MANAGING A TRANSBOUNDARY DEEP GROUNDWATER BODY

M. Samek, A. Scheidleder, C. Schilling
GEOGRAPHICAL SITUATION
PROBLEM

• Different intensive use of thermal groundwater on both sides
  – Spa (Germany)
  – Hydro Geothermal (Austria)

• Decreasing of observed water pressure
  – Less water
  – Higher costs

• Transboundary groundwater body
  – Different legal regulations
  – Different administrative structures
  – Different interests
  – Different culture to solve problems
LEGAL FRAME

REGensburg Treaty

- International Treaty on Water Management Cooperation in the Danube River Basin
- Establish 1987
- Permanent bilateral Water Commission Austria - Germany

Expert Group “Thermal water” was installed 1992 and instructed

- to supervise the elaboration of the groundwater model
- to make proposals on how to manage the groundwater resource
- to lead and accompany the management
MANAGEMENT STRATEGIES I

• Investigations and Studies
  - Hydrogeological Model (Conceptual Model) 1996
  - 2D - Mathematical Groundwater Model 1998
  - Hydraulic-Thermal Combined Groundwater Model 2007
  - Deficit analysis (2012) and model revision (ongoing)

• Exchange of relevant information and data
  ➢ Austrian – German Expert Group “Thermal Water”

  Report about:
  - Current development
  - Planned projects
  - Collected data
  - Experience with guideline papers

  Basis for:
  - Prepare further investigations
  - Information to a wider audience (public information)
MANAGEMENT STRATEGIES II

• Guideline Papers

  Content:
  - Management principles
  - Dimensioning of plants for the thermal water use
  - Required application documents
  - Catalogue of requirements
  - Model Application

• Monitoring, data collection and reporting

  Principles:
  - Sufficient Management needs relevant data
  - Combined and harmonised monitoring programme

  Data:
  - presented and documented in annual status reports
  - compiled and summarized in five years special reports
  - accessible to the administration
MANAGEMENT STRATEGIES III

• Application, maintenance and further development of the mathematical groundwater model

  Mathematical Model is a relevant instrument for managing the deep transboundary groundwater body
  - Evaluate required water abstraction
  - Prognoses for management
  - Statements about existing thermal water use

  Basis for water law approval process on both sides

  In guideline papers determined
  - Application, maintenance and further development
  - Documentation of the calculations
CONCLUSIONS

**Step 1:** (socio-economic and institutional aspects)
- Problem - Identification
- Installation of an expert group
- Common approach to solve the problem
- Cooperation between administration, expert group and scientists

**Step 2:** (hydrogeological aspects)
- Delineation and description
- Data collection
- Hydro geological / conceptual model
- 2D-groundwater model

**Step 3:** (Legal aspects)
- Legal and institutional cooperation
- Guidelines – managing and protection
- Recommendations – use of the guidelines
ICPDR GUIDANCE FOR TRANSBOUNDARY GW BODIES

- ICPDR is mandated to elaborate a **Danube River Basin Management Plan** based on National River Basin Management Plans of Danube Countries

- **Guidance for transboundary GW bodies** to support DRBM elaboration and to provide:
  
  - **Guidance** on the **selection and characterisation** of GWBs of basin wide importance, **monitoring**, **data reporting**… with focus on WFD requirements
  
  - **Templates** to support structured and harmonised information and data exchange