



Licence to Limit – Groundwater Use Authorisation Under Scrutiny

An investigation by a Water Research Commission (WRC) appointed team into groundwater licensing in South Africa has found that present procedures for granting approval for groundwater use are unnecessarily restricting development of this resource. In some instances, it might even be causing individuals to flout the law rather than to face the onerous water license registration process.

Following the promulgation of the National Water Act (NWA) in 1998, groundwater, long considered the 'poor cousin' of surface water, has been accorded a new importance in South Africa. With vast untapped underground sources of fresh water being discovered, groundwater has been touted as the answer to many urban

and rural areas' present and future water needs.

To protect the resource from potential pollution and over-exploitation, several legislative measures have been implemented. Both the Department of Water Affairs & Forestry (DWAF) and the Department of Environmental Affairs & Tourism (DEAT)

have different procedures with respect to assessing groundwater use applications. At present, authorisation to use groundwater is legislated under the NWA, Environmental Conservation Act, and the National Environmental Management Act.

While it is acknowledged that these are very powerful tools for managing

groundwater use, the practicality of some aspects of the legislation is in question. If a groundwater user or prospective user has to apply for a licence, he is currently required to apply to both DWAF and the provincial environmental department. In addition, the groundwater Reserve (the minimum water needed for the ecological environment to survive) needs to be set first before DWAF can consider a license. In many cases, this has not happened yet.

In 2004, the WRC launched a project to investigate the groundwater licensing process, and to develop a decision support tool for exploring, developing and usage of groundwater supplies. Team leader Roger Parsons of Parsons & Associates, explains that there are three types of groundwater use authorisations.

SCHEDULE 1

Schedule 1 uses are defined as relatively small quantities of water, mainly for domestic and stock watering purposes, but also for emergency situations and certain recreational purposes. The project team investigation found that the lack of clear guidance on what exactly constitutes Schedule 1 use was a major limitation in the authorisation of water entitlements. "The National Water Act does not specify generally applicable numerical limits to any of the Schedule 1 uses," Parsons tells *the Water Wheel*. "However, the extent of the use must be reasonable to the users' needs and not be excessive in relation to the capacity of the resource and the needs of other users."

GENERAL AUTHORIZATION & LICENSING

General Authorisation allows for conditional water use without a licence. The country's aquifers have been divided into different zones which allow for differing quantities of

water that may be abstracted. Water use that exceeds the limits posed by Schedule 1 and General Authorisations requires licensing. "Comparison of the volumes of water needed for reasonable domestic use and that allowed under General Authorisation indicates the present limits are too low," says Parsons.

"For example, if one assumes an average water use of 200 l/p/day, then a household of four requires 292 m³/a for reasonable domestic purposes (i.e. as allowed under Schedule 1 use). To meet this demand, a person living in a Zone E area (which allows for the abstraction of 400 m³/ha/a) would need to own

GROUNDWATER TO MOVE INTO THE SPOTLIGHT

Despite groundwater's strategic role in supplying water services to African communities, often as the sole source, it remains poorly understood and managed.

This was revealed at a recent international workshop on groundwater protection in Africa, held in Cape Town. The workshop was attended by numerous concerned



scientists and stakeholders, including representatives from the African Ministers' Council on Water (AMCOW), United Nations Environment Programme, World Bank, International Association of Hydrogeologists and the United Nations Economic Commission for Africa.

"There is a general sense that groundwater needs to be higher on the African and international political agenda. This should reflect in policy development, regional and international cooperation in this regard," reports Eberhard Braun, manager: information programmes at the Department of Water Affairs & Forestry.

Groundwater resources are increasingly under threat, despite their importance. The results of a recent cooperative assessment in 11 African cities have shown that pollution of the vital underlying groundwater resources has reached critical levels. Poor understanding and mismanagement has become the norm rather than the exception. There are examples across the continent of vital water supply sources and even whole aquifers being abandoned due to pollution as well as communities being served with polluted water through pipelines leading to the outbreak of waterborne diseases.

To mitigate these challenges several thrusts were discussed at the workshop. The first awareness thrust must result in widespread awareness of key stakeholders at all levels about groundwater, its developmental role, its hydrological and ecosystem function, its vulnerability to human impacts and approaches to sustainable use. The second capacity thrust must result in appropriate capacity, including policy and legislation, appropriate institutions and human resources to plan and implement sustainable groundwater use at all levels. The last knowledge thrust must result in the knowledge base, including monitoring networks, resource assessment, best practice for management, information systems and fundamental sciences, to enable the optimal use of groundwater within an integrated water resources management network.

Delegates recommended that the AMCOW and New Partnership for Africa's Development (NEPAD) initiatives be used to coordinate activities to reach these objectives. A representative team from the workshop are to present their findings at the Fourth World Water Forum in Mexico this month.



It is estimated that windpumps in the Graaff-Reinet area abstract 821 m³/a. This is more than double the volume of groundwater abstraction allowed under General Authorisation. This suggests that all windpumps erected after 1998 will be subject to the granting of a licence.

0,73 ha if the domestic water supply were to be within that volume generally authorised. However, in a Zone B area (which allows for the abstraction of 45 m³/ha/a), a person would have to own 6,5 ha of property. This illustrates an imbalance between that which constitutes Schedule 1 use and that allowed under General Authorisations."

"Almost 95% of boreholes drilled in the country will require licensing."

No groundwater abstraction is permissible without a license in 17% of the catchments. This group includes some of the most productive aquifers in the country (for example, Cape Flats Aquifer, Atlantis Aquifer, and Saldanha Aquifer). Reasons for including these aquifers in Zone A are not apparent; and cannot be justified on hydrogeological criteria.

By converting the General Authorisation to a yield, and comparing the thresholds to the yield of the bore-

holes stored in the National Groundwater Database, it is apparent that almost 95% of boreholes drilled in the country will require licensing. "This is clearly contrary to the hierarchical authorisation provided for in present water legislation," notes Parsons.

It is understood that 100 000 boreholes are drilled in South Africa each year. Assuming that the processing of each license application takes a minimum of five days to complete and further assuming 20 000 boreholes will have to be licensed each year, 500 experienced geohydrological officials will be required to process groundwater licenses only. Other officials experienced in groundwater will also be required to provide input into the environmental authorisation.

"DWA simply does not have the resources to address all the applications – should they be submitted," says Parsons. The problem is compounded by the fact that in some instances, officials making decisions are inexperienced and/or not qualified in a particular issue. Mentoring of junior staff by senior staff is required as well as a sound geohydrological education of officials dealing with these matters.

The limitations of the legislation can be seen in areas such as the Western Cape where very few licences have been issued. Given that drillers in the province have had full order books for the last two years, something is amiss.

The greatest challenge in improving the process is determining at what level groundwater use licenses should be required. This needs to be based on known cases of groundwater use impacting on the environment and levels of water stress or conflict within the catchment.

BACK TO BASICS

All is not lost, however. "The NWA has provided a very good structure

GROUNDWATER LICENSING AT A GLANCE:

Authorisation to use groundwater is legislated under the National Water Act, the Environmental Conservation Act, and the National Environmental Management Act.

There are basically three types of water use authorisation:

- ◆ **Schedule 1** uses: relatively small quantities of water, mainly for domestic and stock watering purposes, but also for emergency situations and certain recreational purposes.
- ◆ **General Authorisations:** by which limited water use is conditionally allowed without a license. Current General Authorisations are described in Government Notice 1191 of 8 October, 1999.
- ◆ **Water use licenses:** which are used to control water that exceeds the limits imposed by Schedule 1 and General Authorisations. Water use licenses give existing or prospective water users formal authorisation to use water for productive or beneficial purposes.

for allowing groundwater use under General Authorisation and requiring site-specific licensing at higher levels of use. We are not doing well at setting the boundaries at which licenses are required nor providing an efficient mechanism for applying for, and considering or evaluating licenses," says Parsons.

It is recommended that only one department handle license applications. There also needs to be far better and efficient liaising between departments.

It is hoped that the documentation resulting from the WRC project will assist in this process. At the time of writing, the team was completing a temporary guide to be submitted by this month. 