

RECHARGE ENHANCEMENT AND SUB SURFACE WATER STORAGE A PROMISING OPTION TO COPE WITH CLIMATE VARIABILITY?

A contribution to the Dialogue on Water and Climate / 3rd WFF

by

Netherlands Committee of the International Association of Hydrologists

in collaboration with

IAH Commission on Management of Aquifer Recharge (IAH-MAR),

&

UNESCO- Working Group on Aquifer Recharge / GW-Mate

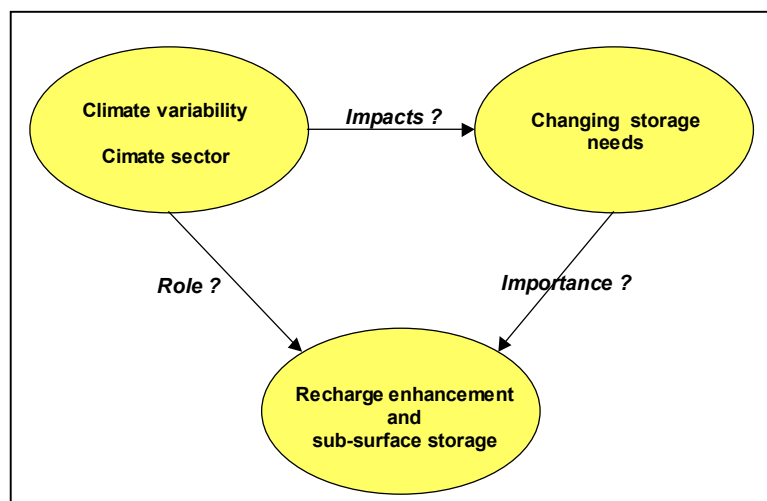
Project brief

Provision of sufficient storage capacity under growing water demands and increasing climate variability is one of the main concerns for water managers in the coming decades. Accurate estimates do not exist, but it is expected that a multiple of the present storage capacity may be needed in 5-10 years from now. Storage of substantial amounts of water can either be above ground, in reservoirs behind dams or underground in aquifers (sub-surface storage).

Surface water storage behind large (and small) dams is widely applied and represents the major part of the installed global storage capacity. However, the recognition of the environmental and social impacts, the growing concerns about dam safety issues and increased sedimentation has clearly demonstrated the limitations of large dams. Meanwhile, there has not been a significant increase in the controlled use of aquifers for sub-surface storage. Yet, a debate on the limitation of large dams has less value if there are no alternatives to cope with the increased storage capacity that is needed in the coming years to maintain even minimum supply levels to millions of people both in rural and urban areas.

This study is to assess the current role of recharge enhancement and sub-surface storage in water management and to identify its potential role under increasing climate variability and growing water demands. A study will bring together experts in climate hydrology and groundwater experts in order to:

- assess the *impacts* of climate change and changes in climate variability on changing storage needs
- identify the *importance* of recharge enhancement and sub-surface storage in coping strategies needed to meet increasing storage demands
- assess the *role* of climate models to plan, design and operate recharge enhancement and sub-surface storage schemes



The NCC-IAH and IAH-MAR have taken the initiative to prepare a contribution in this issue to the Dialogue on Water and Climate (DWC) for the 3rd World Water Forum. The study is sponsored by the ISC-DWC, UNESCO and GW-MATE.

The activities include:

1. consultations with groundwater experts during the ISAR 4 conference (International Seminar on Artificial Recharge) in Adelaide (Australia) which will include a two day workshop on Evaluation of Recharge Enhancement projects in Arid and Semi-arid Countries (21-22 September)
2. **An inventory of sub-surface storage schemes currently in operation, an assessment of the potential for further development of sub surface storage and a dialogue with the climate sector on the impacts of climate change on storage needs and the role of climate models in planning, design and operation of sub surface storage schemes (October – December 2002)**
3. Preparation of a draft report on the status and potential of recharge enhancement and sub-surface storage and its contribution to coping strategies for climate change (October-December 2002)
4. Presentation and discussion of the draft conclusions in the DWC synthesis workshop in Dhaka (17 and 18 December 2002)
5. A two-day seminar on sub-surface storage in The Netherlands organised by the NCC-IAH on 18 and 19 December 2002 attended by representatives from 6 countries South Africa, India, Hungary, Oman, Mexico/Brasil, Kenya).
6. Finalising the recommendations, submission to the ISC-DWC and printing of the proceedings of the workshop (January –February)

The IAH-NCC team consists of Albert Tuinhof (GW-Mate / Royal Haskoning), Theo Olsthoorn (Amsterdam Water Works), Co de Vries (Amsterdam Free University) and Jan Piet Heederik (TNO-NITG)