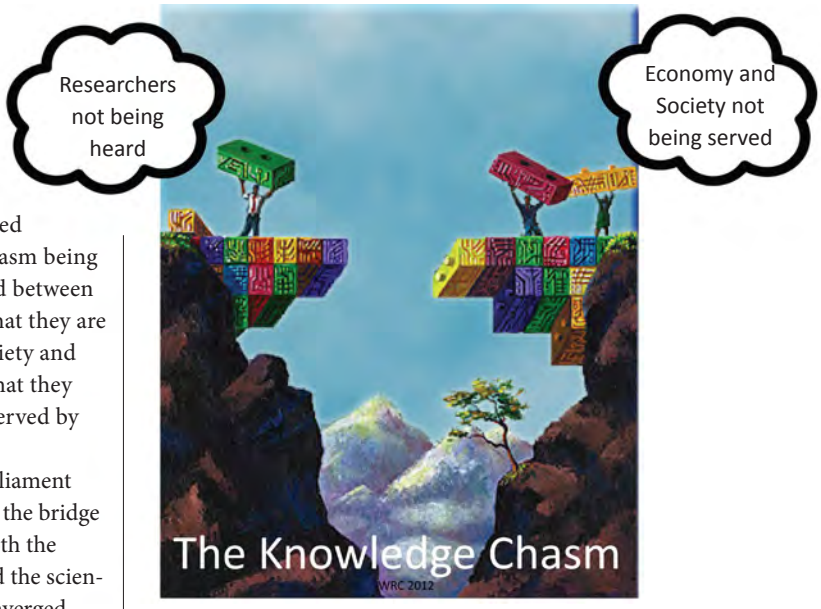
Building bridges between science and decision-making

On 25 September we witnessed a remarkable occurrence. As a special event of the WRC Symposium, the Parliamentary Portfolio Committee (PPC) on Water & Environmental Affairs had an open dialogue with South Africa's water scientists. Portfolio Committee Chair, Johnny de Lange (MP) called it a 'People's Parliament'.

Apart from this being the first time for this type of interaction between legislators and water scientists outside the hallowed halls of Parliament, it gave resonance to the very important notion of creating a sustainable dialogue between the science community and political decision-makers. Much has been said and written about the knowledge chasm, where on the one side you have scientists claiming that they have many of the scientific solutions needed to address South Africa's water challenges, and on the other side the decision-makers and water users feeling insufficiently supported by science to enable better and smarter management of our precious water resources. This has led to the knowledge chasm being described as the void between scientists who feel that they are not heard, and a society and economy that says that they are not adequately served by science.



The traditional knowledge chasm between the scientific community and broader society.

The 'People's Parliament was a cornerstone in the bridge across the chasm. Both the parliamentarians and the scientists very quickly converged on the core issues defining the national water challenge, and with amazing efficiency, to the surprise of the many who expressed reservations on the potential success of the exercise, found resonance on many of the positions.

We should take our hats off to both to the MPs and the truly remarkable candour in which they approached the dialogue, and the remarkably constructive nature in which the scientists unpacked the challenges and the scientific solutions.

The PPC also expressed their pleasure at the great progress this water science community has made to ensure that the pursuit of science is increasingly resulting in positive socio-economic outcomes and impacts, as enunciated in the WRC Knowledge Tree. The strides have been so remarkable that we were able to present during the seminar the Inaugural WRC Knowledge Tree Awards for such scientific work. We know that this recognition will further encourage the South African water research and development sector to

The special parliamentary event at the WRC Symposium.

perform more in this domain.

This brings one to the often debated matter about the bridge. That is the issue about whether or not the academic enterprise has to be sacrificed when re-orientating the scientific effort to better produce outcome, impact and genuine material changes on the ground. In the period of time over which these developments with the WRC Knowledge Tree's six baskets of human capacity development, products and services for the real economy, advising and influencing policy and decision-making, empower communities, developing sustainable solutions and taking forward the national transformation project, the academic performance of the self-same South African water sector has increased.

In fact, we remarkably increased our global standing in production of papers in ISI journals, taking from 19th to 18th place. We also maintained the student participation at Masters and PhD levels in WRC projects of more than 450 a year.

This obviously requires much more rigorous interrogation, but the empirical evidence suggests that not only does the academic enterprise of science in the water sector not diminish through an increased focus on socio-economic development on the core issues of a developing country such as ours, but may even derive enhanced benefit from this orientation. It perhaps describes a pathway to South Africa eventually becoming a global hub of excellence in water development science. We are hopeful of the promise of continued engagement between the budding science-legislative partnership. The WRC will continue to act as the 'glue' agent to facilitate this.

KZN sanitation scheme gets new lease on life

The old Mpophomeni sewage treatment works, which was mothballed in 2001, is getting a new lease on life as a result of a major sanitation upgrade project underway by consultants Royal HaskoningDHV.

The Mpophomeni township and treatment works is located on the western reaches of Midmar Dam. According to project principle, Peter Sibanda, a number of problems led to the plant's closure, most prominently the fact that it was discharging pollutants into the dam – a major water source in the region.

The works was replaced with a sewage pumping transfer scheme to Howick Wastewater Treatment Works, which was upgraded to cope with the additional load. This entire infrastructure, including 11 km of pumping mains and sewers, has now reached maximum capacity. The problem has been further exacerbated by a number of housing projects in the area.

Following several investigations by Umgungundlovu District Municipality, a decision was made to revamp the Mpophomeni treatment works. "The existing works has infrastructure that can be reused, such as backup facilities that can store and subsequently recycle inflows for more than three days when power outages or breakdowns occur," notes project manager, Chris Hazelden.

The revamp project includes the construction of a 6 Mℓ/day treatment works for Mpophomeni, Khayelitsha and spare capacity for future expansion, two new main sewers in addition to smaller sewer refurbishments, and effluent delivery systems, including an artificial wetland effluent polishing system at the treatment works and a subsidiary wetland system on the Merrivale Stream.

The project, which is estimated to cost R160-million, is expected to be completed by February 2015.

Sixty careers in water and counting in new WRC guide

Thought the water sector was all about biology and engineering? Think again.

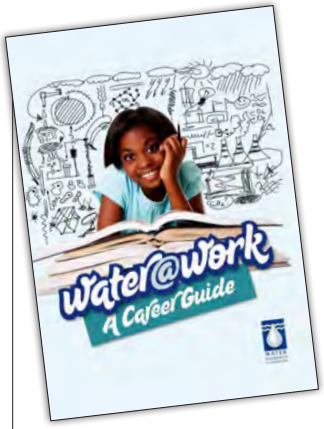
The new updated Water Research Commission's (WRC's) new *Water@Work Career Guide* lists detailed information on no less than 62 career options in the water sector, ranging from accounting and agriculture to social science, water history and zoology. The colourful guide, which is available electronically or in hard copy, is intended as an overview of career paths available in the world of water. It is an ideal resource for learners ready to make subject choices or prospective students exploring possible areas of study. New areas of study, such as polymer science, one focus area of which is nanotechnology, have also been included in the guide.

Readers can also find an exhaustive list of useful contacts, including those institutions which offer bursaries and internships.

Despite its small size, the South African water industry is recognised globally for its innovation and creativity in science and technology, writes WRC CEO, Dhesigen Naidoo, in the foreword of the guide. "The sector faces many challenges, such as the growth of the population, the need to grow the economy, the pollution of our scarce water resources, and the threat of global climate change. These are all opportunities for a new generation of water sector specialists to be innovative in creating the necessary solutions to ensure our country remains on a sustainable path going into the future."

The WRC has for a long time realised the importance of growing capacity in the sector, funding the training of around 500 post-graduate students a year through its commissioned research projects in various fields of study.

Several of the careers in the water sector have been listed as scarce and critical skills. "In order for the South African water sector to remain successful it is vital that young people are enticed to become part of the water family," said Lani van Vuuren, Print Communications Team Leader at the WRC.



"Young people need to know that while mathematics and science are important for a number of careers in the water sector, there are also other career paths to follow. In addition to scientists and engineers, the sector also requires economists, writers, social workers, historians and lawyers, to name but a few."

To order a copy of the *Water@Work Career Guide* (**WRC Report No. SP52/13**), contact Publications at Tel: (012) 330-0340, Fax: (012) 331-2565 or Email: orders@wrc.org.za, or download a copy at www.wrc.org.za.

Innovation and collaboration required to meet water challenges, says Minister

Providing universal access to all of South Africa's citizens not only requires innovation, but also collaboration between scientists and authorities.

This is according to Science & Technology Minister, Derek Hanekom. He was speaking at the WRC Symposium in Pretoria earlier this year.

"Currently only about 74% of citizens have access to stable supply. With regards to sanitation, about 3,2 million households are at risk of service failure or are experiencing service delivery breakdowns. Some 1,4 million households in formal settlements have no services at all," reported Hanekom. "As a nation we are struggling to upgrade and expand bulk infrastructure, ensure the quality of sanitation services, and maintain reticulation and on-site infrastructure."

Because of the number of players and activities in the water value chain the most effective way of addressing the service delivery challenge was through coordination and collaboration – and, most of all, a commitment to finding fresh answers that would carry South Africa forward, Hanekom added.

"The need for joint innovation is particularly critical when one considers that water service delivery is embedded in the Water-Energy-Food security nexus, which highlights the fact that the long-term well-being of the people of the planet are utterly dependent on successful management of not just water, food and energy individually, but also managing the links between them.

Hanekom said that the sector had to deepen existing relationships, as well as forge new ones that would enable it to enter new markets, and drive new socio-economic benefits.

'No Drop' assessment tool rolled out to municipalities

The Department of Water Affairs (DWA) has announced the roll-out of new 'No Drop' report assessments in an effort to curb unaccounted-for water in municipal water networks.

Results from this first assessment period will be published along with the Blue Drop report in 2014.

The assessment is in response to the Water Research Commission's latest non-revenue water report, which notes that South Africa's present level of non-revenue water is in the order of 37%. Of this a quarter is estimated to be losses through physical leakage. The No Drop assessments would provide verified data to support and build on these research results, DWA said in a statement.

In addition, the assessment will provide the public and the water sector with information on water use, water loss and efficiency of water used within a municipality. Similar to the Blue Drop- and Green Drop- reporting, the No Drop report will publish audited and verified values pertaining to water use and management in each local authority, and will report such figures as part of the Blue Drop scorecard. This will allow the public to view the performance and rating of a municipality in terms of its drinking water quality as well as the management of its water volumes.

"South Africa is a water scarce country, and the supply-demand curve shows that South Africa will face a water supply deficit of around 17% of 3,8 billion kilolitres of water by 2030," DWA reported. "The Minister of Water Affairs has prioritised the implementation of measures to reduce water losses and increase water efficiency, as well as tackling water leaks and raising water demand awareness."

Workshop to help banks deal with biodiversity risks

The World Wide Fund for Nature (WWF), together with Citi South Africa and the Business and Biodiversity Offsets Programme (BBOP), hosted a workshop on biodiversity and ecosystem services for the financial sector earlier this year.

The workshop has been designed for banks, companies and consultants to share experiences and engage – collaboratively – around the challenges and opportunities presented by the new International Finance Corporation Performance Standard 6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources.

Understanding biodiversity risks and impacts is becoming increasingly important to financial institutions. The rate and scale of biodiversity degradation is significantly weakening the ability of the natural world to deliver key services such as climate control, air and water purification and protection from natural disasters. These services represent 'natural capital' that companies have treated largely as free 'goods'.

However, losses in biodiversity present large risks to the financial sector and its clients. As much as half of the world's natural habitats have already been cleared, and it is calculated that a single eyar's habitat conversion cost costs society US$250-billion every year into the future.

"Substantial investment in infrastructure is needed to achieve Africa's development and economic growth goals. The course focused on the implementation of the Equator Principles which were developed by the banking industry to address the negative social and environmental impacts of lending to primarily infrastructure projects," notes WWF Sustainable Finance Programme Manager, Malango Mughogho.

Learners get up close and personal with river bugs

Around 30 learners from schools in Gauteng and the North West had the opportunity to explore river health monitoring at the Water Research Commission (WRC) Symposium held in September.

The learners were taught how to use the simplified version of the Stream Assessment Scoring System (known as mini-SASS) which assesses river ecosystem health according to the number and variety of invertebrates available in samples.

"One of the key strengths of the miniSASS technique is that the results it produces are very similar to the full SASS," explained WRC Research Manager, Bonani Madikizela. "This allows the tool to act as a 'red flag' indicator on the condition of rivers, helping non-governmental agencies and citizen river monitoring groups to identify hot spots and areas where follow-up investigation is required."

Furthermore, the current school curriculum covers various aspects of environmental and/or life science studies. The miniSASS tool provides an ideal opportunity of integrating the teaching environment with Government's Adopt-a-river initiative, where communities agree to help monitoring and look after stretches of rivers in their proximity.

To watch the Youtube video on miniSASS Visit: http://www.youtube.com/watch?v=ZNFuG2ZcFts or Visit: www.groundtruth.co.za

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Holiday Programme

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