Desalination of sea water investigated

The City of Cape Town has launched feasibility studies into the desalination of sea water. Possible locations for a pilot desalination plant, technological requirements, treatment costs, environmental impact, and conceptual designs are being investigated. The authority reports that consultation has also taken place with the Perth Water Corporation in Australia who are said to be commissioning the world's largest desalination installation and the Robben Island authorities regarding the existing installation on the island.

Meanwhile, Umgeni Water is investigating the potential of sea water desalination for a yet unnamed remote coastal town, with the view of augmenting the potable water supply to the town cost-effectively. The bulk water supplier has called for expressions of interest from consultants to design and construct a 1,5 Mℓ/day desalination plant.

New limnology publication available

A new publication on limnology in South Africa is now available. Limnology is the scientific study of bodies of fresh water for their biological and physical and geological properties.

The publication, *Limnology in South Africa: Past and Present Status and Future Needs*, was penned by stalwart limnologist Dr Brian Allanson, and forms part of the International Association of Limnology's series on Limnology in Developing Countries. The book provides an interesting introduction into the history of limnology. The origin of limnology in South Africa is said to go as far as the 1930 when Evelyn G Hutchinson and his colleagues undertook studies of the pans and recently built reservoirs on the Highveld of the old Transvaal. The publication also describes a number of major limnological features and trends that are developing in freshwater research within South Africa and, in particular, new methods to ensure that there is a more holistic approach to rivers subject to regulation.

For more information or to obtain a copy of the book, contact Dr Brian Allanson at e-mail: ba11@mweb.co.za or write to PO Box 1196, Knysna, 6570.

Call for papers

The organisers of the International Conference and Exhibition on Water in the Environment, to take place in Stellenbosch on 20-22 February 2006, has called for papers.

Abstracts can be submitted for any theme related to the protection of water resources; production and treatment of drinking water; wastewater treatment; water chemistry, analysis and microbiology; water business management; and health and social aspects of water. Abstracts need to be submitted by 15 August 2005.

For more information, contact Elsbeth Verhoeven-Lutsch at Tel: (021) 887-4113 or e-mail: verhoeven@envirowater.de

WATER BY NUMBERS

- **145 ℓ** – The litres required to produce one serving of a fizzy soft drink.
- **250** – The estimated number of estuaries in South Africa.
- **13** – The number of Cuban water specialists seconded to the Department of Water Affairs & Forestry (DWAF) for a period of three years (2004-2007) in terms of an agreement between South Africa and Cuba.
- **76%** – The percentage of the county's poor (people living on less than R1 000/month) that are getting their water free of charge, according to DWAF.
- **665 000** – The number of people killed by natural disasters in the last decade. Over 90% lost their lives in floods and droughts.
- **12 000 km³** – The water polluted worldwide. This is more than the total amount of water contained in the world's ten largest river basins at any given moment.
- **4 226** – The number of South African schools without adequate sanitation. The majority of them are in KwaZulu-Natal (1 300), Limpopo (995) and the Eastern Cape (849).
- **US$105-billion** – The amount spent annually by Europeans on alcoholic drinks. This is ten times the amount required to ensure safe water, sanitation and hygiene for all, according to the Water Supply & Sanitation Collaborative Council.
- **20 kg** – The weight of water that women in Africa and Asia carry on their heads. This is equivalent to the allowed airport luggage.
- **3,3** – The average number of blockages per kilometre of sewer pipe a year experienced by South African municipalities. This is ten times the international average.
- **50%** – The approximate percentage of wetlands that South Africa has lost due to impacts such as agriculture and urban sprawl.
- **R100-m** – The estimated worth of the existing aquaculture facilities in the country. Most of them are dormant, and some have fallen into disrepair.

More water for Tshwane

Increasing the supply of clean water remains a priority for the Tshwane Metropolitan Municipality.

In his budget speech, Tshwane Mayor Father Smangaliso Mkhatshwa revealed that water and sanitation will account for 15,7% of operation expenditure in the coming financial year. The metro is planning to install 8 200 m of bulk water pipelines and 14 168 m of internal sewer networks as well as 5 000 new meters to non-metered households.

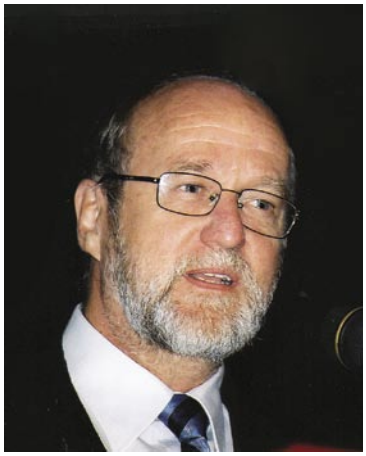
"Through the implementation of these projects we are planning to create 1 400 jobs for local labour, which is an increase of 40% compared to the current year and further approved 23 emerging contractors which shows an increase of 35,3%," the mayor said.

New standards for geomembranes

The recent publication of SANS 10409, *Design, Selection and Installation of Geomembranes*, is important news to all involved in water supply, waste disposal, and civil engineering projects that involve geomembranes. Together with SANS 1526, *Thermoplastics Sheeting for Use as a Geomembrane,* there are now two standards that are essential reading for anyone involved in using these versatile liners.

"These two standards address quality of manufacture and utilisation of geomembranes, respectively," explains Kelvin Legge, a geomembrane specialist at the Department of Water Affairs & Forestry. "SANS 1526 and SANS 10409 are extremely valuable to the South African industry as they offer a mechanism of ensuring performance against a minimum standard to protect users against poor quality products available on the world market."

To purchase the standards, contact SABS Standard Sales at Tel: (012) 428-6883, Fax: (012) 428-6928 or e-mail: sales@sabs.co.za



Sustainable sanitation solutions crucial

South African government has a long road ahead to ensure sustainable sanitation solutions to the 16 million people that are still without safe toilets. However, no solution will work unless it is accepted by the user.

So said Deputy Minister of Science & Technology Derek Hanekom. Speaking at the Third International Conference on Ecological Sanitation (EcoSan) in Durban in May he said that the sanitation challenge is as much social as it is technological. "We need to address the interface between technology and implementation. No matter how religiously experts believe that technologies such as EcoSan offer a real solution, they will not be applied unless the users – and their political representatives – want them. Households have to be satisfied that the product most closely satisfies their needs."

The international conference drew about 300 delegates from 30 countries.

Millions still drink unsafe water

Eleven years after the establishment of South Africa's democracy, 3,7 million people are still dependent on unsafe water sources, such as rivers and streams. So reported Abri Vermeulen, Senior Manager: Water Services Policy Strategy at the Department of Water Affairs & Forestry (DWAF) at the Second Annual Water Services Convention, held in Midrand in June.

According to Vermeulen, a further five million people have access to some form of water services, but it is not within RDP standard (i.e. further than 200 m from the homestead). "The challenge of supplying these communities is magnified by the current transition of the water services sector, with local authorities taking over the responsibility for water and sanitation services from the national department."

Vermeulen admitted that many municipalities were not equipped to take over this function as has been highlighted by a number of protests across the country over the last couple of months. "It is also unfortunate that it is usually the areas where the least capacity exists where there is the most need for services. Our department is currently evaluating where the greatest support is required in order to provide advice and support."

At the same time, DWAF is adapting legislation to enable it to perform a regulatory role in the water sector. In response to the question whether this would allow national government to act more strongly against local authorities that blatantly misappropriate funds or pollute the environment through, for example, dumping sewage into rivers, Vermeulen reiterated that DWAF would continue to follow its policy of cooperative governance. "Our role is to support rather than prosecute. We would rather work with the municipality concerned in rectifying the problem than merely slap them with a fine. However, if a problem persists, court action would be taken as a last resort."

Water on the Web

www.pbs.org/wgbh/buildingbig
This is an excellent site for children of all ages wanting to know more about engineering, including the construction of dams and tunnels. Apart from a series of interviews with engineers, a searchable database on engineering wonders of the world, and an educator's guide, the site includes several 'interactive labs'. Through interactive simulations these workshops allow users to play with shapes, materials, forces and loads to see how they affect large-scale structures. Clicking on the 'Challenges' link allows the visitor to play the engineer, solving problems and making structural choices while building bridges, skyscrapers, dams, domes and tunnels.

www.aasa-aqua.co.za
The Aquaculture Association of Southern Africa (AASA) was established in the late 1980s to represent the interests of the then fledgling aquaculture industry in southern Africa. This website is a good starting point for those interested in aquaculture in South Africa. It offers some background on fish farming, and lists a number of service providers in this regard.

http://nsidc.org/glaciers
Th e of the US and includes information such as how glaciers are formed, how they move, and different types of glaciers. Interestingly, it also includes a page on how glaciers affect people, for example, by providing drinking water, helping to irrigate crops, and assisting with the generation of hydropower.

www.africawaterjournalists.org
Only launched in March, this is still a new website. The Africa Water Journalists Network is aimed at increasing and improving reporting on water in Africa. It supplies African journalists with better information, helps them gain access to sources and provides them with an outlet for their talent. The network is an initiative of Quest Ltd, a company of journalists focused on development issues, and the Water Foundation of the Netherlands.

www.wetlands.org
This is the official website of Wetlands International, a global non-profit organisation dedicated solely to wetland conservation and sustainable management. The website offers more information about this organisation, which is active in 120 countries, as well as the conservation of wetlands in general.

www.ncar.ucar.edu/
The National Centre for Atmospheric Research is based in the US and is dedicated to meteorological research. The site includes information on the organisation's divisions and programmes, and includes a general education site about the weather and climate change.

SADC drought management project underway

A four-year project to manage groundwater and drought in the Southern African Development Community (SADC) has been launched with funding by the World Bank.

The Groundwater and Drought Management Project is being funded by a US$7-million grant from the World Bank's Global Environment Facility, and US$0,5-million from the Swedish International Development Cooperation Agency. The overall objective of the project is to develop consensus on a SADC regional strategic approach to support and enhance the capacity of its member states to articulate and implement drought management policies, specifically in relation to the role, availability and supply potential of groundwater resources.

It is reported that the development of countries in the region is highly dependant on adequate and reliable water resources. About a third of the people in southern Africa live in drought-prone areas, where groundwater is the primary source of water. Groundwater is also the main source of water for many ecosystems in these areas. However, these precious resources are under threat from over-exploitation, and pollution.

The project comprises four inter-related components:

- Testing of practical local groundwater drought management strategies at pilot level in then Limpopo River;
- Research into groundwater dependent ecosystems, their occurrence, vulnerability, value and protection;

- The development of groundwater drought management tools and guidelines;
- The establishment of a regional Groundwater Management Institute of Southern Africa to continue long-term monitoring and the promotion of better management and awareness in the SADC region and at national level.

The project will be executed by the Water Division within the Infrastructure and Services Directorate of SADC.

DIARY

REVENUE PROTECTION
JULY 21-22
The South African Revenue Protection Association Conference 2005 is taking place in Nelspruit, at the Emnotweni Arena. Enquiries: Gillian; Tel: (011) 789-1384; Fax: (011) 789-1385; E-mail: gillian@vdw.co.za; Web: www.sarpa.co.za

DIFFUSE POLLUTION
AUGUST 8-11
The International Water Association Diffuse Pollution Specialist Conference will be held at the Sandton Convention Centre. Enquiries: Dr Ralph Heath; Tel: (011) 726-7027
E-mail: raphh@phd.co.za

ECOLOGICAL SANITATION
AUGUST 15-19
The Norwegian University of Life Sciences is hosting a short course on ecological sanitation. Enquiries: E-mail: ecosan@umb.no ; Web: www.ecosan.no

SEDIMENTS & WATER
AUGUST 28-SEPTEMBER 2
The 10th International Symposium on the Interactions between Sediments and Water will be held at Lake Bled, Slovenia. Enquiries: Web: www.iasws.com

ENVIRONMENTAL SCIENCE
SEPTEMBER 1-3
The 9th International Conference on Environmental Science & Technology will take place in Rhode Island, Greece. Enquiries: Web: www.gnest.org.cest

WASTE MANAGEMENT
SEPTEMBER 5
The South African Association for Food Science & Technology is presenting a workshop/seminar on waste management in the food industry focusing on inter alia wastewater treatment, solid waste disposal, and cleaner production. Enquiries: Gunnar Sigge at E-mail: gos@sun.ac.za;
Web: www.saafostconference.co.za

AQUACULTURE
SEPTEMBER 12-15
The 7th Conference of the Aquaculture Association of Southern Africa entitled Aquaculture for Africa – Unlocking the Potential will be held at Rhodes University, Grahamstown. Enquiries: E-mail: conference@aasa-aqua.co.za; Web: www.aasa-aqua.co.za

ZOOLOGY
NOVEMBER 7-11
The Department of Zoology at the University of Johannesburg is hosting a course on Monitoring Contaminant Levels in Freshwater Fish for Contaminant Bioaccumulation Surveys and Human Consumption. Enquiries: Prof Annemarié Oldewage;
Tel: (011) 489-2449; Fax: (011) 489-2286;
E-mail: ao@na.rau.ac.za

WATER & SANITATION SUPPLY
NOVEMBER 9-11
Water Africa 2005 West will take place in Accra, Ghana, at the Accra International

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UNIVERSITY OF PRETORIA
DEPARTMENT OF CHEMICAL ENGINEERING WATER UTILISATION DIVISION

Presents short courses in

MEMBRANE PROCESSES
(for industrial water treatment and groundwater desalination)
28 to 30 September 2005

COURSE OBJECTIVES

The main objective of this course is to provide the course participant with adequate theoretical and practical knowledge to take informed decisions about the functioning and application of membrane processes in desalination and in water and wastewater treatment.

WHO SHOULD ATTEND?

The course is aimed at engineers, scientists and technologists involved in the planning, management and operation of water and wastewater treatment.

COURSE CONTENT

The course is presented over a period of three days and consists of the following:

- General background of reverse osmosis (RO), nanofiltration (NF), ultrafiltration (UF), microfiltration (MF) and electrodialysis reversal (EDR).
- Principles of operation.
- Membrane types and characteristics.
- Module configuration and characteristics.
- Mass transfer, flux and rejection and recovery.
- Performance evaluation.
- Pretreatment requirements and processes.
- Membrane fouling and cleaning.
- Membrane evaluation and autopsies.
- Process configurations.
- Cost considerations.
- Practical design of processes using selected software programs.
- Membrane bioreactors (MBR).
- Applications for desalination, softening, effluent treatment, nitrate and fluoride removal.
- Feasibility studies.
- Case studies.

LECTURERS

Prof. C.F. Schutte
Prof. J.J. Schoeman

ENQUIRIES:

Prof. C.F. Schutte
Telephone: (012) 420-3571
Email: frik.schutte@up.ac.za

Prof. J.J. Schoeman
Telephone: (012) 420-3569
Email: japie.schoeman@up.ac.za

ADMINISTRATION:

Mrs. M. Nell
Telephone: (012) 420-5010
Email: marina.ce@up.ac.za
Cell: 083 704 4413

Mrs. E. Otto
Telephone: (012) 420-3824
Email: elmarie.otto@up.ac.za

COURSE FEES:

(Including notes, lunch, coffee/tea but excluding accommodation).

R3 950,00 per person.

For three or more participants from the same company, the fee is reduced to R3 450,00 per person.

Water Quality Management and Effluent Treatment
24 to 28 October 2005

COURSE OBJECTIVES

The main objective of this course is to provide the course participant with adequate theoretical and practical knowledge about water quality, and water and wastewater treatment so that they can:

- take informed decisions about treatment and disposal of effluents
- evaluate the operation and control of water and wastewater treatment plants.

WHO SHOULD ATTEND?

The course is aimed at engineers, scientists and technologists involved in water quality management and control, and in the operation of water and wastewater treatment plants.

COURSE CONTENT

The course is presented over a period of five days and consists of the following:

Background aspects

- S.A. water sources, hydrology and geohydrology.
- Basic water microbiology.
- Basic water chemistry.
- Biological, chemical and physical water quality parameters.
- Point and diffuse sources of pollution.
- National Water Act and other regulatory requirements.

Treatment processes

- Overview of water and wastewater treatment processes.
- Flow of material and mass balances.
- Physical-chemical treatment processes.
- Municipal wastewater.
- Biological treatment processes.
- Sludge treatment and disposal.

LECTURERS

Prof. C.F. Schutte
Prof. E.N. Chirwa
Prof. J.J. Schoeman
Mr. M.A. Jaffer

ENQUIRIES:

Prof. C.F. Schutte
Telephone: (012) 420-3571
Email: frik.schutte@up.ac.za

ADMINISTRATION:

Mrs. M. Nell
Telephone: (012) 420-5010
Email: marina.ce@up.ac.za
Cell: 083 704 4413

Mrs. E. Otto
Telephone: (012) 420-3824
Email: elmarie.otto@up.ac.za

COURSE FEES:

(Including notes, lunch, coffee/tea but excluding accommodation).

R4 950,00 per person.

For three or more participants from the same company, the fee is reduced to R4 450,00 per person.

Certification:

University of Pretoria certificates will be issued on the successful completion of these courses.

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Global review

- The first technical workshop of the Regional Research Alliance between South Africa, Zimbabwe and Botswana took place in Harare in May. Participants developed a short- to medium-term plan within the three research focus areas of the alliance (water and food security, energy, and construction and infrastructure). Possible project areas include groundwater and rainwater in southern Africa, and innovative, alternative water treatment technologies among others.

- A Nigerian project that uses the seeds of an indigenous tree to purify water for households has received a US$120 000 grant from the World Bank. The project proposes to purify water for households using the natural coagulative properties in the seeds of the *Moringa oleifera* tree, which is said to have a removal efficiency of 99,5% for turbidity; 98% for suspended solids; 90-99% for bacteria of 1 to 4 log units; and 100% for water hardness. The project is expected to benefit ten million households in Southeast Nigeria.

- Rural Australians may be suffering from a recently identified psychological condition known as solastalgia, according to researcher Gina Sartore from the University of Newcastle's Centre for Rural and Remote Mental Health, who has been conducting the country's first study into the effects of drought on mental health. According to *ABC Science Online*, solastalgia, or "drought as traumatic environmental change" is among a number of psychological problems afflicting drought-stricken rural communities. For example, Sartore's research reveals that for some rural women the simple loss of their gardens could be a major trauma despite more wide-ranging impacts of drought such as increased workload, anxiety about income and hopelessness about the future.

- According to a study by Swedish researchers, future action taken to increase food production in sub-Saharan Africa could indirectly affect the capacity of South Asia to produce food. *SciDev.Net* reports that the study shows that human activity – particularly deforestation and crop irrigation – is seriously affecting global circulation of water vapour. Deforestation has decreased the evaporation of water by 4%.

- The Gobabeb Research & Training Centre, near Walvis Bay, has been inaugurated as a Southern African Development Community (SADC) Centre of Excellence. This means researchers and scholars from SADC states can go to the centre to undertake research or undergo training in fields such as environmental research, natural resource management, land management and desertification, reports *The Namibian*.

DIARY (continued)

Conference Centre. The exhibition will include products and services serving an array of markets, including surface water development, groundwater development, mains distribution and house connections, water and wastewater treatment, water storage and irrigation, among others. Enquiries: Jacqui Hepworth, Tel: +44 1628 672599; Fax: +44 1204 695165 or E-mail: jacqui.hepworth@btinernet.com; Web: www.ace-events.com

CLIMATE CHANGE
NOVEMBER 13-17
Greenhouse 2005: Action on Climate Change, to be held in Melbourne, Australia, is expected to be the largest climate change conference held in the Southern Hemisphere this year. Enquiries: Simon Tor; E-mail: simon.torok@csiro.au; Web: www.greenhouse2005.com

WATER & HISTORY
DECEMBER 1-4
The Fourth International Conference of the International Water History Association is taking place in Paris France. Enquiries: E-mail: post@iwha.net; Web: www.iwha.net

Entries invited for international award

Nominations have been invited for the first Kyoto World Water Grand Prize, to be announced at the Fourth World Water Awards in Mexico, in March 2006.

The Award is being organised by the World Water Council, the City of Kyoto, Soroptimist International of Kyoto and the Fourth World Water Forum. A prize of US$45 000 will be given to the winning individual or organisation whose grassroot-level activities address critical water needs of communities and regions, corresponding to the overall theme of the next forum, *Local Actions for a Global Challenge*.

Candidates have until 31 October to enter.
For more information, visit
www.worldwatercouncil.org/kyoto_prize or
E-mail: Kyoto_prize@worldwaterforum4.org.mx or
Tel: +52 55 5174 4480