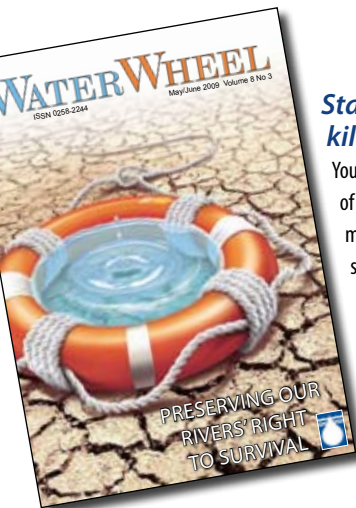




LETTERS TO THE EDITOR



State stalling tactics killing SA's rivers

Your report in the *Water Wheel* of May/June 2009 on Environmental Water Allocation begs some form of response. The headline that "Government leaders are slow to reserve water for environment" is an understatement, as this issue goes further back than the 1998 Water Act. It was recognised within the

South African DWAF more than 25 years ago that water was needed for ecological flow requirements – a preliminary, but rather arbitrary, figure of 15% of MAR was mooted. Scientists in South Africa spent many years prior to the New Water Act trying to provide a better scientific basis to this value. This was done despite a great deal of stalling from leadership within DWAF as they recognised that the concept conflicted with their main mission to impound and

provide water for social and economic users.

It was therefore surprising when the concept of ecological reserve (environmental flow) actually got enshrined in the new Water Act of 1998 – because there was the feeling at the time that this was not implementable. Nevertheless DWAF have somehow soldiered on with this concept by developing and providing quantifiable figures, guidelines and procedures. They seem to have partially done this, and some values for reserve water assessments, albeit modelled, appear in inconsistent and varying forms in the Water Allocation Reform documents for water management areas in South Africa (see www.dwaf.gov.za/WAR/wateravail.asp).

From all of these analyses, it is not easy to get a clear picture of how DWAF really intends to implement the ecological reserve commitment as there are too many geographic, climatic and political ifs and buts. The situation is also further complicated by the higher priority political commitment to the Millennium Development Goals (MDG) of providing water and sanitation to the entire South African population – of

which the resource, and impact, consequences are potentially enormous. The real problem is that we have a 'Jekyll and Hyde' paradox for South African decision-makers who have to resolve the conflict between providing water to the social and economic consumers as opposed to solving the requirements of the perceived wasteful sink known as the environment (which in DWAF's own words is a non-consumer). It is quite clear who is winning this conflict, and the winning approach will continue until the natural ecosystems, and the water resources they contain, are literally run down.

I heard Jackie King giving the same message more than 20 years ago – the government leaders are not only slow, but irresponsible as they preside over an insidious process which is non-sustainable for the water resources South Africa has. One only needs to look at the country-wide continuing trend in declining general water quality to get an idea of what the future holds – especially for the beneficiaries of the MDG who will be dependent on the natural environment for their water supply.

Danny Walmsley, Dartmouth

INTERNATIONAL
WATERCENTRE
www.watercentre.org

Full and partial tuition scholarships to study in Australia

Master of Integrated Water Management

Also available as a Certificate or Diploma



IWC Water Leader
Scholarships

Applications must be received by 1 August 2009.

www.watercentre.org/education/programs/scholarships

Email: scholarships@watercentre.org Tel: 61 7 3123 7766

* The IWC Water Leader Scholarships are not available for students undertaking the Certificate or Diploma

OUR GRADUATES RECEIVE A CO-BADGED DEGREE FROM FOUR LEADING AUSTRALIAN UNIVERSITIES:



Mines still the major polluters

Thanks for an interesting article (Study Tests the Water for More Efficient Products, *Water Wheel* November/December 2008).

You covered various aspects but the major polluters of our waters, namely the mines. Research figures from the WRC places it at around 46% of all the polluters.

These people continues even under the present NEMA and Water Acts particularly on the West Rand, the Wonderfontein and Tweelopies Spruit, the areas around Pretoria, Bronneberg, Bapsfontein, the Sand Mining in the wetlands north of Roodeplaas Dam, and they do so with apparent impunity.

We do not hear or see court cases where these people are brought to book only that they ostensibly create jobs (not employment) – in most cases they mechanise in any event.

In research reports originating from academics in the field, the Wonderfontein basin is a high-lying catchment area, the highly contaminated water can affect other rivers through the Vaal system right down to Alexander Bay. Add to this the contribution from the Free State rivers, and the effect on the agricultural products sold in open market, produced along the Gariep River.

Now these very people intend to interconnect the various basins from East to West under the guise that a central point can purify these waters to potable standard. It is a question of 'Nero fiddles while Rome burns'. This aspect needs a lot more attention. Also don't forget the radioactive dust, which is also found in our water. Local birdsong can no longer be heard – they cough us awake!

Eugene Viljoen Snr

If we only knew then what we know now

I enjoyed your article on the Buchberg Dam (*the Water Wheel*, March/April 2009). I partially agree with AD Lewis' view that "The Orange River will never provide a solution to the problem of water conservation, because large storage facilities will be subjected to siltation."

Those printer gremlins

Printer gremlins hit us twice in the article on Pongolapoort Dam in the *Water Wheel* May/June 2009 (Pongolapoort Dam: Development Steeped in Controversy).

Where the gross capacity is given as 2 500 m³ it should be 2 500 million m³. And the combined capacity is 2 010 m³/s and not 2 010 m³ as indicated. Thanks to Stanley Southwood for pointing out those errors.



In my view, the development of the Orange River's water resources should have started in the Highlands of Lesotho, at one or other of the sites such as the one where the Katse dam now stands. The basalt rock formations there are far less subject to erosion than the formations lower down. In addition, such dams would be located on the headwaters and would be capable to regulate the flow for the river's entire length. What a pity that narrow views on territorial jurisdiction and political factors would probably have prevented such sound development!

Theo van Robbroeck, PrEng

Praise for the Water Wheel

Dankie vir die lekker leesstof wat ek vandag uit die pos gekry het. Moes eintlik paar verslae doen vanaand maar kon nie die *Water Wheel* neersit nie! Ek het veral die artikels oor die Pongolapoort dam en die rivierreserwes geniet (Mei/Junie, 2009). Net genoeg kontroversie om nie onaangenaam te wees teenoor enige iemand nie!

Stephan Schoeman

Vervang uitheemse spesies met inheemse bome

Baie geluk met 'n uitstekende insiggewende tydskrif. Ons maatskappy (Enviro-Sculpt) bestaan uit 'n tuinboukundige (Naomi Esterhuyse) en 'n landskap-argitek (Petra de Nobrega).

Ons spesialiseer in inheemse boomrehabilitasie op wildsplase, hospitale, skole, en residensies. Die artikel oor slyk-verwerking d.m.v. boomaanplantings is baie interessant en hierdie navorsing moet gekomplimenteer word (Are We Ready for a Sludge Revolution, *Water Wheel* May/June 2009).

Ons nuuskierigheid is egter geprikkel deur die feit dat hulle slegs uitheemse bome in die navorsing gebruik. Aangesien hierdie bome hoofsaaklik in die bosboubedryf gebruik word, is dit te verstane dat daar 'n nodigheid is om bekende bome te gebruik in die vergelykingsproses. Hierdie bome word nou egter in 'n area geplant waar die spesifieke bome van ontslae geraak moet word a.g.v. hulle indringende karaktereienskappe.

Ons wonder oor die feit dat hulle nie enige inheemse bome, wat terselfdertyd rehabiliterende en ondersteunende eienskappe het, oorweeg het nie. Daar bestaan geen twyfel oor die feit dat ontslyking d.m.v. boomaanplanting wel sal plaasvind nie. Dit sou egter interessant wees om ook vas te stel hoe dit 'n rehabilitasieproses sou versnel.

Sou dit dalk moontlik wees om ons meer agtergrond te verskaf in hierdie verband? Indien nie, sal ons dit waardeer indien julle ons in kontak kan bring met die hoof van hierdie navorsing.

Beste wense en sukses met die voortbestaan van hierdie tydskrif.

Naomi Esterhuyse

Editor's Note: In response to this letter, project leader David Still of Partners in Development says "We do plan to test some indigenous trees, and also some fruit trees (paw paw and citrus). However, it was because we need to get the forestry industry interested in what we are doing [and there are basically only three trees they grow (wattle, gum and pine)] that we had to start with the commercial exotics. Another factor is that it is relatively easy to get hold of plant stock for the forestry trees, whereas we find it quite a mission to get numbers of seedlings for the indigenous trees."

SA to host regional groundwater institute

The University of the Free State is to host southern Africa's first regional Groundwater Management Institute (GMI) to be operational by 2010.

At least 70% of the 250 million people in the Southern African Development Community (SADC) rely on groundwater. Groundwater water resources are increasingly threatened by overabstraction, pollution and drought and the need to enhance groundwater management in the region has been identified as critical. The GMI will work to raise

the understanding of groundwater management through action-oriented research, knowledge management, awareness raising, coordination and capacity building.

Processes towards establishing the institute are being driven by the SADC project on Groundwater and Drought Management, which is supported with funding from the Global Environmental Facility Trust Fund, and SADC member states, with the World Bank as the implementing agency.



World mine-water specialists to gather in Pretoria

The world's foremost mine-water experts will gather in Pretoria in October for the 2009 International Mine Water Conference.

South Africa, together with the rest of Africa, represents a critical resource for a wide range of minerals to drive the world economy, notes Chair of the Conference Organising Committee William Pulles. "South Africa has a long history of mining and has limited natural water resources, leading to a situation where it also has a number of significant mine-water related challenges. With over 10 000 km² of hydraulically-interlinked coal mines and over 300 km of interlinked gold mines, mine-water challenges are not only at local mine level but at regional level too."

The International Mine Water Conference, being hosted by the Water Institute of Southern Africa's Mine Water Division and the International

Mine Water Association, will enable persons around the world who have an interest in mine-water management to learn first-hand how these 21st century challenges are being tackled. The conference promises an outstanding technical programme covering various themes, including environmental best practice guidelines, mine closure, active and passive mine-water treatment, management of brines and rehabilitation of mine residues, water management issues in underground and open-pit mining and management of radioactivity in mine water.

At least 24 countries will be represented, with over 100 oral and 60 posters to be presented. A range of optional post-conference technical tours are also being planned.

For more information Visit: www.wisa.org.za/minewater2009.htm or E-mail: confplan@iafrica.com

Department redeploys water resources expert

Former Chief Director: Integrated Water Resources Planning Peter van Niekerk was been appointed Water Resources Engineering Expert in the (newly named) Department of Water and Environmental Affairs (DWEA).

In his new role he will act as specialist adviser, expert and mentor to the department and, in particular, the water resource planning component. He will be a technical resource for the department at strategic planning level and advisor and participant in international commissions on shared rivers as well as water research institutions. Van Niekerk's role will include enhancing the image of the DWEA's water resources component and assisting in activities aimed at shaping its direction.

Water woman named top Cape entrepreneur

Founder and MD of Cape Town earth sciences consultancy Umvoto Africa, Rowena Hay, has been named the Cape entrepreneur winner in the ninth annual Businesswomen's Association Regional Business Achievers Awards.

The Western Cape social entrepreneur winner was Karen Harrison of Indego Consulting, which offers support around economic and government development issues, while the emerging entrepreneur winner was Michelle Petersen of the Lofted B&B.

Finalists were judged on passion for their chosen field, whether they showed leadership, determination, patience and commitment and had a sustainable long-term business with a keen awareness of costs and pricing of products and services. "This is a great accolade for Umvoto," noted Hay, who attributed the win to her company's highly qualified and professional staff, pioneering use of technology and commitment to delivering work of the highest standard. "I am proud we have a strong national and international reputation and are helping to contribute to society through science."

Hay will now compete against eight other regional entrepreneur winners in the National Business Achiever Awards competition, which usually takes place early in the New Year.

Urgent moves to halt second wave of croc deaths

Almost exactly a year after the first crocodile carcass was discovered in the Olifants Gorge, in the Kruger National Park (KNP), new deaths have been reported.

Last year's incident, in which hundreds of crocodiles died as a result of pancreatitis, sparked outrage from environmentalists and the general public, leading to large-scale investigations into the prolonged pollution of the Olifants River system (see *Water Wheel*, January/February 2009). The exact trigger of the mass crocodile mortality remains elusive and research continues in this regard.

So far this year South African National Parks (SANParks) rangers and scientists have found 12 dead and many other sick crocodiles in the Olifants River Gorge near Olifants Rest Camp. Helicopter-borne surveys showed that there are now a total of only 385 crocodiles in the gorge and lower Letaba River. "Our research shows that these crocodile mortalities are now a recurrent problem that is likely to occur every winter. If mortalities continue at this rate, there will be very few crocodiles in the lower Olifants and Letaba rivers by 2010," said Danie Pienaar, KNP Head: Scientific Services.

To date researchers have analysed water, sediments, fish and crocodile tissue samples for potential toxins and chemical compounds at laboratories, both locally and around the world, and although many heavy metals, agricultural pesticides, fertilisers, organic waste and persistent organic pollutants were detected, none were found to be above levels where



adverse effects are expected and were therefore not individually responsible for poisoning the crocodiles.

Last year, the Consortium for the Restoration of the Olifants Catchment (CROC), which includes several government and non-government institutions, was established to determine a clear cause-effect relationship as it became increasingly clear that the crocodile mortalities were symptomatic of serious and growing environmental problems in the Olifants River system. CROC's research has found, among others, that invertebrate species numbers have halved compared to 20 years ago, that the river has changed from a free-flowing river with diverse habitats to a standing water body as a result of the back-flooding caused by the raised Massingir Dam wall in Mozambique, and that there are numerous pollutants present in the water and sediment.

In addition, the presence of toxic blue-green algae (*Microcystis* spp) and dinoflagellate (*Ceratium* spp) has been detected, while fish species such as barbell (*Clarias gariepinus*) were shown to have hyperplastic gills, and liver pathology. In addition, crocodiles in the Olifants River in general show lower levels of antioxidants than crocodiles in other water sources.

"We will continue to burn all crocodile carcasses that we find as this seems to limit the spread of disease and will also continue our monitoring of the crocodile populations which includes marking crocodiles with VHF download transmitters, colour-coded tags and both daytime aerial surveys and night spotlight counts," noted Pienaar. "Long-term water quality data, collected as part of the Department of Water & Environmental Affairs' national monitoring programmes, will be evaluated to facilitate a better understanding of the *status quo* of the Olifants River."

KNP researchers and rangers have called for more collaborative efforts to ensure that South African rivers are clear of pollution. "It is unlikely that management actions which are taken inside the park can solve this (crocodile mortality) problem," noted Pienaar. "One would need a much larger and overarching restoration programme for the entire Olifants River system, which should focus on issues such as acid mine drainage, agricultural pesticides and fertiliser use, sewerage treatment and industrial and household sources of pollution."

Study finds ways to predict toxic algal blooms

The CSIR has succeeded in formulating a method to predict toxic algal bloom events in freshwater blue-green algae.

These blooms of blue-green algae – known as cyanobacteria – pose potential health threats in water reservoirs. The ability to predict a potentially toxic bloom event is therefore an important goal of monitoring fresh water.

Blue-green algae blooms occur when the normally low populations of cyanobacteria increase dramatically as a result of nutrient enrichment, and form dense accumulations in the surface water of lakes and reservoirs.

CSIR senior researcher and limnologist Dr Paul Oberholster says that blooms of cyanobacteria disrupt the normal biological systems and functions of lakes and dams. "Also, when raw water containing blue-green algal populations are discharged or

released from a dam they could have adverse effects on aquatic systems and water consumers downstream."

During a research study at Lake Krugersdrift in the Free State – funded by the National Research Foundation (NRF) and the Water Research Commission (WRC) – the research team developed a new assessment method that can be used as an 'early warning system' to warn of toxin-producing blue-green algal blooms in certain lakes and reservoirs. Oberholster reports predicting these kinds of bloom events can help water resource managers to select a water-withdrawal strategy that would minimise the health risk posed by algal toxins in irrigation water and drinking water.

"We used leeches as a bioindicator in Lake Krugersdrift – in contrast to other macro-invertebrates, leeches survive in water that contains toxic compounds released by cyanobacteria and their

occurrence almost always indicates poor water quality. When leeches are also present during a dense cyanobacterial bloom, this indicates a strong likelihood that the bloom is toxic. However, despite being able to survive in poor quality water, leeches cannot indicate the levels of toxicity that may be present. We also employed genetic techniques to detect the presence of the cyanobacteria genes that synthesise the cyanotoxins. A sensitive enzyme-linked immunosorbent assay using anti-bodies helped us to identify toxin-producing strains and measure the toxin levels. The combination of these tests has never been used before," comments Oberholster.

Some of these scientific findings have been published by Springer in the January 2009 edition of the journal *Ecotoxicology*, while the NRF and WRC have also received a detailed report on the research results.

Source: CSIR

WISA's first young president elected



The Water Institute of Southern Africa (WISA) has elected its first Young Professional President.

Dr Jo Burgess, Research Manager at the Water Research Commission, took

the helm at the inauguration of the Young Water Professionals Forum earlier this year. The initiative, first introduced by the International Water Association (IWA) aims to establish a national network for young water professionals who contribute to the sector through study, work or practice. A young water profes-

sional is defined as being younger than 35 years of age and working in the sector for less than five years.

"Fulfilling the present and future needs of the water and wastewater industries requires the continuous development of a workforce which is adequate in size, capable in skills and strong in leadership. Young professionals are the future of the sector and therefore the future of WISA," said Dr Burgess, herself a young water professional, in her inaugural address. "The primary aim of the first year is to put systems in place to enable the programme to be self-sustaining."

Much focus is initially being placed on creating effective communication networks to inform South African young water professionals of forthcoming activities and other news relevant to them. Among others, the first national Young Water Professionals Conference will be held in Gauteng in January

2010. The winner of the best paper at this conference will go on to present his/her paper at the IWA International Young Water Professional Conference in Sydney, Australia, 5-7 July 2010.

Other objectives of the forum include career development, sector support and programme development. "On the one hand the initiative hopes to attract and attain the skills of young professionals in the water and wastewater sectors and, on the other hand, it hopes to assist young people themselves to gain the necessary skills in order to advance their careers," Dr Burgess told *the Water Wheel*.

For more information regarding the forum contact Dr Jo Burgess at Tel: (012) 330-0340; E-mail: job@wrc.org.za; or Dr Tobias Barnard at Tel: (011) 406-2569. For more information regarding the conference, contact Cilla Taylor at Tel: (012) 667-3681 or E-mail: confplan@iafrica.com

Advances in 'sophisticated' systems brings hope to rural communities

Long considered a sophisticated and 'alternative' technology, membranes are set to play an increasingly important role in the quest to improve access to drinking water for rural communities.

Poor, far-flung populations are mostly the last on the list for improved water services as it is often-times nearly economically and technically impossible to set up a reliable water network in these areas. As a result, the focus is increasingly shifting to decentralised water supply for these communities.

Continuous progress in membrane design, leading to improved energy efficiency, robustness and reduced cost, has resulted in these systems being considered an ever more attractive alternative for decentralised water supply. "Membrane processes seem promising as they efficiently remove pathogens and offer a modular design that enables flexibility in terms of flow capacity reduction," reports Eric Hoa of the Berlin Centre of Competence for Water.

Speaking at the International Water Institute of Southern Africa Membrane Technology Conference, held in Stellenbosch in May, Hoa said in only a few years robust, low-cost and chemical independent systems are set to enter the global market. He is part of a European research group aiming to develop such a low-energy ultrafiltration unit for small drinking water applications.

A test unit (5 m³/day) is already being set up in France and in South Africa. The system, which

is based on a gravity-driven UF process, enables operation without crossflow, backflush, aeration of chemical cleaning.

The South African Water Research Commission (WRC) has focused on locally-produced membrane technology for rural communities for a number of years, and one of the latest developments in this regard is a gravity-fed microfiltration water treatment unit for specific use in small-scale, rural applications. Led by Prof Lingam Pillay of the Department of Chemical Engineering at the Durban Institute of Technology, the project, which is currently undergoing field testing, saw the production of a simple and robust microfiltration module and membrane pack based on locally-produced woven fibre polyester microfiltration fabric. The system is extremely simple to operate and clean, is transportable and potentially very inexpensive.

"Membrane technology is ideal for potable water production in underdeveloped, rural regions, particularly since the product quality is neither dependent on the skills of the operator nor raw water quality," noted Prof Pillay. "While current commercial membranes on the international market generally do not lend themselves to small water treatment systems that would be sustainable in rural areas, we believe the microfiltration water treatment unit we have developed could eventually have a significant impact on addressing the huge backlog in water provision to rural areas."

WATER DIARY

WATER HISTORY AUGUST 4-8

The Biennial Conference of the International Water History Association will be held in Copenhagen, Denmark. The theme is 'Local Livelihoods and Global Challenges: Understanding Human Interaction with the Environment'.

Visit: <http://wceh2009.org>

CLIMATE CHANGE AUGUST 12-14

A climate change summit, organised by the University of Ghana, will be held in Accra, Ghana.

Enquiries: Tel: +233-(0)289550192; E-mail: climpact2009@ug.edu.gh

DESALINATION SEPTEMBER 1-3

The 5th IWA Specialised Membrane Technology Conference for Water and Wastewater Treatment will take place in Beijing, China.

Visit: www.iwa-mtc2009.org

AQUACULTURE SEPTEMBER 7-11

The 9th Conference of the Aquaculture Association of Southern Africa will take place in Swakopmund, Namibia. The theme for this year's conference is 'Africa in the Global Aquaculture Village'. Enquiries: info@aasa-aqua.co.za; E-mail: info@aasa-aqua.co.za

WATER BY NUMBERS

R10-billion – The funds earmarked between now and 2012 for investment in significant bulk water infrastructure, according to the Department of Water & Environmental Affairs.

130 million m³ – The storage capacity of the newly-inaugurated Autshumato Dam (previously known a Berg River Dam). The dam adds almost 20% to the City of Cape Town's water supply.

135 – The number of environmental emergencies China's Ministry of Environmental Protection had to deal with in 2008, of which 46 posed a threat to drinking water.

85,3 km – The length of the world's longest water diversion tunnel, completed in north-east China's Liaoning province earlier this year. The tunnel has a diameter of 8 m. The previous record was held by Japan's Seikan tunnel, which is 53,86 km long.

>90% – The average percentage of global cholera cases stemming from Africa every year, according to the World Health Organisation. In 2007, Africa accounted for 93,6% of cases, compared to 99% in 2006.

86 000 – The number of blocked sewers cleared by the City of Cape Town in 2008. The municipality has announced that it is planning to start a R56-million sewer replacement programme from July. The City's sewer network consists of some 8 000 km of pipelines.

17% – The average percentage of child caretakers who wash their hands with soap after going to the toilet according to an international study. The study by the Hygiene Centre at the London School of Hygiene & Tropical Medicine, which looked at hygiene in 11 countries, found that hand-washing was still generally not taught at an early age, despite being one of the most cost-effective ways of preventing infection.

Academies of science urge governments to act on climate change

The presidents of the G8+5 Academies of Science, including the Academy of Science of South Africa (ASSAf), are agreed that climate change is an issue that can no longer be ignored by governments. In a joint statement of climate change and the transformation of energy technologies for a low-carbon future submitted to the G8+5 meeting in July, scientists warned that urgent action is now essential. In order to provide scientific data for evaluation and to suggest possible intervention strategies, members of the Academies of the G8+5 countries (Brazil, Canada, China, France, Germany, India, Italy, Japan, Mexico, Russia, South Africa, the UK, the US, and Egypt as an observer) gathered in March at a meeting in Rome, hosted by the Accademia Nazionale dei Lincei.

According to the statement, crucial indicators of climate change have been progressively amplified recently. These include arctic sea ice melting at higher rates than predicted, the rise in sea levels, reduction in the salinity of oceans, desertification in the arid regions as well as the depletion of groundwater in the South of the Mediterranean.

The dire consequences of these climate changes threaten the economic and social development of developed countries and can seriously affect the future of developing countries. These changes, closely linked to the increased use of fossil fuels for energy production, require urgent measures from governments who must adopt new policies on worldwide energy production.

Fossil fuels, scholars note, remain the main source of energy supplying the increasing needs of developing countries. However, the fundamental goal of reducing the anthropogenic impact on climate changes needs to be considered. This result can be achieved by a continuous improvement in efficiency and emission standards in the production



and use of fossil fuels.

In the statement presented at the July summit, the academies suggest encouraging the increased adoption of renewable energy technologies, such as wind, geothermal, solar energy, biofuels, and wave power to move the global economy away from the heavy use of fossil fuels.

Greenhouse gas emissions remain a central issue to be addressed. A low-carbon economy will require integrated systems, global collaboration and concerted actions. International collaboration in scientific research on low carbon and climate resilient technologies is crucial. The document stresses the far-reaching, but as yet unrealised, opportunities for the creation of new solutions in construction, transportation, food conservation, urban and industrial communities, the safeguarding of protected areas, water saving practices in agriculture and industry; for the creation of new jobs; and for the stimulation of new and emerging markets.

Youth to be more involved in environment

The Deputy Minister of Water & Environmental Affairs Rejoice Mabudafhasi has launched a new National Youth Service Programme in Saldanha, in the Western Cape.

The pilot project will see 150 unemployed youths between the ages of 18 and 35 working on environmentally-focused projects over the next year, including greening the environment, conserving natural resources, coastal management, waste management and upgrading of public infrastruc-

ture. It is expected that the project will later be expanded to include a further 250 youths in the next two years.

In addition to serving their communities, the youths will be empowered through training accredited by the National Qualifications Framework in the several areas, including computer skills, environmental technical training, and entrepreneurship. They will also be provided with the opportunity to obtain their drivers licences.

Course offered on water quality management

The University of Pretoria is hosting a short course on water quality management and effluent treatment on 17-21 August.

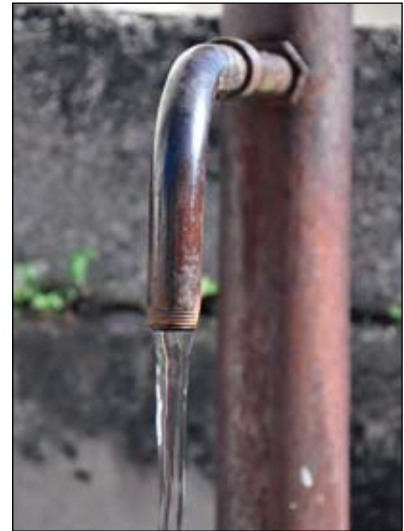
The course aims at updating delegates on the most recent strategies for water quality management and providing useful insights into current and future solutions for water quality and availability problems encountered in this region. Featured in a workshop format, the course includes discussion sessions and guest lectures presented by experts from industry. Open sessions are included that offer opportunities for delegates to share their own

experiences thereby utilising the class as a critical information board.

This course provides both technical persons and decision makers in the field an extensive overview supported by updated reference materials. It is also a valuable preparatory tool to persons planning to enrol in the postgraduate degree programmes in water utilisation engineering and environmental engineering/technology in the near future.

For more information contact Elmarie Otto at Tel: (012) 420-3824 or E-mail:

elmarie.otto@up.ac.za



WATER DIARY (continued)

WATER SEPTEMBER 8-10

The Biennial AfriWater water and waste exhibition will be held at the Expo Centre at Nasrec, Johannesburg. *Enquiries: Zia Tomes (exhibitions manager); Tel: (011) 835-1565; Fax: (011) 496-2045; E-mail: ziat@specialised.com*

HYDROLOGY SEPTEMBER 21-23

The 14th SANCIAHS Symposium with the theme 'Towards Sustainable Water Quantity and Quality Management: Challenges for the Hydrological Sciences', will take place at the University of KwaZulu-Natal, Pietermaritzburg. *Enquiries: Courtney Thompson; Tel: (033) 260-5490; Fax: (033) 260-5818; E-mail: thomps@ukzn.ac.za*

WASH NOVEMBER 30-DECEMBER 2

East London will host the Third International WASH (water, sanitation, health & hygiene) Practitioners' Marketplace and Fair. This year's theme is 'Keep Sharing for Effective WASH Knowledge Management'. *Visit: www.streams.net or www.wrc.org.za*

Partnerships the lifeboat over troubled waters

Government, business and society will all need to become part of the solution to South Africa's water challenges.

This was one of the main messages emanating from the Water Security Africa conference held at Magaliesburg earlier this year.

"The South African economy is fundamentally water constrained. We have reached that threshold and are now moving into an unknown area where assurance of supply will increasingly become a business risk," reported Dr Anthony Turton, Director of Touchstone Resources.

As the country strives to grow the economy while restoring historic imbalances in the population, South Africa's water resources are becoming ever more constrained, with several 'hot spot' areas being highlighted in the press in recent times. According to Dr Turton, now is not the time to point fingers. "We need to avoid playing the blame game. We need new partnerships between organised business and the national science councils to develop a fresh strategic vision. We need to mobilise greater technological skill and ingenuity than it took to create the problem (for example, acid mine drainage) to find solutions."

Some companies, such as Sasol, have already realised the importance to their own water security to become involved in catchment-wide water resource management initiatives. "Water is rapidly moving up the business sustainability agenda;

water is the next carbon, and we can expect greater disclosure requirements, similar to carbon disclosure projects, going into the future," reported Sasol's Martin Ginster.

The petrochemical giant has made a strategic move to move beyond the factory fence, which has required a shift in focus to the catchments impacted on by operations, and on which operations depend for water. "We see huge potential for public-private partnerships. Cooperation is essential to achieve equitable benefit sharing."

One of the greatest hurdles hampering progress in the water sector today is the huge shortage of skills experienced in the sector at present, especially in government departments. According to Dr Chris Herold, Chair of the water division of the South African Institution of Civil Engineering, the seven-fold loss of engineers and technologies within the Department of Water & Environmental Affairs since 1994 is one of the main reasons for the failure of many national water resource management programmes. "The loss of capacity and skills is one of the main reasons why the National Water Act is not being implemented successfully."

Dr Herold pointed out that the private sector still had a large reservoir of professional expertise and technical skills that could be tapped. "South Africa has many highly regarded skills in the water sector. They must be harnessed and fully used."