Having spent many years finding groundwater sources to give towns and villages access to this precious resource, water users and water service providers in South Africa must start talking to each other to better manage scarce groundwater resources and avoid pumping our aquifers dry.

This warning from Gert Nel, partner and principal geohydrologist in SRK Consulting’s East London office, comes at a time when some towns in relatively dry provinces are relying increasingly on groundwater, in the absence of sufficient surface water in rivers and dams.

About twelve years ago, in the early years of starting up the SRK office in East London, Nel remembers working on groundwater feasibility studies to establish the quantity and quality of groundwater in various areas of the province. A number of well-fields and boreholes were developed as a result; the issue now is to look after them.

“SA is blessed with substantial but finite groundwater resources. If we don’t properly monitor and manage the boreholes we install, then groundwater resources can easily be over-exploited and can run dry,” he said. “Then we have to repeat the whole costly process of finding other groundwater resources and accessing them, while remembering these opportunities are not limitless.”

It is therefore vital that water service providers (usually the local municipalities) and private users (such as farmers) understand how much water is in the aquifers that they exploit, and how much off-take the aquifers can sustain. While helping find and access groundwater, SRK believes monitoring and management must be emphasized.

“What we have aimed to do over the last couple of years is to convince authorities to fund the establishment of groundwater models as part of aquifer management,” said Nel. “A groundwater model is a scientific way of assessing how much water is available, how much is replenished through rainfall and other sources such as rivers, and how much can actually be abstracted over a period before we threaten the sustainability of the aquifer.”

This gives authorities and users an overview of water availability in their area. This has proved to be a good starting point for water planning strategies, although it does not by itself solve the problem.

Local authorities, for example, have generally only looked at their own use—the use by the homes and businesses they supply within their jurisdiction of towns and villages—when checking their abstraction levels against the flow potential of the aquifer. The ‘private use’ of groundwater—mainly by farming communities—is often not included in the calculation because farms are usually not supplied by local authorities.

“What we’ve seen is that private abstraction for irrigation often makes up a significant portion of what is pumped from an aquifer,” he said. “When asked by water authorities to recommend how much water they can pump for their needs, we may conclude that there is enough potential in an aquifer to satisfy the town. But if we add in the demand from, for example, the farming community close to the town, we realise that the aquifer could run dry over just a few years.”

This of course demands greater co-operation between the municipalities and the agricultural sector, an area of some sensitivity as many farmers have in the past generally been left to operate on their own in this regard.

“The law is clear that groundwater is a public asset—it does not belong to the person on whose land it occurs,” said Nel. “So private users cannot use as much as they want, or as much as they can pump from their boreholes. Under the New Water Law, your water usage may need to be authorised by the Department of Water Affairs.”

As one of those provinces with insufficient surface water, the Eastern Cape is growing more dependent on groundwater, with many municipalities looking to develop more production boreholes on private properties—another reason for greater co-operation between these parties.

“So the challenge is to get the authorities and
SOUTH AFRICAN NATIONAL WATER WEEK, WORLD WATER DAY

SABI calls for South Africa to step up optimum water use and energy saving practises

In celebrating National Water Week 2014, SABI, the South African Irrigation Institute, has called on South Africans to increase their care and respect for the resource of water.

March is the month of water in South Africa and internationally, with the celebration of National Water Week and World Water Day (22 March).

SABI’s (South African Irrigation Institute) general manager Riana Lombard comments: “SABI will be taking the opportunity this year to reflect on the progress of water delivery in our country – with the theme of Water Week this year being ‘Water is Life’ – 20 years of Water Delivery for Social and Economic Development.

“As SABI, we are gratified that our members play a constructive role in assisting with the delivery of water for irrigation and the general infrastructure of water, which go a long way to assisting with the enhancement of the economies of our urban and rural areas. Indeed, water is life.”

SABI President Charles Cherry comments: “SABI’s mission of the promotion of optimum irrigation and water conservation resonates strongly with the theme of National Week – ‘Water is Life’ – 20 years of Water Delivery for Social and Economic Development. Irrigation is multiplier of socio-economic development in our country, and we are proud to play a role in our country’s water sector.”

SABI further supports strongly the theme of World Water Day – Water and Energy. SABI has in recent years been paying particular attention to the importance of energy saving in irrigation.
SAVING WATER, SAVING ENERGY

“We have developed courses within SABI Training that address the nexus between water and energy in irrigation. In South Africa, the importance of lowering energy costs has become a significant issue in the irrigation sector, and we particularly welcome World Water Day’s focus on Water and Energy. The theme of World Water Day could not be more apt to South African conditions at the moment,” says Cherry.

SABI is partnering with SASOL on an innovative water conservation project in the Vaal river area, specifically in the Sand-Vet irrigation scheme. Farmers in this water-critical area are being advised on optimum irrigation practises while the results are also being monitored. Once proven, these practices can potentially be rolled out in the other water scarce areas.

SABI’s GM Riana Lombard says further that SABI has planned ongoing farmer workshops in conjunction with its partners in conservation to focus on the water-energy nexus and the associated issues. The United Nations says of World Water Day: “Water and energy are closely interlinked and interdependent. Energy generation and transmission requires utilization of water resources, particularly for hydroelectric, nuclear, and thermal energy sources. Conversely, about 8% of the global energy generation is used for pumping, treating and transporting water to various consumers.”

“In 2014, the UN System — working closely with its Member States and other relevant stakeholders — is collectively bringing its attention to the water-energy nexus, particularly addressing inequities, especially for the ‘bottom billion’ who live in slums and impoverished rural areas and survive without access to safe drinking water, adequate sanitation, sufficient food and energy services.”