BELÜGYMINISZTÉRIUM

Groundwater Management: Challenges and Prospects – Hungarian experience

3 rd INTERNATIONAL CONFERENCE ON WATER AND CLIMATE Basin management, key to adaptation and achieving the Sustainable Development Goals
Thursday 6th and Friday 7th of July 2023 Marriott hotel, Fez, Morocco

Péter Kovács

Water Director of Hungary

Ministry of Interior

2000/60/EC Water Framework Directive
Groundwater Directive 2006/118/EU (GWD)

Scope
- Covers all waters and all impacts

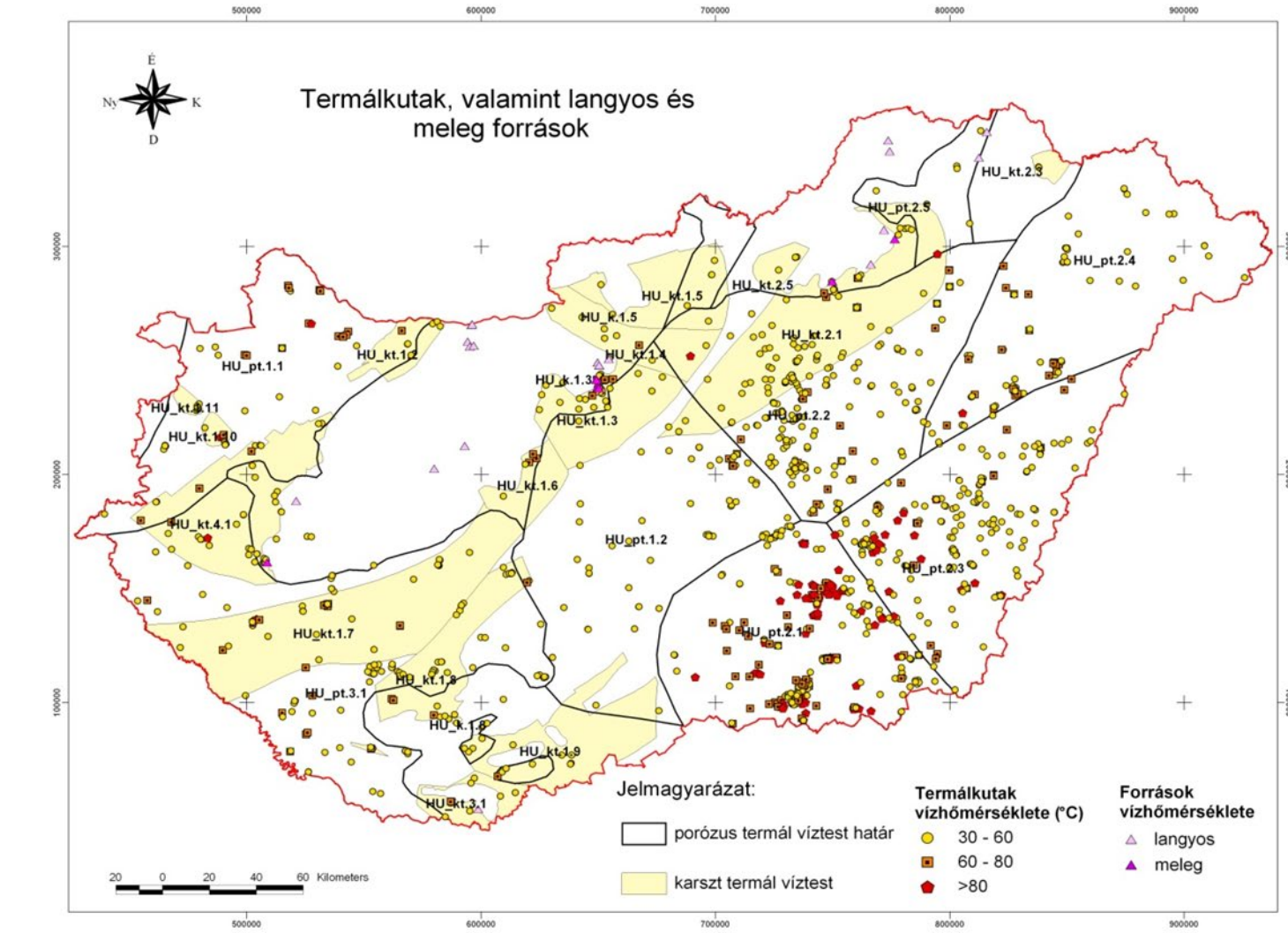
Objectives
- Protect and enhance water bodies
- No deterioration
- Achieving good status of all waters in Europe by 2015

Tools
- River Basin Management Plans
- Programmes of Measures review
- In 6 years
- Economic instruments
- International cooperation
- Public participation

Groundwaters in Hungary

- **95% of drinking water from groundwater**
- other significant water uses (e. g. irrigation, thermal water uses)
- provides baseflow for surface waters and groundwater dependent ecosystems
- ensures local water balance

Growing importance due to climate change!


Termálkutak, valamint langyos és meleg források
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600000
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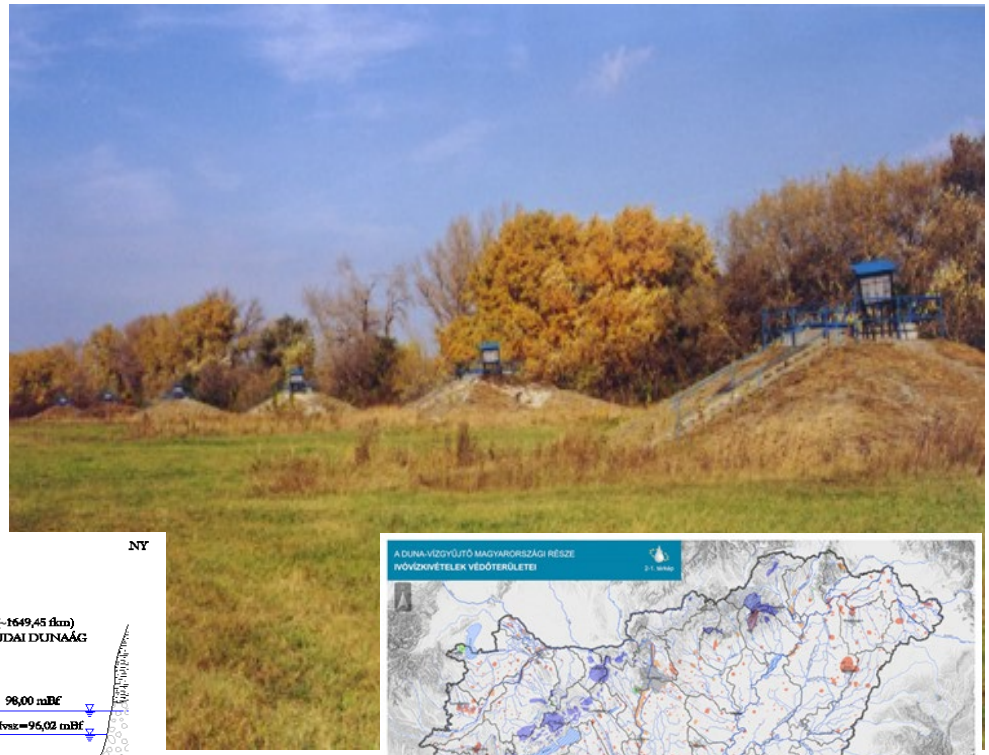
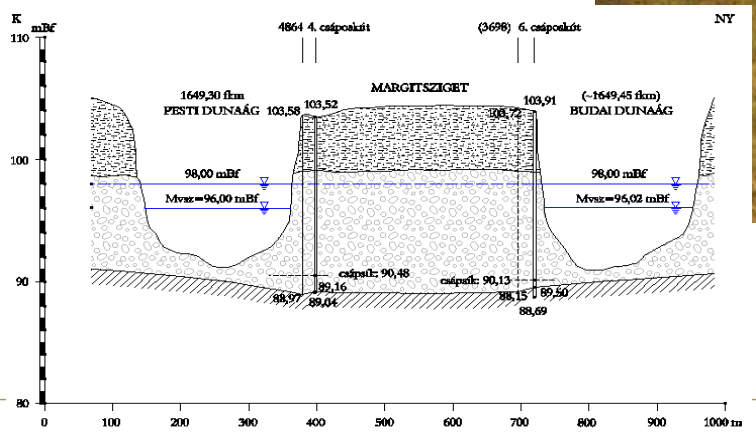
Jelmagyarázat:
porózus termál víztest határ
karszt termál víztest
Termálkutak vízhőmérséklete (°C)
30 - 60
60 - 80
>80
Források vízhőmérséklete
langyos
meleg
20 0 20 40 60 Kilometers
20 0 20 40 60 80 100 km
0
1 - 100
101 - 200
201 - 500
501 - 700

Drinking water in Hungary

- 95% groundwater
  - bank filtration
  - karst aquifers
  - porous aquifers

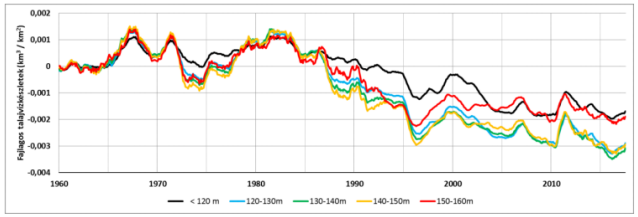
- 5 % surface water



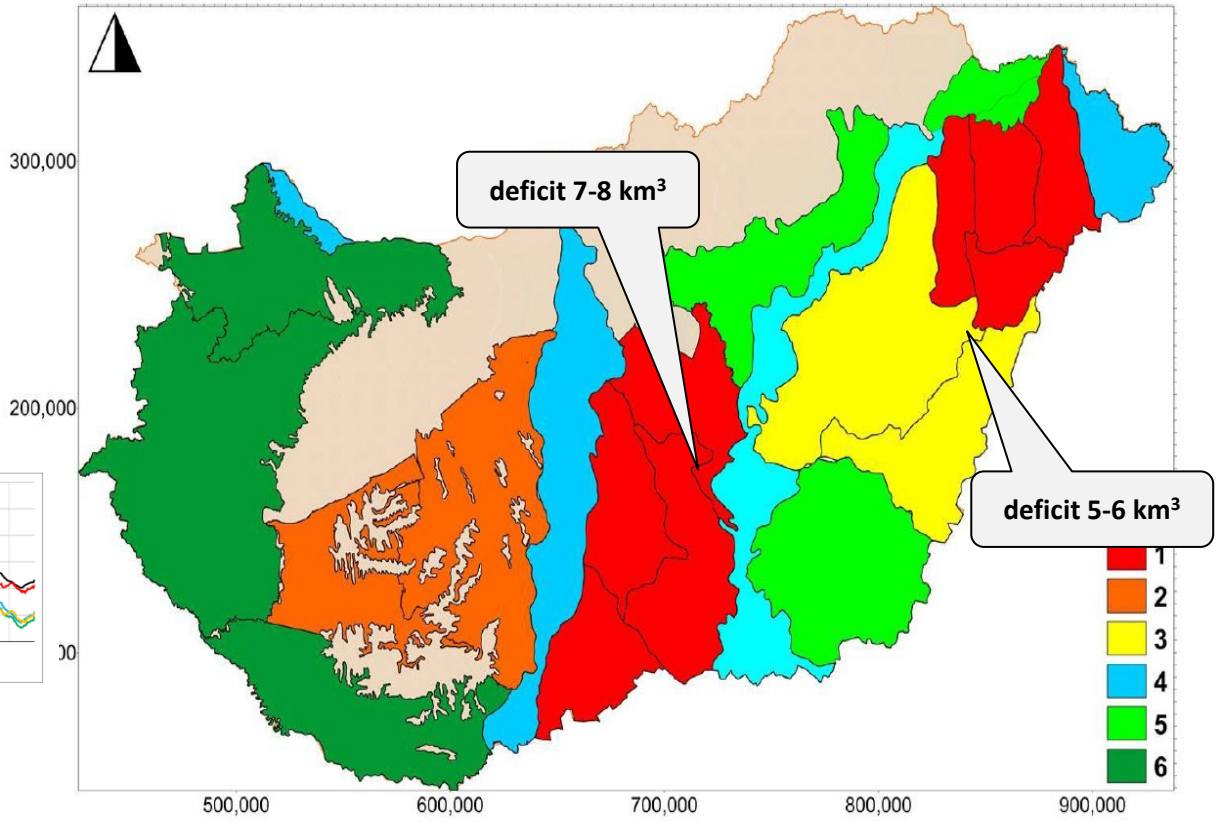


Vulnerability of shallow groundwater resources to climate change and irrigation

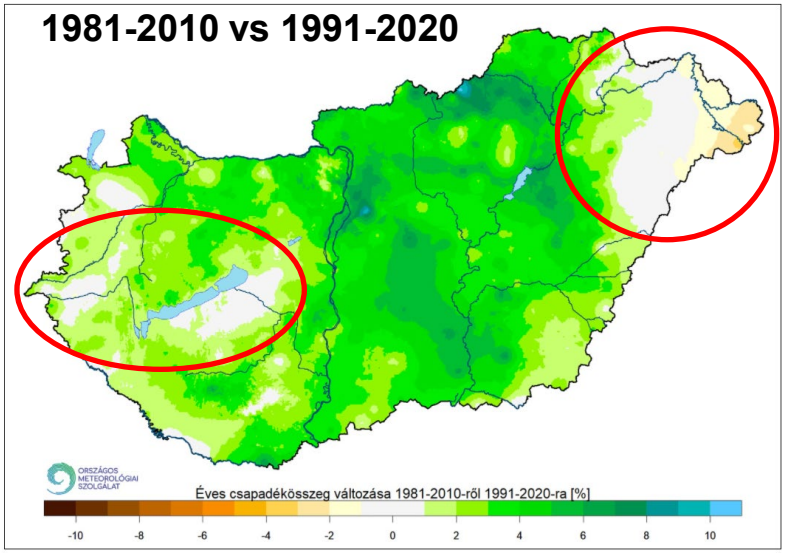
1. Highly vulnerable (significant water scarcity)
2. Vulnerable (recovery in years with high precipitation, but quick and significant decrease in water scarce periods)
3. Moderately vulnerable (significant climate impacts but mitigation from the surface – excess water. irrigation)
4. Vulnerability mitigated by large rivers
5. Small vulnerability (recharge from mountainous areas)
6. Less vulnerable (much precipitation, no or little extremities)

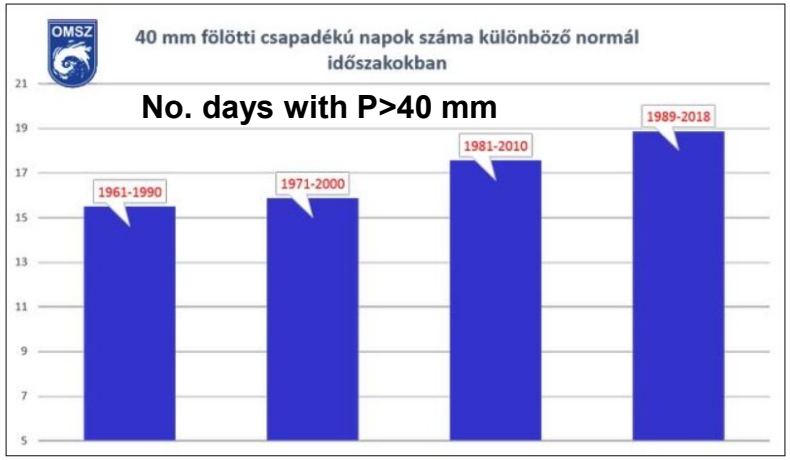


Shallow gw level Nyírség

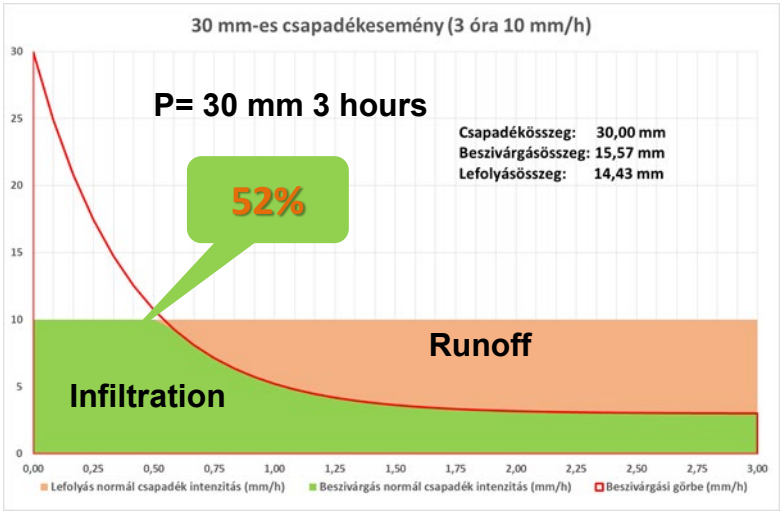


Precipitation

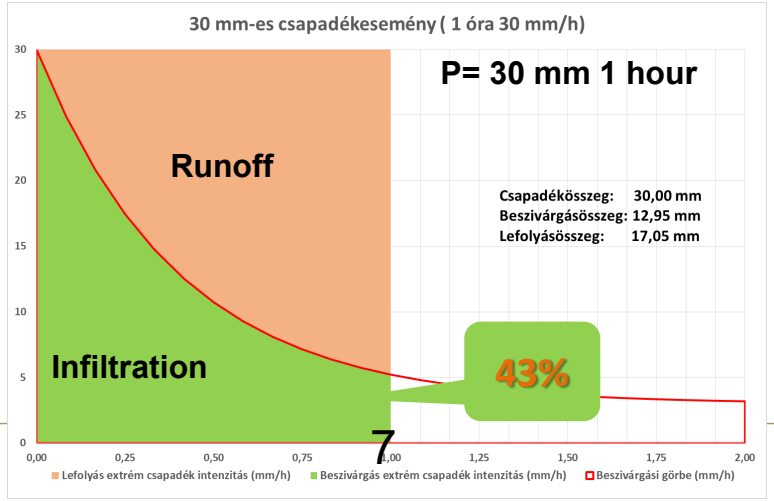




Infiltration / Runoff



Intensity of precipitation – change in rate of infiltration/runoff



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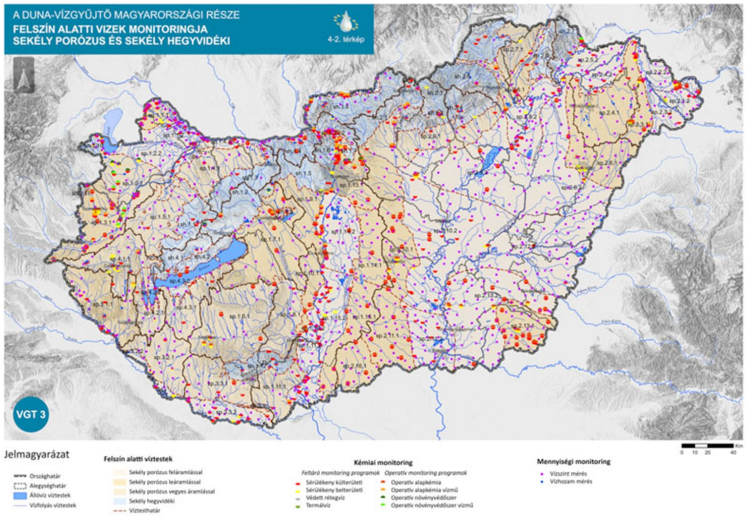
Risk on groundwater bodies

- Overabstraction,
- Increased utilisation of thermal waters (energy prices)
- Risk of contamination of deeper aquifers
- Gravel mining lakes: increasing evaporation, high risk of pollution

WEB page with useful information on proper and legal well establishment

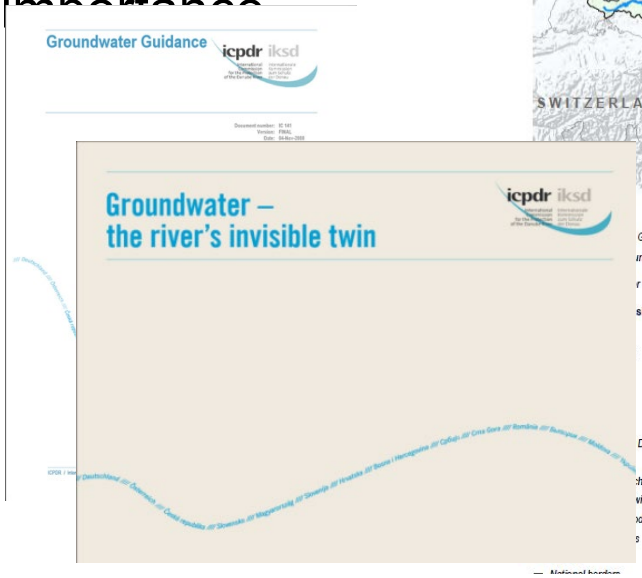
Possible measures
- artificial recharge, managed aquifer recharge
- reuse of (treated waste) waters
- restrictions, licensing
- Natural Water Retention Measures
- CAP measures, WFD compensation
- education, public awareness raising
- technical protection
- monitoring, control

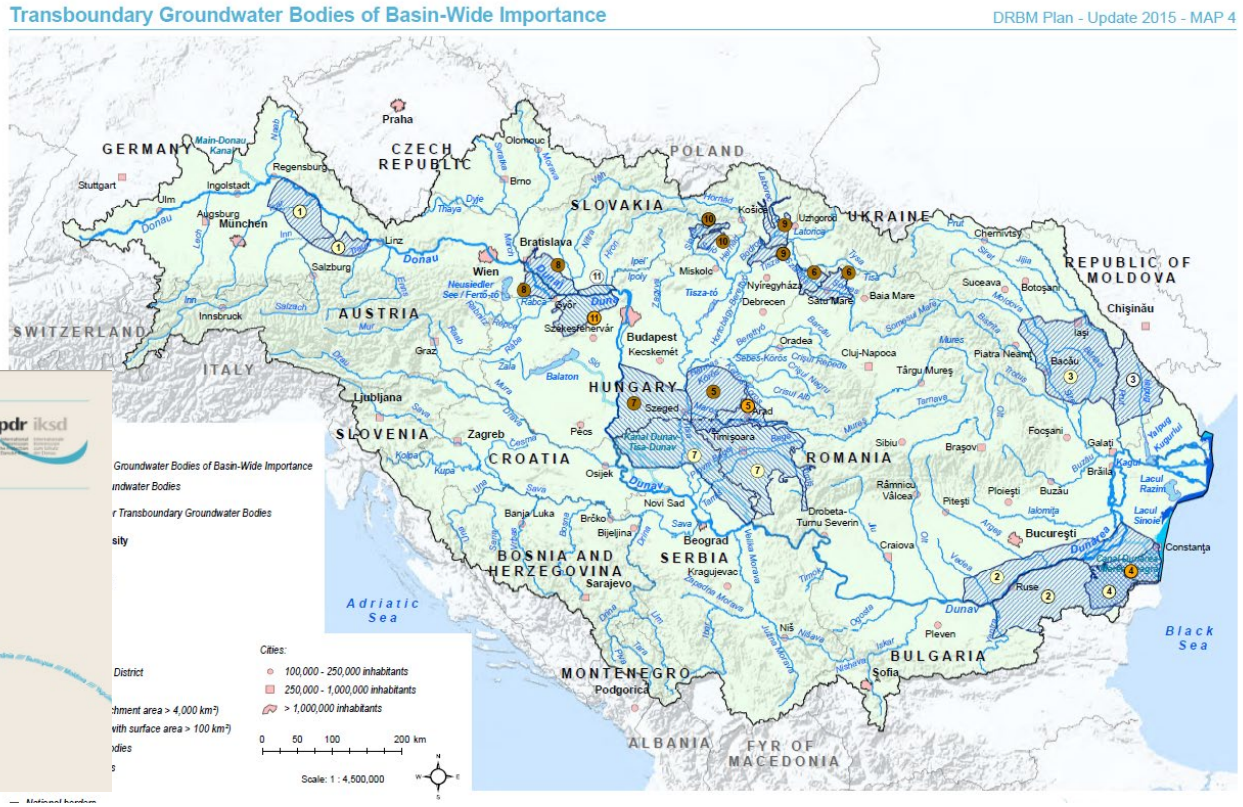


International cooperation

WATER COMMISSIONS with neighbouring countries
bilaterally agreed joint groundwater bodies

ICPDR
groundwater
bodies of basin-wide
importance






Thank you for your kind attention !
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