

Getting to grips with the issue of water use licences

South Africa's farming sector is still getting to grips with the issue of water use licences after these became a legal requirement for many business five years ago, according to leading engineering consultants SRK Consulting.

"Most farms that use water for irrigation – or for watering livestock in feedlots – will be required to apply for a water use licences, in the same way as the mining and industrial sectors," said Lindsay Shand, principal and environmental geologist at the company's Cape Town office. "The aim of this process – driven by the National Water Act – is to ensure that the distribution of this increasingly scarce resource is fair and sustainable."

According to Shand, obtaining legal authorisation as a water user allows farmers to strengthen the risk profile of their business, as it may become difficult to sell or re-develop the property if the entity is not fully compliant. Without carrying out the investigations required for licencing, there is the danger of impacting negatively on neighbours and other water users, possibly leading to expensive remediation processes in future.

She says that there is still a lack of knowledge in the agricultural sector about the need for these licences, mainly because this sector was traditionally not required to hold them. Now, however, any farmer taking water from a surface water of groundwater resource, storing water, discharging effluent water, altering banks or impeding and diverting the flow of



water in a watercourse falls under Section 21 of the National Water Act – depending on the volume of water involved and the present aquifer status of the quaternary catchment in which it is situated.

The licencing process was initially hampered by long delays within the Department of Water and Sanitation in getting the applications processed and licences issued. There were also numerous incidents of content errors within the issued licences, making it difficult for the water user to strictly comply.

"Fortunately, there have been better systems put in place in recent years to speed up the licencing process, so this need not deter water users from pursuing their applications," notes SRK hydrogeologist, Candice Lasher.

Acute water skills shortage a water quality risk, says SAICE Vice President

South Africa is in the throes of an acute water sector skills shortage that is already threatening water quality in parts of the country.

This is according to Dr Chris Herold, Vice President of the South African Institution of Civil Engineering (SAICE). He was speaking during a panel discussion held at the University of South Africa's (UNISA's) Science Campus in Johannesburg earlier this year.

"The skills shortage in the water sector is a very serious problem and it is not a future or potential problem, we have it already," he said. "A few years back, local authorities had a seventh of the engineering professionals they had 20 years before. The situation is even worse today. Many of the smaller municipalities do not have a single engineer or engineering technician – not just for water but also for roads, electricity and housing."

According to Dr Herold, the skills shortage in the water sector was not limited to local authorities, but also had an impact on the Department of Water and Sanitation (DWS).

In 2008, based on 2007 figures, only 38% of the department's engineering positions were occupied; furthermore, forecasts projected that it would lose 42% of its senior engineers over the ten years to 2017. "Only one or two years later, the DWS has already lost more than 42% of its senior engineers," noted Dr Herold.

Exacerbating the skills crisis in government is the lack of candidate engineers coming up through the ranks of the department. On the positive side, the DWS Candidate Academy is doing a great job to nurture young graduates to the stage where they can attain professional registration, although these efforts are hampered by a lack of mentors within the organisation.

However, it will take years before new recruits can gain enough experience to fill the yawning middle and senior management chasm. In the meantime, it is essential to draw on the wealth of

talent in the private sector and to 're-tread' experienced retirees to keep the core functions going.

Other speakers at the UNISA event expressed concern about water quality, especially in rural areas. "Our studies in the rural areas of the Eastern Cape, KwaZulu-Natal, Mpumalanga and Limpopo show that water quality is of high concern," said Prof Maggie Momba of the Tshwane University of Technology. "Every year, especially during the rainy season, we have [outbreaks of] waterborne diseases."

She attributed the water-quality problems mainly to a lack of capacity. "South Africa does not really have capacity building in the water sector," Prof Momba noted, citing areas in the Eastern Cape where 'very expensive' drinking water treatment plants were being run by people lacking water treatment expertise.

Although home water treatment systems may not be the ultimate solution, home treatment could play a role in areas where waterborne diseases are rife, according to Prof Momba.

Source: UNISA

Exploring the role of traditional leaders in managing rural water resources

On 17 March, the Institute for Poverty, Land and Agrarian Studies (PLAAS) and the Water Research Commission brought together policy-makers, traditional leaders and members of rural communities, community-based organisations and non-governmental organisations for a policy dialogue on water governance in traditional rural community contexts of South Africa.

The dialogue was held in Cape Town.

It is argued that managing water resources in South Africa is subject to political contestation, as not all water users are allocated rights equally, with licenses for water use often issued to

industrial enterprises, mines, game lodges, and commercial agriculture without consideration to communities' water needs and water quality needs.

Given the capacity constraints in provincial governments, the question that needs to be asked is whether traditional leaders can help government to manage water resources?

The workshop aimed to generate policy recommendations to assist water institutions and national government to better deliver on their primary mandate of access to water resources and infrastructure for productive purposes and improved livelihoods. Among

others, the workshop explored the challenges to effective water governance in traditional rural communities, the benefits and dis-benefits of creating an institutional environment for a legally pluralistic system of water governance in South Africa, and what roles traditional leadership can play in decentralised and democratised water governance, resource management and services institutions.

In addition, representatives of rural communities explored how indigenous knowledge systems can support water governance, how gender can be given consideration, and how to link water access to water market value chains.

Schools water projects takes home international award

A joint water project initiated by the Department of Water and Sanitation (DWS) and by the Wildlife and Environment Society of South Africa (WESSA) Eco-Schools has won a United Nations 'Water for Life' Best Practices Award.

The project was awarded in the category 'Best participatory, communication, awareness-raising and education practices' and shares the award with Project India.

The annual Water for Life Best Practices Award acknowledges and promotes efforts to meet international commitments made on water and related issues. The award recognises outstanding projects that are working to ensure sustainable long-term management of water resources and to help achieve the water and sanitation targets of the Millennium Development Goals, Agenda 21 and the Johannesburg Plan of Implementation. The theme of the awards for this year was 'Water and Sustainable Development'.

The DWS/WESSA Eco-Schools Water Project – officially launched at the Youth Summit on Water and Climate Change in July last year – encourages water conservation and the wise use of water resources at school level from grades R to 12. The 50 participating schools, located in eight provinces in South Africa, are required to set up a water action project that includes the entire school and members of the local community.

The project's main objective is to strengthen water and sanitation education in South Africa through implementation of the international Eco-School Programme's 7-step framework for education for sustainable development, learning and change.



These steps guide schools through a learning process which promotes water conservation and sanitation education, as well as engaging learners in enquiry-based learning methods which empower them to better understand their local water context and to take action to improve this. The project has a strong inclusivity focus, emphasising public participation, participatory learning processes and action taking.

Activities are focused on better water management and ensuring water security for the more disadvantaged communities that may not have access to potable water. This is especially problematic in areas where water is increasingly scarce due to poor catchment management practices.

The success of the project, now recognised by this international award, is an example of government and civil society organisations working together effectively in the education and environmental conservation fields, WESSA and DWS said in a statement.

Source: WESSA

Projects in progress

South Africa's first comprehensive water resources website launched

South Africa's first publicly-accessible water resources website has been launched.

The website, www.waterresourceswr2012.co.za, forms part of the country's latest water resources assessment study, known as WR2012, funded by the Water Research Commission (WRC). WR2012, launched three years ago, is the sixth comprehensive national water resource assessment to be undertaken in South Africa since 1952.

The study has, for the first time, created a publicly-accessible, Web-based and interactive reporting system to continually quantify both the surface and groundwater resources of South Africa, notes WRC Research Manager, Wandile Nomquphu. "While it was originally planned for the website to only be up and running once the project is completed in 2016, the high level of interest in the information the project has to offer has prompted the WRC to bring the Web launch date forward."

It is well known that water is South Africa's scarcest resource, and that the country counts among the world's parched, with a mean annual precipitation of only half the world average, and a total surface runoff of less than 50 000 million m³/annum. As a result of this inherent scarcity, the country uncomfortably walks a tightrope between socio-economic development and protection of its water resources. This makes quantifying exactly how much water South Africa has one of the most important tasks to be undertaken in the water sector.

According to WRC CEO, Dhesigen Naidoo, undertaking regular water resource quantification assessment not only informs the country of its available water resources, but helps to augment decision-makers' and specialists' understanding of how the natural hydrological cycle behaves.

The study is being executed by a consortium of consulting engineering firms, led by Royal Haskoning DHV (RHDHV). One of the most important aspects of the study is the improvements made on the WRSM2000 catchment model (popularly known as the Pitman model), which is widely used in the South African water resource assessment process.

"The WRSM2000 model is undergoing some major improvements," reports WR2012 project leader Allan Bailey from RHDHV. "As this model has links to the models of the Department of Water and Sanitation for analysing yield of dams and future water resource planning, it is extremely important that all three models are continually improved."



Allan Bailey, project leader for Royal HaskoningDHV, Dr Ronnie McKenzie, keynote speaker for WRP Engineers, Dr Bill Pitman, key team member for Royal HaskoningDHV and developer of the Pitman-model, Wandile Nomquphu, Water Research Commission Research Manager, Deborah Mochotlhi, Deputy Director General at the Department of Water and Sanitation, and Prof Geoff Pegram, Professor Emeritus University of Kwazulu-Natal.

Enhancements to the WRSM2000 model include the inclusion of a number of statistical graphs for checking the consistency of catchment rainfall and natural streamflow and storage yield; grouping of runoff models with similar hydrology for more rapid calibration; and addition of an observed storage trace to the reservoir plot so that reservoirs with only storage data can be calibrated among others.

Compared to the previous water resource study, WR2005, the level of detail of water resource information in the WR2012 study has been broadened to include information on reservoirs, land use/water use and other water resource aspects. New spreadsheets have been compiled which provide details of land use/water use, which will make the future planning easier. The project also intends to continually incorporate recent work by other consultants on various catchments, and to update all data.

Other progress for the year includes the creation of land use/water use spreadsheets for all water management areas, with worksheets with data on dams, abstractions and return flows, irrigation, alien vegetation and afforestation. The project team has also started to determine the optimal water resource observation network which has to be maintained at all costs in order to continuously enhance the assessment and understanding of the country's water resources.