Water Users Might Pay for Alien Removal

Water users might soon be contributing to the removal of invasive alien plants. *The Water Wheel* has learnt that the Department of Water Affairs & Forestry has started a strategic level investigation into the feasibility and viability of implementing a user charge, possibly as a component of the water resource management charge, to cover the cost of clearing invasive plants primarily in the mountain catchment areas and riparian areas of the country.

About 750 tree and 8 000 other plant species have been introduced to South Africa over the years. About 200 species are regarded as invasive, including certain pine, wattle, and eucalyptus species. These alien plants waste water resources; reduce the country's ability to farm; intensify flooding and fires; cause erosion, destruction of rivers, siltation of dams, and estuaries, and poor water quality while threatening indigenous plants and animals.

It has been estimated that to remove all the invasive alien species in South Africa will cost R1,6-billion, which is more than the current annual budget of the country's premier alien busting programme, Working for Water. Thus it is hoped to develop a fair mechanism to get water users to contribute to the control of the problem.

According to James Cullis of Ninham Shand, who is undertaking studies into the impact on invasive alien plants as part of this investigation, these non-riparian alien plants in the high mean annual precipitation catchments of South Africa are estimated to have a sizeable impact on the total yield of the country, particularly in terms of the yield from major dams and run-of-river estimates. If the spread of this vegetation is not managed and a state of full invasion is reached, the yield of major dams could be reduced by some 4% (511 million cubic metres a year) and the average run-of-river yield by 8,6% (875 million cubic metres a year). This is quite significant for a country where every drop counts.

In turn, the impact of riparian invasive alien plants is estimated to be highly significant. The estimated current level is 523 million cubic metres a year, and this is predicted to become as high as 1 314 million cubic metres a year if allowed to reach a fully invaded future scenario. This total combined impact on yield due to riparian invasive alien plants in all catchments and non-riparian plants in the mountain catchment areas represents 4% of the current total volume of currently registered water use in the country. If not controlled this could increase to 16%.

International Call for Proposals

The International Foundation for Science has called for research proposals in the field of sustainable sanitation and greywater reuse.

Supported by the Swedish International Cooperation Agency (SIDA), the initiative is aimed at strengthening scientific capacity in the fields of sustainable sanitation and greywater reuse in developing countries.

Research grants are awarded up to a maximum value of US$12 000 or one to three years. The deadline for applications is 31 December. *For more information visit* www.ifs.se/Programme/ifs_sida_specialcall.asp

Project Hopes to Guide Greywater Users

The Water Research Commission (WRC) has launched a new project to develop guidelines for the sustainable use of greywater in small-scale agriculture and community gardens.

Household and food gardens have significant potential to contribute to food security; however, a shortage of water to supplement rainfall remains an impediment in many areas in South Africa. Greywater, the untreated household effluent from baths, wash basins, and laundry, can be a valuable addition.

A scoping study to evaluate the fitness-for-use of greywater in urban and peri-urban agriculture, which is being undertaken for the WRC at present, indicates that much is already known locally and internationally about the positive and negative impacts of greywater use. However, there appears to be great uncertainty among local authorities on what their approach to greywater use should be.

Bylaws to regulate greywater use are either confusing or do not exist. Furthermore, there appears to be a lack of guidance to potential users about the potential impacts of greywater use in small-scale agriculture and gardens.

The WRC-funded project hopes to address some of these issues through the development of appropriate guidelines.

Girls Must Come First

Key international female leaders have called for more attention and funds to help the millions of African women and girls suffering disproportionately for lack of basic water and sanitation.

"Unsafe water, inadequate sanitation and poor hygiene habits play a major role in child mortality," said UNICEF executive director Ann Veneman. "Bringing basic services to Africa's women and girls could transform their lives and boost child survival in the region." She was joined in her plea by other leaders in development, including Hilde Frafjord Johnson, Norway's Minister for International Development, and Maria Mutagamba, Uganda's Minister of Water.

In rural Africa, 19% of women spend more than an hour on each trip to fetch water, an exhausting and often dangerous chore that robs them of the chance to work and learn. Women without toilets are forced to defecate in the open, risking their dignity and personal safety. Education suffers too: more than half of all girls who drop out of primary school do so for lack of separate toilets and easy access to safe water.

Water Restriction Relief For Cape Town

Capetonians are sighing huge sighs of relief following the ease of the stringent water restrictions put in place last year.

Water restrictions have been reduced from 20% to 5% after the City met its savings targets and the area saw more winter rain. Water tariffs have also been lowered.

Meanwhile, the municipality has announced a number of initiatives to reduce water demand as well as to plan for future water supply schemes. These include an integrated water leaks project to be introduced throughout the city following a pilot project in M'fuleni; as well as an effluent re-use scheme from the Potsdam Wastewater Treatment Plant. This scheme will ultimately supply some 38 Ml per day of treated effluent for industrial use and irrigation.

At 83% full Theewaterskloof Dam is looking much better than it did a year ago.

Water by Numbers

- **R1-billion** – The value of concessionary funding made available to eligible municipalities by the Development Bank of Southern Africa over the next three years as part of its new targeted infrastructure programme. The aim is to redress the persistent backlogs in service delivery.
- **R13,8%** – The percentage that the average price of water increased in South Africa in the year to July. This is the second-biggest increase in the world, according to an international report.
- **840-million** – The estimated number of people that do not have access to sufficient, nutritious and safe food in the world. This is 13% of the world population. About 95% of these vulnerable people live in sub-Saharan Africa.
- **R30-million** – The funds set aside for research in the Limpopo Basin by the Challenge Programme on Water and Food. Research projects are being undertaken under the themes crop water productivity improvement; multiple use of upper catchments; aquatic ecosystems and fisheries; integrated basin water-management systems; and global and national food and water systems.
- **746 m³** – The quantity of water storage per person in South Africa. In North America, the quantity of water storage per person is about 6 150 m³.
- **22%** – The percentage of the population of Ethiopia that has access to safe water. This is the lowest in Africa. Ethiopia also has the least number of people that have access to safe sanitation on the continent – only 6% of the total population.
- **87** – The number of municipalities that do not have access to in-house engineers, according to Minister of Water Affairs & Forestry Buyelwa Sonjica.
- **121 km** – The length of the new raw water pipeline to be constructed under the Vaal River Eastern Subsystem Augmentation Project. The pipeline will pump about 160 million m³ a year from the Vaal Dam to the Knoppiesfontein diversion structure, in Secunda, mostly for use by Eskom and Sasol.

New Boost for Science In Africa

Lack of quality science education, severe shortages of basic services, HIV/Aids, disaster management and desertification are only some of the focus areas of the newly-established African office of the International Council for Science (ICSU).

ICSU is a non-governmental organisation which, through its international network, plans and coordinates interdisciplinary research to address major issues of relevance to science and society.

The African office, the first of four planned regional offices, will facilitate capacity building, including quality science education, training and research. Core objectives are to facilitate networks within Africa and increase participation of African scientists in international programmes.

"The regional office will facilitate the mobility of African scientists within the continent, including the creation of regional and interdisciplinary scientific programmes, conferences and exchanges across the continent, said Prof Sospeter Muhongo, director of ICSU-Africa at the launch earlier this year. The office is based at the National Research Foundation in Pretoria.

Drostdy Builds Best Water Network

The Hoër Tegniese Skool Drostdy from Worcester, in the Western Cape, walked away with this year's first prize in the Rand Water-South African Institution of Civil Engineering Centenary Schools Water Competition.

The competition, which was launched in 2003 when both organisations celebrated a hundred years of existence, draws entries from across the country. Learners are tasked to design a model water distribution network to distribute water equally between three points using two different pipe diameters. They are then judged on how well they execute the task. They are allowed three tries in one hour.

The learners from John Ross College, in Richards Bay came second, followed by the learners from Umqhele Comprehensive School in Ivory Park, in third place.

Nomzama Ntuli of Rand Water with the winning team of Hoër Tegniese Skool Drostdy, Elizma Syphys, Annelie van Zyl, Gerhard Paxton and Isak Bosman. Organiser Johan Burger is standing behind.

Water Diary

KNOWLEDGE MANAGEMENT
NOVEMBER 21-23
An International Conference on Indigenous Knowledge Systems in Africa and their relevance for Sustainable Development will be held at the University of Brussels. *Enquiries: Prof Emmanuel Boon, Tel: +32 2 477 49 35; E-mail: eboon@vib.ac.be*

INFRASTRUCTURE
NOVEMBER 22-25
The First African Infrastructure Congress 2005 will be held at the Sandton Convention Centre, in Johannesburg. Sessions will address infrastructural opportunities, risk perceptions throughout Africa and appropriate financing tools, among others.
Web: www.terrapinn.com

DESERTIFICATION
NOVEMBER 22-24
The UNESCO Chair of Desertification, Sudan, is organising a regional workshop on combating desertification, to take place in Khartoum. *Enquiries: Mubarak Abdallah, E-mail: mubarakaba@yahoo.com*

WATER MANAGEMENT
NOVEMBER 29-DECEMBER 2
The Pan-African Water 2005 Conference will be held at the Sandton Convention Centre, in Johannesburg. *Web: www.terrapinn.com*

ENVIRONMENTAL WATER QUALITY
NOVEMBER 30 – DECEMBER 2
The Fifth training course on environmental water quality in water resource management will be held in Randburg, Johannesburg. *Enquiries: Pieter van Eeden, Tel: (011) 972-5298; Fax: (011) 972-5298; E-mail: Pieter.vaneeden@absamail.co.za*

WATER RESOURCES
DECEMBER 26
The First International Conference on Water Resources in the 21st Century will take place in Alexadria, Egypt. This conference will present the more recent technological and scientific developments associated with the management of surface and groundwater resources. *Enquiries: E-mail: ewra2005@ewra.com; Web: www.ewra.com/pages2005/contents.htm*

WATER AND FOOD
JANUARY 23-26
CGIAR is organising a working conference on Enhancing Equitable Livelihood Benefits of Dams Using Decision Support Systems, to be held in Nazareth, Ethiopia.
E-mail: damdss@cgiar.org; Visit: www.waterforfood.org/livelihoods/

GROUNDWATER
FEBRUARY 1-4
An international conference on groundwater for sustainable development will take place in New Delhi, India. *Enquiries: Dr M Thangarajan, E-mail: mthangarajan@hotmail.com or mthangarajan@eth.net*

Shattering Prevailing Capacity Myths

WRC research manager Heather MacKay

Water sector professionals need to let go of prevailing myths with regards to capacity, and face up to the new reality. So said Dr Heather MacKay, outgoing research manager at the Water Research Commission at the Second Water Colloquium held at the CSIR in September.

DBSA institution specialist Jan Koster

According to MacKay, one of the prevailing myths in the industry is that the country does not have enough technical and scientific capacity to implement water policy and provide basic services. "The reality is that we are short of capacity in certain key areas or disciplines, but not across the board. However, it is true that where a lack of experienced professionals does exist, it can cause bottlenecks in the implementation process which makes it seem that there are skills shortages everywhere."

Another prevailing myth is that South Africa cannot retain skilled, experienced water professionals. This is true to an extent, noted MacKay, but only for the public sector. "The new reality is that in many technical fields most professional capacity is located outside the public sector, while the government is still responsible for service delivery. Therefore, we need to look at innovative procurement processes and ways to manage these highly skilled mobile individuals."

The point was emphasised by Jan Koster, principle institution specialist at the Development Bank of Southern Africa, who noted that an estimated 74 municipalities did not employ any technical expertise. "Training does not equal capacity building as many believe," he said. "For true capacity building to exist there also needs to be an enabling environment (including the necessary processes and systems support) in addition to the training."

Koster encouraged municipalities to approach policy implementation in a structured, planned way, rather than the present *ad hoc* initiatives and crisis management that are being undertaken in many local authorities at present.

Call for papers

Interested parties have until 25 December to enter their submissions for the International Water Association Specialist Conference on Sustainable Sludge Management: State of the Art, Challenges and Perspectives.

The conference will be held at the Crocus Expo Centre, in Moscow, Russia, on 29-31 May, 2006.

Sludge management remains one of the most critical environmental issues of today. The purpose of the conference is to discuss sustainable strategies for sludge management, mainly focusing on reusing and recycling options.

For more information, Tel/Fax: +7 095 101 4621; E-mail: IWAconference@sibico.com; *Visit: http://IWAsludge.sibico.com*

Opportunity for post-graduate research

There is an opportunity for research towards a PhD or at Post-doctoral level for a hydrologist at the Institute of Water Research, Rhodes University.

The successful applicant will work in the field of environmental flows in non-perennial rivers in South Africa. Much of south-western Africa is arid or semi-arid and the ecosystems are fragile. However, any human habitation or development depends on there being water available and so the competition for this scarce resource can become critical. This interesting area of work is important for the sustainable management of the environment and development in these semi-arid and arid regions.

Enquiries: Prof Denis Hughes, Address: Institute of Water Research, Rhodes University, PO Box 94, Grahamstown, 6140, E-mail: denis@iwr.ru.ac.za

Capetonian's Dying Garden Wins Him National Prize

When his garden started dying due to the strict water restrictions imposed by the City of Cape Town last year, Mark Joubert was not willing to give up without a fight. But his new innovation is not only helping to sustain some greenery around his house. It also won him a prize at the Design's Institute's 2005 Prototype Awards.

The Garden Res-Q unit uses greywater from a home bathroom to irrigate a small to medium-sized garden. The irrigation process takes place immediately once the shower is switched on or the bath is emptied, without the need to first store greywater in large tanks. In addition, the irrigation process is completely automated and, as such, requires no intervention by the home owner.

The unit is connected directly to the outside drain pipes of an existing bath or shower where the greywater is filtered of hair and lint, and a low-pressure pump is activated to pump the water through a normal garden hose. Once the water has been turned off in the bathroom, the pump automatically switches off and ceases the irrigation process until the next bath or shower.

Joubert explains that the product was originally developed for his own use over about six months. "I first suggested to my wife and children that when showering, they could stand in a 25 ℓ bucket which we could empty on the garden after each shower. However, when I ended up being the one doing all the emptying of the buckets on the garden each morning, I decided to look at a less laborious solution."

A simple hose pipe attached to the down pipes had little effect. "My shower always backed up, and we now had showers ankle deep in dirty water," Joubert tells *the Water Wheel*. "It was then that I designed the first prototype of the Garden Res-Q. It was extremely ugly and bulky, but did the job beautifully."

According to Joubert, the most demanding challenge was to get a unit that was small and simple enough for the average handyman to install yet was effective in doing the job for which it was designed. Material and components also played a significant role – the unit is installed outside the house and any material used, therefore, has to stand up against the harsh South African sun.

The Garden Res-Q unit, which uses wastewater from the bath or shower to irrigate the garden.

Apart from the award, the response from the public has been overwhelming, with the first bulky prototype installed in 50 homes by word of mouth alone. At the time of writing, the final commercially acceptable mould was in the process of fabrication, and the first units were to be made available this month.

Joubert hopes to make the product a household name in South Africa, starting in the Western Cape where the ongoing water restrictions have been a major blow to home owners. Distribution channels will be set up to service other parts of the country during 2006. In the longer term, Joubert hopes to set up export channels to countries such as Australia.