

## Groundwater: From Research Challenges to Solutions

8<sup>th</sup> Water Research Horizon Conference

**Open Space Workshop**

20 September 2017

**14:00-16:00**

Hamburg, Germany

**Federal Institute for Geosciences and Natural Resources (BGR), Germany**

Thomas Himmelsbach, Ralf Klingbeil

*moderator / organiser*

<i>Objective</i>	Identify knowledge gaps at global and regional levels, exchange available solutions and further research needs, discuss potential new collaborative approaches the German water science community can contribute at international level.
<i>Expected outcome</i>	Position paper based on global and regional groundwater knowledge gaps (resource status, exploration, exploitation, utilization, management and governance) focusing on available solutions and further research needs with suggestions for possible contributions and integrated approaches from the German water science community.

In the debate about suitable adaptation measures to **increase resilience to the impacts of climate change**, groundwater resources are often seen as one of the solutions; either to overcome short term, seasonal or multi-year **droughts**, as an intermediate buffer for **water scarcities** or just to “buy time” until other solutions become available. In many situations, this is the case: Often groundwater can offer sufficient quantities of clean and safe water for drinking water, domestic uses, agriculture and other industries.

To provide a solid **science-based management system for groundwater** some basic **knowledge requirements** exist about the three dimensional nature of groundwater in the subsurface, time-dependent changes in quantities and qualities, questions about its “safe yield” or renewability through recharge and its interaction with the natural aquifer material, the rock formations in which it is stored and flowing. Further **challenges** arise from the often uncontrolled -or uncontrollable- exploitation and utilization of **groundwater as a common pool resource**. that require adequate governance, complex stakeholder participation processes and decision making to **ensure longer-term sustainable development and utilization** of these hidden assets.

The Open Space Workshop intends to develop an understanding of some **knowledge gaps and research challenges** related to groundwater globally, **share information about solutions** that are developing or have been developed and discuss possible **contributions from and cooperation between research partners** internationally and in Germany.

After short introductory presentations (5-10 min each), a discussion aims to address the following questions:

1. What are (research) challenges and knowledge gaps for better groundwater governance and management related to sustainable development and climate change from a global perspective?
2. What contributions are needed from the research community internationally? What contributions can be offered from the German water sciences?
3. What are the enabling conditions to allow research to collaborate and develop the solutions needed for better groundwater governance and management in the future?

**Speakers (5-10 min each):**

**Dr. Karen Villholth**, Research Group Leader and Principal Researcher, Resilient and Sustainable Groundwater, International Water Management Institute (IWMI), Coordinator, Groundwater Solutions Initiative for Policy and Practice (GRIPP): *International Groundwater Challenges, Collaboration and Solutions*

**Prof. Dr. Thomas Himmelsbach**, Division Director “Groundwater and Soils“, Federal Institute for Geosciences and Natural Resources (BGR): *Groundwater Resources in Southern Africa: From Occasional Findings Towards an Exploration Strategy.*

**Dr. Catalin Stefan**, TU Dresden, Center for Advanced Water Research (CAWR): *Can We Repair Damaged Hydrological Cycles to Ensure Longer-term Sustainable Development? Managed Aquifer Recharge: Solution for Sustainable Management of Water Resources*

**Schedule**

- 14:00 Welcome and Introduction: Himmelsbach, Klingbeil (5 min)
- 14:05 Presentations: Villholth, Himmelsbach, Stefan (30 min)
- 14:35 Discussion in Plenary (80 min)
- 15:55 Summary and Outlook (5 min)