Combining Science & Art in Search of Groundwater

History tells us that humans have long known that much water is stored underground, but it is only within recent decades that scientists and engineers have learned to estimate how much water is stored in the earth and have begun to document its vast potential for use. The study of where and how water moves underground is called hydrogeology.* The Water Wheel *chatted to one of South Africa's premier hydrogeologists, Gary Small, to find out what this water career entails.

HOW AND WHY DID YOU BECOME INTERESTED IN HYDROGEOLOGY?

I initially studied towards a BSc degree in geology at the University of Witwatersrand. While doing my master's degree in earth sciences at the University of Stockholm, Sweden, I became interested in groundwater issues, particularly in relation to international aid and development. My first interest was to use my earth science training in order to assist communities in developing countries with the provision of clean water. I have also completed MSc course work in environmental engineering at the Royal Institute of Technology, in Stockholm.

WHAT DOES YOUR CURRENT JOB ENTAIL?

I work in a consulting company as a principle hydrogeologist. I am also a director of the company. My work centres on responding to requests from clients for hydrogeological investigations, which may be either related to groundwater quantity (water supply, mine dewatering and so on) or water quality (such as contamination studies) or both.

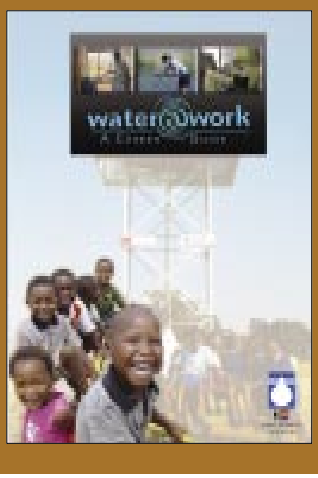
A project typically following the following phases: proposal, desktop study, field work, data interpretation, report writing and client liaison. I am involved with all of these phases, predominantly as a project manager where I supervise and guide or mentor staff with less experience. I do occasionally still undertake small projects completely on my own. I also lecture courses at university in hydrogeology.

There are enormous opportunities for geohydrologists both in South Africa and internationally, for example, I have worked in Sweden, Israel, Burundi, South Africa and Mozambique.

WHAT ARE THE GREATEST ASPECTS OF BEING A HYDROGEOLOGIST?

Hydrogeology is an extremely diverse and stimulating science involving aspects of geology, mathematics, physics, chemistry and geography. There is always something new to learn.

It can also be very challenging. The ability to conceptualise the underground environment with mostly very little available information is the most challenging aspect. It requires a solid understanding of several sciences as well as an imagination that involves artistic ability. It is the combination of science and art.



For more on this and other careers in water, see *Water @Work* available from the Water Research Commission. To obtain a copy phone Publications at
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