Rhine and Tisza Basins
Insights from the NeWater Project

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NeWater

New approaches to adaptive water management under uncertainty

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35 project partners

www.newater.info
Tisza River Basin - Ukraine, Romania, Slovakia, Hungary
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)
### Variable

<table>
<thead>
<tr>
<th></th>
<th>Rhine</th>
<th>Tisza</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water System</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size Catchment Area</td>
<td>185000 (D 58%, NL 12%)</td>
<td>~ 150.000 (H 29%, Uk 8%)</td>
</tr>
<tr>
<td>Length river [km]</td>
<td>1320</td>
<td>~1000</td>
</tr>
<tr>
<td>Population [p per km²]</td>
<td>270 264-5000</td>
<td>92 78-102</td>
</tr>
<tr>
<td><strong>Societal System</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP per capita (PPP corrected)</td>
<td>$34 200 (D) $38 500 (NL)</td>
<td>$6,900 (Uk) $19,000 (H)</td>
</tr>
<tr>
<td>HDI (Human development index)</td>
<td>0,935 (D) 0,953 (NL)</td>
<td>0,788 (Uk) 0,874 (H)</td>
</tr>
<tr>
<td>CPI (Corruption perception index )</td>
<td>7.9 (D) 8.9 (NL)</td>
<td>2.5 (Uk) 5.1 (H)</td>
</tr>
</tbody>
</table>
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
Tisza’s length was lowered by more than 400 kilometers
Floodplain area was lowered from 38500 km² to 1800 km² (whole basin)
From Flood Control to Adaptive and Integrated Floodmanagement

Claims for paradigm shift in the Hungarian Tisza and the Dutch Rhine
## Change of management paradigm

<table>
<thead>
<tr>
<th>Currently dominating „Controlling water“</th>
<th>New approach „Living with water“</th>
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</thead>
<tbody>
<tr>
<td>Risks are quantified and optimal technical solutions are implemented</td>
<td>Participatory risk evaluation and negotiation about integrated solutions</td>
</tr>
<tr>
<td>Large-scale technical infrastructure (reservoirs, dams)</td>
<td>Multi-functional landscape with flooding areas combining ecosystem services and technology</td>
</tr>
</tbody>
</table>
„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...

... competition for space
Which insights can be transferred regarding characteristics of and transitions towards more integrated and adaptive governance and management regimes?
Twin2Go

Coordinating Twinning partnerships towards more adaptive Governance in river basins
A diagnostic approach

No panaceas but context sensitive solutions (processes, instruments....) to improve the performance of water governance and management.
Analyse how certain characteristics of a water governance regime influence its performance given a certain context in which the regime is embedded.
Gold mining and cyanide spill
### Socio-Economic Decline

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

*source: MoEW 2005 p.21*
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

- 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