

## **Lack of Hydrogeological Information Sharing**

*Issue:* In many African countries there is very little information available on the hydrogeology of the area, or even on boreholes that have been drilled previously. Almost exclusively, NGOs, individuals, communities or industry hire a driller to drill a borehole. Sometimes a hydrogeological study is conducted beforehand (as in Kenya) but often it is left up to the driller to decide when to stop drilling. In many cases contracts are set up based on the number of metres to be drilled, established arbitrarily and since the driller is paid by the metre, the main aquifer may be overdrilled resulting in reduced flow to the well.

In cases where there is a well that has a good production rate, for example adjacent to a river in the gravel. In order to increase the amount of water, more wells are drilled in close proximity to the first well. This new well often attracts more people to the area, the wells are pumped more for the increased demand, which causes the water table to decline, reducing the total amount of water that is available. In extreme cases the water level in the river may be impacted, reducing flows and harming aquatic life in the river as well as reducing flows downstream.

In Kenya, there is no central database of information. The information that is collected consists only of location and depth, and that data is incomplete at best due to torn paper copies of maps and no cross-referencing of data (ie date drilled, location and reference number). When a map is damaged or lost, the information contained is also lost. When a change in government structure is conducted, many permanent records have been misplaced or lost.

In the unusual case where a full hydrogeological study is commissioned by an agricultural or mining corporation, a foreign-trained hydrogeologist is contracted to conduct it. The resulting report and information typically stays with the company and is not shared openly.

*Solution:* Graduates from the MSc program learn how to supervise drilling programs, including the collection of hydrogeological data during the drilling by taking soil samples, measuring flow rates, conducting borehole geophysics, surveying the locations of the well, and recording critical well construction details that will aid in maintenance and repair of the well.

Graduates also learn the benefits of working with government departments to establish a central depository for this valuable information. This database needs to be built such that the information is stored and accessible to others doing subsequent drilling programs. It could easily be built using a GIS system and coupled with computer modelling tools. As part of the MSc program students learn how government has a vital role to play in regulating the use of water resources in order to sustain the supply into the future.

*SEE REFERENCE GRAPHIC ON NEXT PAGE*

