

## Lifestyle costing made easy with new software



Engineers and designers of bulk water pipelines now have a tool available to them to determine the most economical solution for the complete design life of their system.

The software, named AQUA Hydraulic Utilities, is described in a new report available from the Water Research Commission, entitled *Lifecycle Costing Analyses for Pipeline Design and Supporting Software*. The report, authored by Prof Fanie van Vuuren and Marco van Dijk, both from the University of Pretoria's Department of Civil and Biosystems, is a guide to lifecycle costing analysis, limited to the design/analyses of bulk pipelines.

The guide introduces different lifecycle cost elements to the design engineer, and indicates how these cost elements will affect the final decision. It also explains the

functionality of the AQUA Hydraulic Utilities program.

The program requires the user to enter the demands, design life, pipeline profile, pipeline characteristics, laying details, rates and costs of the proposed pipeline. It will then determine the initial capital requirements, the annual maintenance and operational costs and, in the case of a pumping system, the energy costs. The program also provides a graphical representation of these costs, as well as the hydraulic capacity of the ageing system.

- *The AQUA Hydraulic Utilities program can be downloaded from [www.wrc.org.za](http://www.wrc.org.za) or [www.sinotechcc.co.za](http://www.sinotechcc.co.za).*
- *To order the report, WRC Report No 278/06, contact Publications at Tel: (012) 330-0340 or E-mail: [orders@wrc.org.za](mailto:orders@wrc.org.za)*

## More bulk infrastructure planned for SA

Development of bulk infrastructure remains top of mind for the Department of Water Affairs & Forestry (DWAF), at least in the short term.

While this may be good news for the construction industry it could concern ecologists and conservationists, especially since the department's latest annual report reveals that only 28,2% of the rivers surveyed under the River Health Programme to date remain in natural or good condition. Already 29% of the rivers surveyed are in poor condition.

Construction of bulk infrastructure projects such as the Berg River Dam and the Vaal River Eastern Sub-System Project are continuing at full steam. Pre-feasibility and feasibility studies were completed for a number

of proposed developments. This includes the feasibility reports for the Mooi-Mngeni Transfer Scheme Phase II, which proposes the construction of the Spring Grove Dam on the Mooi River as well as the De Hoop Dam on the Steelpoort River.

Investigations into the construction of a dam on the Lower Orange river close to the border between South Africa and Namibia are also going ahead.

In addition, pre-feasibility study reports were completed for the use of low-level storage at Vanderkloof Dam and viability of irrigation schemes for resource-poor farmers in the Eastern Cape. The refurbishment of 20 dams has also been initiated across the country.

## Choose loos carefully, says expert

Municipalities should carefully weigh all the options before selecting a sanitation technology.

So said David Still of Partners in Development at the Water Institute of Southern Africa's Appropriate Technologies conference, held in Umhlanga towards the end of last year. Still, who has been investigating the cost of sanitation in a project funded by the Water Research Commission, reported that many local municipalities were still set on implementing full waterborne sanitation, even though at times neither the authority nor the users could afford it.

Compared to ventilated improved pit toilets or urine diversion toilets, which cost about R4 000 per unit, waterborne toilets could cost about up to R30 000 per unit to install, including bulk sewer and wastewater treatment costs. "This is only construction costs, but what about long-term operation and maintenance?", Still asked.

The costs of on-site sanitation systems fall well within local government finance allocations, such as the Municipal Infrastructure Grant and the Equitable Share. Moreover, these systems often did not require much operation and maintenance compared to waterborne sanitation.

"When waterborne sanitation does not function properly, it cannot be considered an improvement in service. Unmaintained systems can be extremely hazardous to the health of communities, and have far-reaching environmental consequences," noted Still. He advised local authorities not to even consider waterborne sanitation if they did not have the necessary skills or financial capacity to operate and maintain such a system.

In addition, the cost to the household had to be borne in mind. "A household with waterborne sanitation will use about 10 kℓ more water per month than a family without," noted Still. "This means having a flush toilet could cost that family about R100 more per month in water bills."

## Give private sector a chance

South Africa needs the private sector now more than ever to assist in rapid services delivery.

So said Laila Horton, senior project advisor in the National Treasury's Public-Private Partnership (PPP) Unit. She was speaking at the Africa Water Congress, held in Gauteng, in November.

The cumbersome legislative framework, opposition from labour and the persistent preference of public sector provision have led to a decline in PPPs in the South African water sector since the 1990s. Other constraints include the limited capacity within the public sector as well as the historically poor bankability of these projects.

According to Horton, current efforts to meet the 2008 target for basic water services and 2010 target for sanitation services would have to quadruple. "Private sector investment can go a long way in assisting municipalities to meet these deadlines for delivery."

At the time of writing, National Treasury was in consultation with the Department of Provincial and Local Government to find ways of simplifying and streamlining present PPP legislation.

The PPP Unit is also offering local authorities financial assistance for Section 78 assessment and feasibility studies into possible involvement of private companies in water projects through its Project Development Facility. "Many a time, local authorities only consider public delivery options, without even considering the potential of a PPP," noted Horton.

Possible suitable projects for PPP involvement include those in areas with high-income users (for example, mining companies and resort towns); as well as projects in water scarce areas which require sophisticated technologies such as the establishment of desalination plants along the West Coast. Horton said cost saving endeavours (leakage reduction, improved billing and collection) also offered significant potential for private sector investment.



### Maguga Wins

Rob Fraser of Ninham Shand won this year's photographic award presented by the South African Institution of Civil Engineering for his photograph of the Maguga Dam, situated in the Komati River in Swaziland.

## Water Diary

### WATER & SANITATION FEBRUARY 12-24

International company Bushproof is offering an introductory course on water and sanitation technologies for development situations and emergencies in Fort Dauphin, Madagascar. *Enquiries:* Eric Fewster; *Tel:* +44 (7814) 788 846; *E-mail:* [ericfewster@bushproof.com](mailto:ericfewster@bushproof.com); *Visit:* [www.bushproof.com](http://www.bushproof.com)

### NUTRIENT REMOVAL MARCH 4-7

The Water Environment Federation, in cooperation with the IWA Nutrient Removal and Recovery Group, US EPA and the Chesapeake Water Environment Federation will be hosting a Speciality Conference covering the latest research and experience in the design and operation of nutrient removal systems at municipal and industrial wastewater treatment plants. The conference will be held in Maryland, US. *Enquiries:* *Tel:* +1 708-684-2400 ext 7010 or *E-mail:* [Nutrients2007@wef.org](mailto:Nutrients2007@wef.org)

### SANITATION MARCH 12-13

The International Water Association and the Institute of Environmental Engineering of RWTH Aachen University are hosting an Advanced Sanitation conference in Aachen,

Germany. Topics include decentralised wastewater systems, non-conventional wastewater treatment systems, economics, social aspects and case studies, among others. *Enquiries:* Peter Lambertz; *Tel:* 0049-(0)241-8026821; *E-mail:* [lambertz@advancedsanitation.de](mailto:lambertz@advancedsanitation.de)

### TECHNOLOGY MARCH 14-16

LabAfrica 2007, a showcase for suppliers of laboratory equipment and analytical instrumentation will be held at the Coca-Cola Dome, in Johannesburg. *Enquiries:* *Tel:* (011) 460-0247; *Visit:* [www.labafricaonline.co.za](http://www.labafricaonline.co.za)

### DESALINATION MARCH 18-20

The Seventh WISA Membrane Technology Division Workshop will be held at Mabalingwe Nature Reserve, in Limpopo. *Enquiries:* Marshall Sheldon, *Tel:* (021) 460-3160; *Fax:* (021) 460-3282; *E-mail:* [sheldonm@cput.ac.za](mailto:sheldonm@cput.ac.za)

### WATER IN PROTECTED AREAS APRIL 25-27

The IWA & UNESCO are hosting a the Second International Conference on Water in Protected Areas in Dubrovnik, Croatia. *E-mail:* [hdzv@voda.hr](mailto:hdzv@voda.hr) or *Visit:* [www.hdzv.hr](http://www.hdzv.hr)

## Sanitation falls short of the grade

South Africa's public sanitation assets only managed an overall E grade in the first *Infrastructure Report Card for South Africa*, published by the South African Institution of Civil Engineering (SAICE).

The report, a reflection of the present state of the country's built environment, including water, sanitation, solid waste, roads, rail, ports, airport, electricity, hospitals and clinics, is based on the expert perception of eminent professionals in the civil engineering field, backed by existing research. "While the South African government has made significant strides in addressing backlogs of the past, and continues to invest at a rapid pace in infrastructure to the previously disadvantaged, significant challenges remain which are threatening our nation's support systems," noted SAICE President Sam Amod.

Two key themes emerged from the report. The first is the extreme shortage of skills and the terrible impact this is having on planning, procurement, design, construction and care of infrastructure. The second is the lack of adequate funding for the maintenance of the existing asset base and the new assets that come on stream each day. "It is imperative that we do not continue to build only to permit decay. Neither can we continue the culture of 'patch and pray' that typifies too many of our maintenance activities," Amod said.

The challenges of skills and maintenance are most acute in the sanitation sector, which scored the lowest ranking of the public infrastructure graded. The report pointed out that, while South Africa has some very adequate sanitation infrastructure and service delivery, it has an increasing proportion of deteriorating infrastructure together with poor and often unacceptable quality services.

A nationwide sanitation sustainability audit in 2004/5 to ascertain the functionality of sanitation projects completed since 1994 revealed that 28% of households' sanitation facilities have failed or are in the process of failing, and only 53% of municipalities have adequate operations and maintenance



SAICE President Sam Amod at the launch of the *Infrastructure Report Card*.

capacity. Another survey of 51 micro, small and medium-sized wastewater treatment plants undertaken in 2005/6 found that "immediate intervention" was required at about 30% of the works to avoid crisis situations such as an outbreak of waterborne diseases.

Bulk water infrastructure scored a D+. The report noted with concern that some 150 of the Department of Water Affairs & Forestry's (DWA's) 350 dams have significant dam safety shortcomings. On a positive note, a dam refurbishment programme is starting during the 2006/7 financial year.

A further assessment of water supply infrastructure owned by water services authorities (mostly municipalities) and water boards showed that while some water services institutions have exemplary practices in place with respect to many of the aspects of infrastructure management, gross shortfalls in management policies and practices exist in many others. Most non-metro water services authorities are failing in their compliance with the compulsory national standards for the quality of potable water.

"Government should not change its focus from providing the new infrastructure to address backlogs from the past," said Dr Kevin Wall, past President of SAICE, and the main author of the report. "The challenge is

to do this and at the same time also maintain both old and new infrastructure, as well as upgrade or replace infrastructure that is overloaded or has become obsolete."

Commenting on the findings of the report, Fred van Zyl, DWA's Director: Planning & Infrastructure, said it came as no surprise, as most of the findings were based on surveys carried out by the national department itself. "Government faces massive infrastructure challenges, not the least being meeting the water and sanitation targets of 2008 and 2010 respectively. It is estimated that a 350% increase in the present rate of delivery is required to meet the water target. We also need to increase present sanitation delivery from the estimated 100 000 units a year to 900 000 units a year."

Investigations also showed that in many local authorities, present infrastructure was not able to meet the increased demand. According to Van Zyl, a series of intervention strategies have been launched by the national department to aid municipalities in improving the management of new and existing infrastructure.

- The report is available from SAICE's website: [www.civils.org.za](http://www.civils.org.za)

## Sewage threatens world's oceans



Nearly 90% of sewage entering coastal zones in many developing countries are estimated to be raw and untreated, according to a new study by the United Nations Environment Programme (UNEP).

This rising tide of sewage is threatening the world's seas and oceans, endangering human health, wildlife and livelihoods, the *State of the Marine Environment* report warns. It is estimated that an additional US\$56-billion a year is required to address the global sewage problem.

With regards to South Africa the report notes that untreated sewage does enter the marine environment via informal settlements, and is cause for concern in larger coastal cities such as Cape Town, Port Elizabeth and Durban. Contaminated stormwater runoff is considered the major cause of any non-compliance to bathing quality standards.

Other areas in need of attention are the declining flows in many of the world's rivers as a result of dams, over-abstraction and global warming; new streams of chemicals; the state of coastal and freshwater wetlands and sea-level rise linked with climate change. Meanwhile, around 700 delegates from 15 countries attended an international conference in Beijing, China, to combat sewage, pesticides and other forms of pollution coming from the land into the seas and oceans.



## World population running out of resources

Humans are consuming natural resources faster than they can be replaced, according to the 2006 *Living Planet Report* by world conservation organisation WWF.

The report notes that on current projections humanity will be using two planets' worth of natural resources by 2050 – if those resources have not run out by then. It also confirms the trend of biodiversity loss seen in previous *Living Planet* reports, produced biennially. "We are in serious ecological overshoot, consuming resources faster than the Earth can replace them," said WWF DG James Leape. "The consequences of this are predictable and dire."

*School girls filling water bottles at a water tap in Nairobi, Kenya. Water is a threatened resource and with population growth and expanding urbanisation the pressure can only increase.*



Credit: WWF-Canon/Martin Harvey

With regards to water resources, the report shows that freshwater species have declined by 28%. The main drivers are habitat destruction, over fishing, invasive species, pollution and the disruption of river systems for water supplies. It is reported that the alteration and damming of river systems for industrial and domestic use, irrigation and hydroelectric power have fragmented more than half of the world's large river systems. Water withdrawals worldwide amount to about 4 000 km<sup>3</sup> per year, equivalent to about 10% of global freshwater runoff.

Fragmentation and alteration of natural river flows affect the productivity of wetlands, flood plains, and deltas, disrupt the migration and dispersal of fish, and cause decline in freshwater species. Some 83% of rivers' total annual flow is affected – 52% moderately, 31% severely – with Europe's river flow being the most regulated and Australasia's the least. Worldwide, the amount of water stored in reservoirs behind dams is three to six times the quantity contained in rivers.

According to the report, worldwide Mediterranean woodlands, deserts and xeric shrublands, temperate broadleaved forests, and temperate, flooded and montane grassland biomes all have more than 70% (by catchment area) of their large river systems severely disrupted, primarily for irrigation.

## Killer spinach found in US

*E. coli* tainted spinach caused the deaths of at least three people and sickened nearly 200 others in the US.

It was the twentieth such outbreak in lettuce or spinach since 1995, reports Associated Press. At the time of writing, investigators had found the same strain of

bacteria at a cattle ranch in California's Salinas Valley within a mile of spinach fields, but were unsure how the bacteria made its way on to the spinach. Agricultural runoff, irrigation water and the hygiene of farm workers as potential sources were being investigated.

The produce company that processed and packaged the spinach at the centre of the outbreak investigation has repeatedly asserted its factories are blameless, and pointed to the fields where the greens are grown as the potential source of the problem.

## Most Polluted Places Named



Courtesy of Wikipedia

*The encapsulated Chernobyl reactor.*

The world's ten most polluted places have been named by independent environmental action group, the Blacksmith Institute.

Sites in eight countries affecting a total of more than ten million people were identified as the areas where environmental degradation presents the worst long-term health threats and, at the same time, an opportunity to reverse the problems. "A key criterion in the selection process was the nature of the pollutant," said Richard Fuller, Director of the Blacksmith Institute. "The biggest culprits are heavy metals – such as lead, chromium and mercury – and long-lasting chemicals, such as persistent organic pollutants."

Living in a town with serious pollution is like living under a death sentence, according to the report. "If the damage does not come from immediate poisoning, then cancers, lung infections and mental retardation are likely outcomes." The selected polluted places listed bear testimony to the severe impact man has on his environment.

While it has been 20 years since the world's worst nuclear disaster, Chernobyl, in the Ukraine, remains arguably the most polluted place on earth. The 19-mile exclusion zone around the plant remains uninhabitable to this day. The reactor was enclosed in a concrete casing after the accident to contain radioactivity within the plant. There are concerns, however, that leaks in the structure have caused rainwater and fuel dust to form a toxic liquid that may be contaminating the groundwater.

In Dzershinsk, Russia, a significant centre of the Russian chemical manufacturing industry, the average life expectancy is 42 years for men and 47 for women. Until the end of the Cold War, the city was among Russia's principal production sites of chemical weapons. It is reported that from 1930 to 1998, almost 300 000 t of chemicals waste were improperly disposed of. The city draws its drinking water from the same aquifers into which these old wastes and unused products were pumped.

The effects of tannery waste, containing hexavalent chromium and azodyes, potentially affects 3.4 million people in Ranipet, India. The contamination of the soil and groundwater with wastewater, as well as runoff from solid wastes has affected the health, resources and livelihood of thousands of people.

There are 23 tailings dumps and 13 waste rock dumps scattered throughout Mailuu-Suu, Kyrgyzstan, home to a former Soviet uranium plant. An estimated 1.96 million m<sup>3</sup> of radioactive mining waste threatens the Ferghana valley, one of the most fertile and densely populated areas in Central Asia. Due to the high rates of seismic activity in the area, million of people are potentially at risk from a failure of the waste containment. In April last year, about 300 000 m<sup>3</sup> of material fell into the Mailuu-Suu River.

To access the report go to [www.blacksmith-institute.org/top10/10worst1.pdf](http://www.blacksmith-institute.org/top10/10worst1.pdf)

## New report on world water

*The World's Water 2006-2007*, published by the Pacific Institute, is now available. Produced biennially, the report identifies and explains pertinent trends, and offers some of the best data available on a variety of water-related topics. Present worldwide water issues covered include water and terrorism, preserving and restoring instream water allocations, desalination, growing risks of floods and droughts, environment justice of water, water risks facing industry, and bottled water.

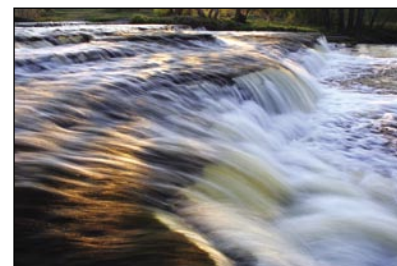
According to Editor Peter Gleick, there have been some positive changes in the world regarding water. There seems to be a growing public interest in water, and increased involvement of communities. In addition, there are new efforts at ecosystems restoration.

*The World's Water* describes more than 50 incidents of water-related terrorism, starting in the 1700s. Other interesting numbers include the fact that there are more than 10 000 desalination plants worldwide.

The bottled water sector is expanding fast, and is now a US\$400-500 billion a year business. Despite its tremendous growth worldwide, it remains 1 000 times more expensive than high-quality tap water. Interestingly, the publication also notes that there have been more than 100 official 'recalls' of bottled water in recent years.

The report underlines the fact that science is crucial to water policy. "The integrity of science is key. We live in an increasingly polarised, critical, cynical world: efforts to diminish respect for media, government, academics and science will diminish the chances of solving the remaining water problems," noted Gleick.

To purchase the report go to [www.world-water.org](http://www.world-water.org) or [www.pacinst.org](http://www.pacinst.org)



## The world in brief

- Trees that live in an odd forest in Oman, in the **Middle East**, have found an unusual way to water themselves by extracting moisture from low-lying clouds. According to researchers from the Massachusetts Institute of Technology the trees have preserved an ecological niche despite being surrounded by desert by exploiting a wispy-thin source of water that only occurs seasonally.
- The **US government** has partnered with two large non-profit organisations, the Case Foundation and the MCJ Foundation, to help bring clean drinking water to millions of people in sub-Saharan Africa. The so-called Playpump Alliance hopes to install 4 000 pumps in schools and communities over the next few years.
- Members of the **G-77** backed plans for the establishment of the Consortium on Science, Technology & Innovation for the South (COSTIS). COSTIS will focus on organising South-South forums on developing appropriate and affordable technologies in sectors such as energy and water.
- **Ghana** has finalised a US\$600-million deal with a Chinese corporation to build a 400 MW hydro-electric dam in the north of the country.
- Australia's worst drought in known history has sparked an increase in the number of **water bandits** who use crow-bars to crack open water tanks and steal the contents. Farmers have been advised to lock their water stores.
- US scientists have identified a 'new generation' of byproducts of the disinfection processes used to purify drinking water at municipal water treatment plants. They reportedly identified 28 previously unreported so-called **disinfection by-products** (DBPs), however toxicity studies are still to be conducted to determine the health implications of these DBPs.

## More plants, more rain

A statistical study of satellite images has indicated that more plants make for more rain.

The study, published in *Geophysical Research Letters*, concludes that vegetation effects account for about 30% of annual rainfall variation in Africa's Sahel region. This should assist scientists in understanding rainfall patterns in the area, which is threatened with increasing desertification and periods of drought. "It gives us an additional element of predictability: a bit of an edge in knowing where it might rain," reports study co-author Peter Cox, Director of the Climate and Land Surface Interactions Centre.



## US scientists score big by thinking small

Researchers at the University of California, in the US, have designed nanoparticles to create a membrane that does not clog easily, allowing water to be pumped through using less energy.

Sci-Dev.Net reports that in the new membrane, used in reverse osmosis, nanoparticles are designed to attract water, soaking it up like a sponge, while repelling nearly all contaminants that might ordinarily stick to the surface. This creates a water purification process that is as effective as present methods, but may use half the energy, reducing the total cost of water desalination by 25%.

## Water by Numbers

- **8,3 km** – The length of the new pipeline being constructed from the Crocodile River in Nelspruit to White River, via Rocky Drift. The pipeline is expected to be completed by mid-2007.
- **R112-million** – The Water Research Commission's planned research funding for 2006/07.
- **R154-million** – The profit posted by Umgeni Water for the 2005/6 financial year. The previous year's profit was R40-million.
- **59%** – The estimated proportion of people in the world that have access to basic sanitation. Only 37% of people in sub-Saharan Africa have access, according to the UN.
- **R2,5-billion** – The money to be spent by Rand Water over the next five years on upgrading and refurbishing its distribution infrastructure. The company reportedly spent R607-million on refurbishing and upgrading its infrastructure in the 2006 fiscal year.
- **25 million** – The estimated number of 'environmental refugees' – people forced to leave their homes due to increased water insecurity – according to international NGO Tearfund. For example, in Nigeria, thousands of square kilometres of land are converted to desert each year, forcing farmers and herdsmen to move to the cities.
- **3 600** – The estimated number of international treaties signed since the last water war between two Sumerian city-states 4 500 years ago.
- **US\$81,8-million** – The funds loaned to Tanzania by the African Development Bank for water and sanitation projects in rural areas. The funds will be channelled through the Tanzania Rural Water & Sanitation Programme.
- **R27-million** – The value of the tender issued by the Limpopo government for the repair of sewerage systems in the Elias Motswaledi District Municipality.
- **93%** – The percentage of the South African population who have access to basic water supply, according to the Department of Water Affairs & Forestry.



## Two successes for turnkey firm

VWS Envig has completed two large projects involving the construction of water recycling plants for SAPREF and ImproChem at the Chevron Refinery.

The SAPREF reverse osmosis (RO) plant was designed, built and commissioned by VWS Envig. Water from the Durban Water Recycling Plant is directed to the RO plant where it undergoes carbon filtration to remove impurities such as odours and organic compounds. The water then goes through two stages of RO followed by

a final stage where the water is polished with a mixed bed to meet the required specifications. The company supplies all the chemical requirements to the automated plant, and has a service contract to maintain a smooth operation.

In turn, the Chevron/Improchem project in Milnerton involved the design, construction and commissioning of an ultrafiltration/RO plant. Domestic and industrial effluent from a nearby wastewater treatment plant is directed to the water recycling plant.

## Software helps water demand planning

Civil Designer's Water Module allows users to establish water demands accurately and efficiently.

In residential areas, demands can be established according to stand areas, while reticulation pipelines are fairly evenly distributed along the area. When demands are distributed in the Water Module, it is only necessary to establish total demand in the network using a number of people and per capita demand, or measured consumption for existing networks using the menu option 'Adjust Demands' in the Data menu.

Choose the option 'Demand to Distribute (ℓ/s)' and enter the appropriate amount. The program will now automatically assign

demands for each node proportionally to the lengths of the adjoining pipes.

In certain cases, certain parts of the network can have different per area demands. This is the case with low-income suburbs located next to a high-income area. In these instances, total demands should be established individually for each part of the network and the appropriate pipes and nodes should be selected.

*For more information, contact Knowledge Base at Tel: (021) 701-1850*

## Leak-free toilet saves water

Toilet leaks, which often go undetected, can waste large volumes of potable water.

The Akuvuzi leak-free cistern, supplied by Ray Mitchley, is one solution to frequent toilet leaks. The Akuvuzi can hold between 6 ℓ

and 11 ℓ of water. The mechanism keeps the cistern dry until needed. When it is flushed, a pilot-operated diaphragm valve opens and lets water flow into the cistern quickly. When the water reaches the level of the height-adjustable float, the flush valve is automatically operated and the cistern flushes. On flushing, the inlet valve is closed so that, once the water empties the cistern remains empty until the next time it is needed.

According to Mitchley, conventional toilets can easily be retrofitted with the leak-free cistern. Local plumbers can also be trained to fit the cisterns, creating valuable employment.

More than 1 000 of these cisterns have already been fitted in the Mangaung municipal area, in the Free State, with positive results.

*For more information, contact Ray Mitchley at Tel: (031) 701-3185 or e-mail: bobcat@intekom.co.za*

## CSIR part of EU solar project

CSIR is representing South Africa in an international, multi-partner programme aimed at demonstrating the solar disinfection (SODIS) of drinking water as an appropriate intervention against waterborne diseases.

The programme, which has been awarded a €1.9-million research grant from the European Union, is being undertaken under the auspices of the EU Sixth Framework Programme. SODIS is reportedly a low-tech, affordable method of improving water quality. It involves placing contaminated water in transparent bottles, then placing it in direct sunlight for six hours. The method has been approved by the World Health Organisation.

The three-year SODISWATER programme will be carried out by nine research groups in Ireland, Spain, UK, Switzerland, South Africa, Zimbabwe and Kenya. The multidisciplinary team will investigate the health benefits of using solar-disinfected drinking water in developing countries, the factors which influence communities to adopt or reject SODIS, whether the basic technique can be improved or whether there are any major waterborne diseases that are not susceptible to the technique.

## New nozzles for CT plant

The City of Cape Town has purchased 55 000 nozzles and 10 000 sockets to replace the nozzles in the rapid gravity sand filters at the Wemmershoek Water Treatment Plant.

The filtration plant was commissioned in the late 1960s, and has a design capacity of 318 Mℓ/day. The original nozzles were reportedly supplied by Jeffrey Manufacturing and had a 1" BSP thread.

The new polypropylene nozzles were manufactured locally by Isekeni Trading. To match the thread and the municipality's design requirements, which included a detachable head with 0,45 mm, new tooling was required.

### In brief

- Rand Water has reportedly established a bottled water unit to explore ways of entering this lucrative market.
- Dr Shadrack Ralekeno Moephuli has been appointed the new President and CEO of the Agricultural Research Council (ARC). He joined the ARC from the Department of Agriculture where he was the Chief Director responsible for Agricultural Production.
- Johannesburg Water is working with the City of Johannesburg to provide 20 households in informal settlements with ventilated improved pit toilets and improved water supplies through communal standpipes through Project Thonifho.
- International company Coca Cola has signed an agreement with UNESCO-IHE for a four-year co-operation aimed at improving the water and environmental sectors. It includes training programmes for Coca Cola staff members, with the first group of 40 receiving training on advanced water treatment technologies, groundwater treatment and risk management in Johannesburg earlier this year.

## New magflow meter introduced

The new Safmag Beta Meter is the latest edition in the Safmag range. The meter is reportedly cost-effective, easy to use, and install, while providing accurate and reliable flow measurement. According to supplier, Flowmetrix SA, the product is available with wetted parts to suit all potable water and effluent applications.

The meter delivers accuracy of about 0,5% using the non-intrusive principle of electro-magnetic induction, has no moving parts and introduces zero head loss. Readings are independent of density.

For more information, contact Flowmetrix SA E-mail: [enquiries@flowmetrix.co.za](mailto:enquiries@flowmetrix.co.za) or Visit: [www.flowmetrix.co.za](http://www.flowmetrix.co.za)



## Water on the Web

<http://www.fao.org/landandwater/iptrid/index.html>

This is the official website of the International Programme for Technology and Research in Irrigation and Drainage (IPTRID), an independent multi-donor trust-fund programme hosted by the United Nations Food and Agriculture Organisation. This website contains information about IPTRID's strategy, projects, publications, database and news.

[www.personal.leeds.ac.uk/~cen6ddm/](http://www.personal.leeds.ac.uk/~cen6ddm/)

This is the personal website of Prof Duncan Mara from the School of Civil Engineering, University of Leeds, UK. It contains free-to-use video and audio PowerPoint mini-lectures and supporting material on sanitation and water supply topics.

[www.unisdr.org](http://www.unisdr.org)

This is the website for the International Strategy for Disaster Reduction, which aims to build disaster resilient communities by

promoting an increased awareness of the importance of disaster reduction as an integral component of sustainable development.

[www.worldwatercouncil.org/index.php?id=705](http://www.worldwatercouncil.org/index.php?id=705)

This is the website of the World Water Council to promote international reflection to enhance the effectiveness of the right to water. A project has been initiated to analyse how several countries are dealing with the right to water. This site provides information on the project, among others.

[www.blacksmithinstitute.org](http://www.blacksmithinstitute.org)

This is the website of the US-based Blacksmith Institute whose objectives are aimed at developing and implementing solutions for pollution-related problems in the developing world. The NGO is most well known for its Polluted Places Initiative to address most severely polluted sites around the world.