

Dirty water a headache for farmers

Deciduous fruit and wine farmers along the Berg River may lose out on exports to the European Union (EU) because of the quality of the water used for irrigation.

Farmers told the *Cape Times* that they fear the EU may close its markets to them since the pollution in the Berg River is way over internationally accepted limits. *E. coli* counts in the river over the past 18 months have reportedly ranged from around 5 000 to 2 400 million per 100 ml compared to the EU accepted count of no more than 1 000 in 100 ml of water to irrigate crops.

The main sources of pollution are said to be discharges from wineries and from food-processing factories, runoff from informal settlements on the river banks and effluent leaks from municipal sewerage systems.



Ready, steady, monitor!

World Water Monitoring Day will be celebrated on 18 October. This annual event aims at drawing direct attention to water quality by measuring for four basic water quality indicators (temperature, pH, dissolved oxygen, and turbidity) at numerous places on the same day. It also seeks to promote personal stewardship and individual involvement in the protection of the world's water resources.

It is reported that in 2004, 50 countries registered and 6 527 monitoring sites were counted. The top participants were the US, Taiwan, Germany, Australia and Canada. This year, the event is being sponsored by the International Water Association.

To register go to www.worldwatermonitoringday.org All the results will be captured in World Water Monitoring Day summary reports.

Limpopo water crisis calls for action

The municipality of Polokwane has concluded an agreement with the Lepelle Northern Water Board to transfer water supplies directly to the city from the Olifants River, about 100 km away. The emergency supply will be conveyed through the Olifants/Sand transfer scheme.

The agreement comes in the wake of persistent droughts in Limpopo, with many districts having recorded only 50% of their normal summer rainfall figures, according to government's *BuaNews*. At the time of writing, Polokwane's main bulk water supply, Ebenezer Dam, was only 22% full. The northern, central and south-eastern parts of the province have been worst hit by drought.

Cape Town goes green

The Cape Metropolitan Council has planted 640 saplings in various residential areas in efforts to green the city.

Exotic and indigenous, drought-resistant species were selected. These include fan palm *Washingtonia robusta*, water oak *Quercus nigra*, carob *Ceratonia siliqua*, Natal mahogany *Trichelia emetica*, essenhout *Ekebergia capensis*, and white stinkwood *Celtis sinensis*.

"We will be making use of 'dry-water units' which minimise water usage by ensuring a slow release of water to the root zone as required," said Councillor Tozama Nomza Mlanjeni, Mayoral Committee member for Health, Amenities and Sport.



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New water agency established



South Africa has a new agency responsible for its bulk water assets after Cabinet approved the establishment of a National Water Resource Infrastructure Agency earlier this year.

The agency will take responsibility for developing and operating the country's major national dams and water transfer schemes which are currently managed directly by the Department of Water Affairs & Forestry. These include the Vaal Dam, the Tugela-Vaal transfer scheme, the Orange River Scheme and the Western Cape system. According to the department, the organisation will be a major business in its own right. Its assets are valued at nearly R40-billion at present and bulk water sales bring in more than R2-billion a year.

The agency will also integrate the TCTA, the parastatal organisation responsible for funding the Lesotho Highlands Water Project.

DWAF appoints new DG

The Department of Water Affairs & Forestry (DWAF) has appointed Jabu Sindane as its new Director-General.

Sindane previously held the position of Deputy Director-General: Regions. He assumed his new position on 1 September. Before joining DWAF he was department head at the Mpumalanga Provincial Department of Local Government, Traffic Control and Traffic Safety.

Water on the Web

www.enn.com

This is an excellent site for those wanting a round-up of the day's environment and science news. View the latest news or browse the various subjects, including water resources, food and agriculture, and ecosystems.

www.science.howstuffworks.com

This site, aimed at children, contains information on anything from beer to Bigfoot, including some interesting water-related information, such as how water towers work. It also explains why we cannot breathe underwater despite water containing oxygen, among others.

www.win-sa.org.za

This is the official site of the Water Information Network of South Africa, a network of organisations in the water service sector. These organisations (governmental and non-governmental) all have a vested interest in information and knowledge generation and dissemination to local government. They are trying to ensure the body of knowledge in the sector is well managed, readily accessible and applicable, and will lead to decision making and performance in the area of water and sanitation.

WATER BY NUMBERS

- **Two billion** – The number of people around the world whose health and livelihood are threatened by environmental degradation.
- **100 ℓ** – The volume of water used up by a five-minute shower with a standard shower head.
- **10%** – The estimated percentage of the world's irrigated lands that have been damaged by waterlogging and salinisation because of poor drainage and irrigation practices.
- **42 Mℓ** – The volume of water saved by water restrictions imposed in Cape Town in 2004.
- **57%** – The percentage of Eastern Cape's OR Tambo District Municipality citizens who have no access to safe water. A further 62% have no access to safe sanitation.
- **5 000 ℓ** – The volume of water required to produce a standard size meal of steak, potatoes and salad with a couple of glasses of wine.
- **US\$1-billion** – Funding from the US over the next five years to prevent and treat malaria in Africa. According to UNICEF, a child is killed by malaria in sub-Saharan Africa every 30 seconds.
- **45 000** – The number of dams in the world that are over 15 m high. Together these dams can store more than 6 500 km³ of water equal to 15% of the annual freshwater runoff in the world).
- **R1,6-m.** – The value of Mpumalanga's new mobile disaster facility.
- **292 kg** – The weight of what is thought to be the world's biggest freshwater fish, a Mekong giant catfish, netted by fishermen in the Mekong River, northern Thailand, in June.
- **13 000 ha** – New irrigation for which water has been reserved from the Orange River by the Department of Water Affairs & Forestry in its National Water Resource Strategy for the settlement of emerging farmers.
- **R1,2-billion** – The budget available in 2005/2006 to eradicate the bucket system in South Africa.

Global review



- ◆ Researchers from the University of Michigan, in the cholera by creating patterns of rainfall that favour the Bangladeshi medical records detailing the incidence computer model that took into account disease climatic factors such as changes in rainfall.
- ◆ Italian scientists have found large quantities of cocaine consumption is much higher than previously thought. The BBC reports that the equivalent of 40 000 doses a day was found in the Po valley by scientists from the Mario Negri Institute for Pharmacological Research in Milan. The study tested sewage and rivers for levels of a byproduct of cocaine metabolism, called benzoylecgonine, usually found in the urine of cocaine users. It is hoped that in the near future, the scientists will be able to develop similar tests to assess the true number of dagga and heroin users.
- ◆ Chinese researchers have found a way to regulate the temperature in buildings by using raw sewage. According to researchers at the Environmental Science Department at Harbin Institute of Technology, their device extracts heat from untreated sewage that has been temporarily diverted on its way to the processing plant. It can also reportedly make air-conditioning units run more efficiently, and absorb the heat they remove from buildings.
- ◆ According to Australian researchers, a gene shown to determine how well plants conserve water could help scientists develop drought-resistant crops. SciDev.Net reports that researchers at Australian National University isolated a gene that helps the plant *Arabidopsis* reduce water loss as it grows. The 'erecta' gene, determines how many pores the plant has on its leaves. Plants use these pores to take in carbon dioxide, but lose water through them whenever they are open. It is thought that by changing the structure of the gene, plants could be created with a different balance in the trade-off between losing water and gaining carbon dioxide.
- ◆ Residents of the small Russian town Bolotnikov, located about 250 km east of Moscow, have been stunned by the disappearance of their lake. It is thought that the lake was sucked into an underground cave.

US, say changes in climate can increase the spread of disease's transmission. The team analysed 40 years of cholera in the town of Matlab. They then created a transmission in the region, local people's immunity, and

residue in a river the north of the country – suggesting

Water Diary

WATERSHEDS SEPTEMBER 13-15

The International Water Association is holding its Tenth International Specialist Conference on Watershed and Basin Management in Calgary, Canada. Enquiries: E-mail crothdiddams@shaw.ca; Web: <http://content.calgary.ca/CCA+Hall/Business+Units/Waterworks/Events/IWA+Watershed+Conference+2005.htm>

LAKE BASINS OCTOBER 31-NOVEMBER 4

A conference on the Management of Lake Basins for their Sustainable Use: Global Experiences and African Issues will be held in Nairobi, Kenya. Enquiries: kenya2005@ilec.or.jp; Web: www.ilec.or.jp/eg/wlc.html

METEOROLOGY OCTOBER 24-29

The 32nd Radar Meteorology Conference will

be held in Albuquerque, in the US. The conference aims to highlight recent developments in radar technology in understanding mesoscale atmospheric processes. Specifically, the conference intends to demonstrate the use of radars, including spaceborne radars, for the description and numerical simulation of the dynamic and microphysical processes controlling cloud and precipitation systems worldwide. Enquiries: Megal Krol; E-mail: mkrol@ametsoc.org; Web: www.ametsoc.org/meet/fainst/albuquerque.html

WETLANDS NOVEMBER 8-15

The RAMSAR Convention on Wetlands will be hosting a conference entitled Wetlands and Water: Supporting Life, Sustaining Livelihoods at the Speke Resort, Munyonyo, Kampala, Uganda. Enquiries: E-mail: COP9@ramsar.org; Web: www.ugandawetlands.org

MALARIA NOVEMBER 13-18

The Multilateral Initiative on Malaria's Pan-African Malaria Conference, the largest meeting worldwide focusing solely on malaria, will be held at Youndé, Cameroon. Enquiries: E-mail: mimconference@mum.su.se; Web: www2.mim.su.se@conference2005/

ECOHYDROLOGY NOVEMBER 21-24

The International Symposium on Ecohydrology, to take place in Bali, Indonesia, will be themed around Experiences and Best Practices of Ecohydrological Principles for Good Water Governance. Topics include, among others, erosion and sedimentation trials, water quality and environmental sanitation, and water, culture and religion. Enquiries: Mr Hidayat; E-mail: workshop_eco@yahoo.com; Web: www.limnologi.lipi.go.id/Bali2005_files/slide0002.htm

Trees Don't Save Water, Says Report

A new international report hopes to finally squash the notion that planting more trees improves water availability.

The report, *From the Mountain to the Tap*, summarises four years of research led by the Centre for Land Use and Water Resources Research at the University of Newcastle, UK, and the Free University of Amsterdam, the Netherlands, into water management programmes.

In some countries immense sums of money, backed by international aid, are being spent on tree planting, soil and water conservation structures and allied measures, in the belief that they are attracting rainfall and/or facilitating recharge of groundwater. However, the report concludes that while trees can play many vital environmental functions, their negative effects, such as in water-hungry areas of India, are either misunderstood or ignored.

"We are not saying forests never produce water benefits or that they don't have an important role in the ecosystem," comments Ian Calder, director of the Centre for Land Use and Water Resources Research at the University of Newcastle. "But if we are trying to manage our water resources effectively, the overenthusiastic adoption of the simple view that 'more trees are always better' is a prime example of how a failure to root decisions in scientific evidence leads to bad water policy."

Studies in South Africa have found that commercial plantations on non-native tree



A new international report has driven the axe into the belief that more trees necessarily mean more water.

species reduce surface runoff nationally by 3,2%. The country now requires commercial forest operators to pay an "interception levy" to account for the high water use and reduced stream flows associated with timber plantations. This is one reason why Calder and other researchers view South Africa as a model for how to match water policy to scientific evidence.

The booklet derives the following policy lessons:

- If water shortages are a problem in dry countries, impose limits on forest

plantations, especially of fast-growing evergreen species;

- Implement 'green water' instruments (based on data from plant transpiration) to control levels of evaporation from upland vegetation;
- If upland forests are cleared for cultivation, provide farmers with guidelines of best agricultural practice;
- Any market mechanism or tax system linking land management to quantified stream-flow should ensure that scientific validation is possible at the scale of the operation;
- Use decision support systems to assess the impact of alternative land management options on water resources, and alternative land-use and water management and policy options on different social groups;
- Ensure policy instruments are equitable in terms of livelihood benefits, not just water allocation;
- Ensure that any proposed market mechanism is adequately pro-poor;
- Consider improvements in rain-fed farming in preference to further investments in rural small-scale irrigation schemes;
- Use negotiation support system techniques such as choice experiments to ascertain stakeholder preferences for policy agreements; and
- Tailor employment programmes to dovetail with other livelihood activities of the people.

To access the report, visit www.frp.uk.com

Stockholm prize comes home

South Africa's National Youth Water Prize Winners have snatched the international Stockholm Junior Water Prize. Seen here with HRH Crown Princess Victoria of Sweden, Pontso Moletsane, Motobele (Elvis) Motshodi and Sechaba Ramabenyane of Setjhaba Se Maketse Combined School in Botshabelo, in the Free State, beat 26 international competitors with their Nocturnal Hydro Minimiser, which reduces the need for water in small-scale irrigation. South Africa also won the prize in 2003. For more information on their invention, see the *Water Wheel*, July/August 2005, p 30.



Watershed Year for Institute

Southern Africa's water professionals are expected to have a louder voice in the industry as its representative body enters a new chapter in its history.

Newly appointed CE Wallace Mayne and 2005 President Dr Marlene van der Merwe-Botha have been tasked with guiding the Water Institute of Southern Africa (WISA) in implementing its new Strategic Plan aimed at sustaining the institute's support for the well-being of the water sector while better serving its members. "With all the changes happening in the South African water sector in the last decade WISA feels the time has come to lay down its quiet diplomacy policy and adopt a more vocal approach," Mayne tells *the Water Wheel*. "While WISA has made a huge contribution to the development of the local water sector over the years, its input has, to date, been made, mainly behind closed doors. In future, our opinion on strategic matters affecting our members will be known more openly."

Among others, WISA represents members at the International Water Association, the Water and Energy Sector Education & Training Authority (SETA), the Water Sector Leadership Group, and the New Partnership for Africa's Development (NEPAD) Business Council for Water. It is also one of the hosts of the Water Sector Colloquium Initiative while the President sits on the National Water Advisory Council.

Commenting on the state of the water industry Van der Merwe-Botha notes that there are several matters of concern. One glaring issue is that, despite the sector's excellent efforts to position itself with regards to policy and legislation, it remains heavily fragmented. "There is serious need for more cohesion, especially regarding issues such as costing and planning across all the spheres of government," Van der Merwe-Botha points out.

This is certainly not an easy task, with the sector having to balance competing demands of sustainability and pleas for higher standards and, at the same time, the maintenance

and replacement of infrastructure assets on which societies depend and which are reaching the end of their useful lives. Judging by recent much-televised protests, local authorities are bearing the brunt of this grave responsibility. This is underlined by the fact that a reported 226 out of 284 municipalities are experiencing serious problems.

"Naturally these challenges impact seriously on the national strategic plan to provide all South African citizens with safe water and sanitation by 2008 and 2010 respectively, as well as the provision of free basic services," notes Van der Merwe-Botha. In addition, water losses of between 30% and 40% in the agricultural sector and a national average water loss of 26% raises concerns over the economic value of water used and the expected growth in demand."

At the same time there has been a huge drain of technical capacity in the public sector leaving significant capacity gaps. According to Van der Merwe-Botha while this is a challenge, it also offers opportunities for cross-pollination between the public and private sector.

This also calls for more participation by younger professionals. WISA has more than 340 student members. "One of our aims is to continue engagement and encouragement of young professionals to actively participate and contribute to the sector," says Van der Merwe-Botha.

It is believed WISA can play a major role in bringing different parts of the water sector together. "The institute represents one of the country's major resources, even if only considering the tremendous pool of knowledge and expertise among its membership, making us an

ideal platform to knit bodies together," notes Mayne. "The organisation is known for its ability to provide a forum for the exchange of information, for example the WISA Biennial conference."

This exchange of knowledge is not only relevant for the South African water industry, but also for the region. Plans are already underway to introduce a biennial water conference to be held outside South Africa. "There is a need for southern Africa to look at local expertise and indigenous knowledge to find solutions to its unique challenges, and WISA can assist in helping parties to swap ideas, comments Mayne."

WISA has always been a relevant body in the sector. Says Van der Merwe-Botha: "This relevance is now being deepened through a dedicated and collective focus and implementation plan for the future."



Newly-elected WISA President Dr Marlene van der Merwe-Botha



New WISA CE Wallace Mayne