



WORLD WATER DAY 2022 WORKSHOP

Reflecting on the past and embracing the future of groundwater in South Africa

Date: 24 March 2022

Time: 14:00– 16:30

Registration link: https://us02web.zoom.us/webinar/register/WN_-eDQgoisTyeUAYEf95ms1A

Groundwater is a major water-supply source, whilst also sustaining aquatic ecosystems and maintaining baseflow in rivers and being a critical storage element for climate-change adaptation. It provides drinking water entirely or in part for as much as 50% of the global population and accounts for 43% of all the water used for irrigation. Groundwater use increase projected 30% by 2050 and about 2.5 billion people depend solely on groundwater resources to satisfy their basic daily water needs. Despite these impressive statistics, groundwater is out of sight and often out of mind for most people. Human activities (including population- and economic growth) and climate variability are rapidly increasing the pressure on groundwater resources: serious depletion and contamination problems are reported for many parts of the world, including South Africa. It is for this reason that the UN-Water members and partners opted to highlight the significance of groundwater as a precious resource for future water security. The theme being “Groundwater: making the invisible, visible”.

Locally, groundwater plays a pivotal role in ensuring water security in South Africa. It supplies approximately 13% of the total water supply but often provides up to 100% of water supply to some areas. It is thus a resource of strategic importance. The Water Research Commission has been a driving force in setting the research agenda for groundwater in the country for just over half a century. With a core focus to promote, create, and disseminate knowledge and innovation on the optimal and sustainable utilisation of South Africa’s groundwater resources through coordinated research activities. Groundwater is at the core of the 2030 Agenda where securing its resources for people, productivity and the environment is essential for any reasonable development, to eradicate poverty, unemployment and inequality and completely accomplish the SDGs.

Reflecting, research activities starting in the 1970s focussed on issues of yield and delineation of aquifer systems in groundwater control areas, groundwater dependent towns and dolomitic aquifers. Managed aquifer recharge studies were also initiated during this time. During the 1980s and 1990s, research on groundwater occurrence in fractured rock aquifers began focussing on mapping groundwater resources throughout South Africa and identifying the groundwater regions. The research community started concentrating on matters related to groundwater contamination and quality, as well as groundwater/surface-water interactions and groundwater

dependent ecosystems. Research in the late 1990s and early 2000s increased in scope, interdisciplinarity and complexity, considering meeting basic human needs as well as human-induced changes in hydrogeologic fluxes and stores. The new focus is to capitalise on 4IR tools and applications to better use and make predictions about future groundwater use. As the human population grows, more demand will be placed on groundwater, a vast, but finite, resource. The need for understanding our groundwater systems through training initiatives and managing it in a thoughtful manner within the constraints of the hydrological cycle is greater than ever.

The aim of the workshop is (a) To exchange and share ideas with stakeholders as part of the UN Water World Water Day event, (b) Share, disseminate research findings and highlight some of the work done by the WRC based on several research projects over the years. (c) To look at future possibilities of groundwater development aimed at water security (d) to assess the potential contributions of groundwater to climate change adaptation to achieving the Sustainable Development Goals (SDGs).

Programme

Programme Director: Mr Yazeed van Wyk, Research Manager, WRC

Time	Topic	Speaker
14:00 - 14:15	Opening Address	Dr Shafick Adams, WRC Executive Manager (KSA 1& 2: Water Resources and Ecosystems)
14:15 – 14:30	MAR in Southern Africa	Dr Sumaya Clarke (UWC)
14:30 – 14:45	Aquifer Recharge: from theory to practice – implementing schemes	Mr Fanus Fourie (DWS)
14:45 – 14:55	Q/A	
14:55 – 15:10	Hydrogeologists as social change makers	Dr Kevin Pietersen (L2K2/UWC)
15:10 – 15:25	Isotopes in Hydrogeology	Dr Roger Diamond (UP)
15:25 – 15:40	Taking the Vadose Zone out of the Black Box	Prof Matthys Dippenaar (UP)
15:40 – 15:55	Application of artificial intelligence in regional groundwater exploration	Dr Emmanuel Sakala (CGS)
15:55 – 16:20	Q/A and Short Discussion	
16:20 – 16:30	Closure and way forward	Mr Yazeed van Wyk, Research Manager (KSA 1& 2: Water Resources and Ecosystems)