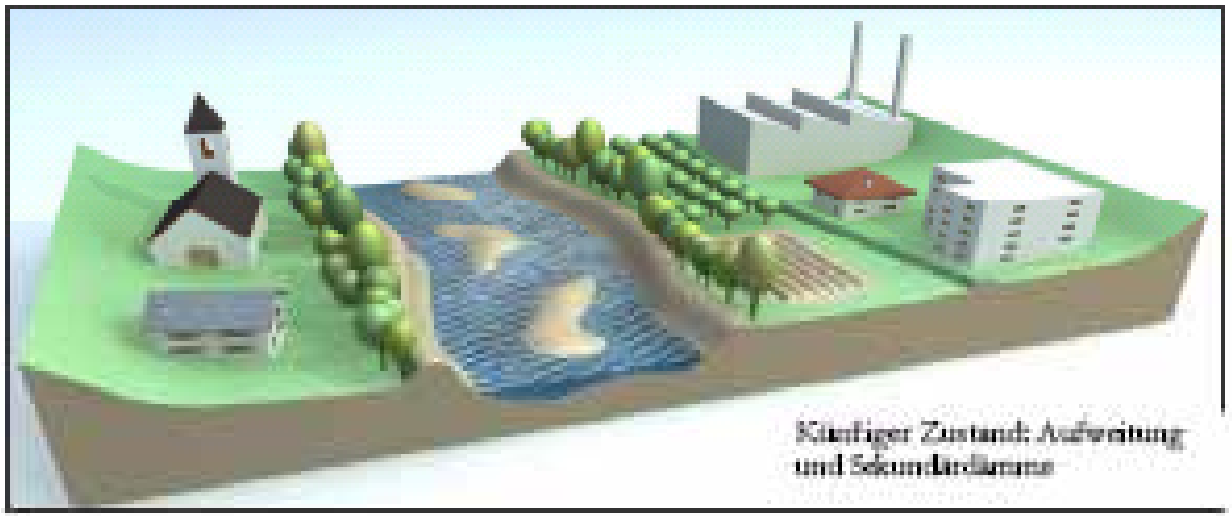
… competition for space





Which insights can be transferred regarding characteristics of and transitions towards more integrated and adaptive governance and management regimes?

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Twin2Go

Coordinating **Twin**ning partnerships **to**wards more adaptive **Go**vernance in river basins

A diagnostic approach

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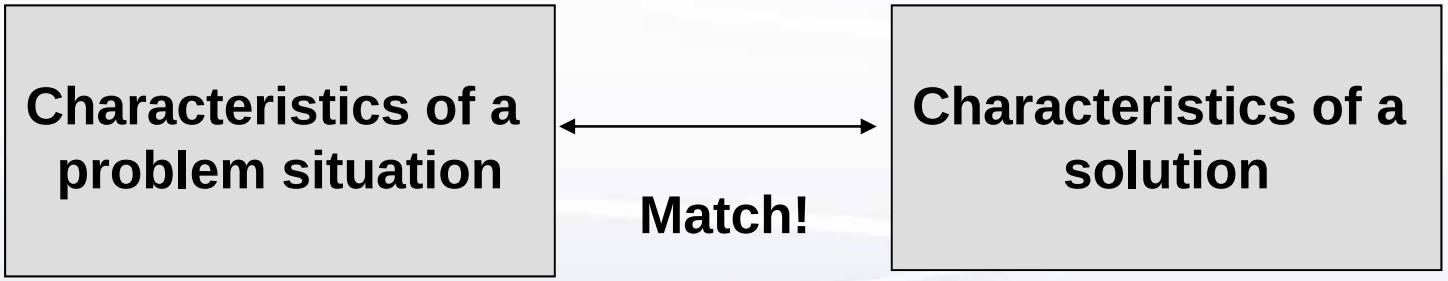

No panaceas but context sensitive solutions (processes, instruments….) to improve the performance of water governance and management

A diagnostic approach cont…

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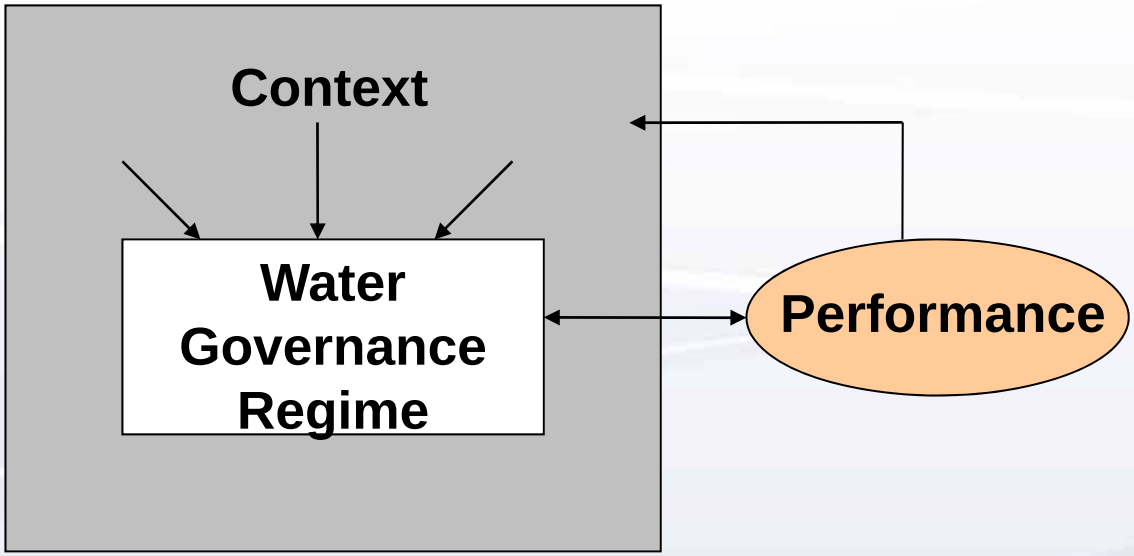

Analyse how certain characteristics of a water governance regime influence its performance given a certain context in which the regime is embedded

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Gold mining and cyanide spill

Basel – Schweizerhalle, Nov 1986

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Socio-Economic Decline

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County in the HTRB **Ratio County / National**	**Contribution of agriculture to GDP in the coun** **4.8**	**Percentage unemployed** **1.7**	**No. of cars/100 habitants** **0.6**	**Migration from the region(%)** **1.5**
National Average	*3.7*	*7.2**	*23*	*1.4*
Szabolcs Szatmár	**15.30**	**15.40**	**13.60**	**2.27**
Hajdu Bihar	**11.60**	**13.20**	**12.40**	**1.90**
Bács-Kiskun	**21.30**	**6.50**	**19.20**	**1.85**
Békés	**23.40**	**12.70**	**11.90**	**2.10**

source: MoEW 2005 p.21

Questions

- ***What are essential elements needed to understand the complex dynamics of water governance and management regimes and their ability to cope with future challenges such as climate change?***
- ***How can one analyse and assess the adaptive capacity of water systems and the role of management strategies for its enhancement?***
- ***What determines the dynamics of transitions to adaptive management, what are barriers and what are drivers?***

Objectives Twin2Go

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- elaborate a diagnostic approach
- draw appropriate context-sensitive approaches for improving adaptive water resources management
- formulate best practices and tools for implementing adaptive water governance and for improving the up-take of research results
- disseminate consolidated results to policy at multiple levels