



Conceptual model for groundwater in CR

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What is a conceptual model?

- ✓ A conceptual model is the basis for reliable decisions in groundwater risk assessment and management (Guidance 26)
- ✓ An instrument for:
 - Experts discussing, developing and complementing their understanding of the groundwater system;
 - Communication with the public and decision makers: making non-experts understand how an aquifer system is working;
 - Understanding and visualization of both simple and complex groundwater bodies, depending on the purpose;



What is a conceptual model?



An instrument for:

- Assessing risks related to groundwater;
- Visualisation of how, where and when risks may impact groundwater;
- Planning of monitoring systems and measures to protect or remediate groundwater;
- Prediction of the effects of measures;
- Providing a reliable basis for simulating and predicting processes in groundwater with mathematical or numerical models;



What is a conceptual model?



An instrument for:

- To help an assessor identify whether a groundwater body achieves environmental objectives acc. to the WFD;
- To identify the reasons why a groundwater body fails any status objectives;
- To allow short-listing of the potential measures that are most likely to remedy the situation in an effective and sustainable manner;
- Justifying exemptions/alternative objectives where there is a risk of failing to achieve good groundwater status.



Conceptual model proposal in CR

- ✓ Groundwater data and information collection;
- ✓ Spatial unit: groundwater body, working unit;
- ✓ Understanding and visualisation of simple and complicated groundwater bodies and their parts;
- ✓ Summary of natural characterisation, significant anthropogenic pressures, quality and quantity of groundwater information including assessment (risk assessment, status, exemptions);
- ✓ Summary of relevant pilot or regional studies, hydrogeological surveys, research projects



Conceptual model proposal in CR

- ✓ Simple data structure;
- ✓ All necessary information for River basin management plans and similar activities
- ✓ Collection of data (e.g. monitoring stations), assessment of data (e.g. pollutants above limits), maps (e.g. localisation of monitoring points), outputs (e.g. chemical status of groundwater bodies or working units or percentage of soil use);
- ✓ Different level of detail according to the natural conditions, anthropogenic pressures and data availability



Solution for Povodí Vltavy

- ✓ Output: lists of groundwater bodies and their working units;
- ✓ lists of groundwater bodies are automatically generated by special software from Water Research Institute (output: PDF files)
- ✓ Update of lists is possible anywhere with change of data
- ✓ List structure: brief texts, maps, tables, graphs, figures



Use of conceptual model

- ✓ Mainly for River basin management plans (characterisation, risk assessment, significant anthropogenic pressures, status assessment, exemptions)
- ✓ Other activities (authorisation etc.)
- ✓ Data collection and reporting (ministeries, international commissions, reporting to European Commission)
- ✓ Outputs for public



Thank you for your attention