SA dependence on coal 'not worth it'

Not only has South Africa's dependency on coal resulted in the country's greenhouse gas emissions being double the global average per capita, it is also having devastating effects on our water resources.

This is according to the latest report, *Coal and Water Futures in South Africa: The Case for Protecting Headwaters in the Enkangala Grasslands*, published by WWF-SA in collaboration with CSIR.

"WWF-SA understand the key role that coal and coal-mining plays in the South African economy as well as the country's energy generation," noted Christine Colvin, Senior Manager of the organisation's Freshwater Programme. "However, we would like to urge government to implement better coal-mining practices, which entail planning mining activities in strategic areas that do not compromise critical water resources and ultimately, the country's water security. We therefore call on government to define and declare mining sensitive or 'no-go' areas."

The report is based on research and engagement with the South African mining and water sectors, among other stakeholders. Case studies conducted in the Olifants River catchment (where coal has been mined for the last 100 years) and Enkangala grasslands detail the current costs and impacts of coal-mining on water resources.

According to the report, only 12% of the country's land area generates 50% of the country's river flow. This highlights the need to plan the development of our landscapes to protect the country's most important water, soil and biodiversity resources.

"Our already stressed water resources are under threat from coal-mining operations located in important water provisioning catchments. While many South Africans presently survive with limited or no access to energy, none can survive without water," said Colvin.

The consequences of abandoned mines and resultant acid mine drainage in the gold-mining areas of the Witwatersrand as well as the Olifants River catchment are well known, she continued. "At a national level, policies and strategies to clean up some of the pollution from gold-mining have been established. However, on the ground, prospecting rights for coal-mining are being issued in the headwaters of our most precious and sensitive catchments."

The report also examines how prospecting is unfolding in the relatively pristine headwaters of the Upper Vaal, Thukela and Pongola, where critical water source areas are threatened by new mining. According to Angus Burns of WWF Enkangala Grasslands Programme, these headwaters are sources from the Enkangala area which receives more than twice the average national rainfall and generates nearly three times the average run-off compared to the rest of South Africa.

As the report notes, between 2005 and 2010, approximately 13,7% of Mpumalanga was already under prospecting rights application and 40,3% was under mining rights applications. This means that 54% of the province was under some form of mining activity.

A number of shortcomings around mining are identified which poses risks to South Africa's water security. These include weaknesses in the legislative process and cooperative governance; the application process; enforcing legislation; the Environmental Management Plans application process; as well as weaknesses in the decommissioning process.

In conclusion, the report stresses that extensive mining, whether in a single area or in many smaller areas, can cause major local and downstream impacts and applications should be assessed with extra care. It also recommends that areas highlighted as conservation priorities should preferably remain unmined.

To download a copy of the report, Visit: http://assets.wwfza.panda.org.wwf-web-1.bluegecko.net/downloads/wwf_coal_water_report_2011_w

Letters to the Editor

Praise for the Water Wheel

Thank you for your excellent article on groundwater in the latest *Water Wheel* ('Groundwater – From 'inferior' to 'superior', *the Water Wheel* November/December, 2011) and, in general, the excellent articles in your magazine. It is an absolute pleasure and very informative to read through every edition.
Elias Nel, DWA

I love reading the [*Water Wheel*] magazine every month, especially the articles on the history of the dams.
Francois Swanepoel, ARC – Institute for Agricultural Engineering

The latest issue [November/December 2011] looks great with many articles of interest to me.
Dean Impson, CapeNature

It is always a great pleasure for me when I receive *the Water Wheel* which gives me the opportunity to keep in touch with the WRC and the water issues in South Africa. Congratulations to everyone for the supplement September/October 2011 issue, which is fantastic.
Gerard Dassonville, former senior adviser to DWAF

Correction

The article, 'World agri award, SA does it again' (*the Water Wheel*, November/December 2011) mistakenly reported that South Africa has won the ICID award for 'Best National Committee' three years in a row. The award is actually awarded every three years, and this is the first year that South Africa has scooped the award. *The Water Wheel* regrets the error.

WRC first when it comes to agricultural water research

The Water Research Commission (WRC) is the foremost funder of water-related agricultural research in South Africa.

This is according to a newly-published investigation into project data for all water-related agriculture in the country conducted in 2010. The aim of the research, undertaken by Frost & Sullivan, was to develop a database of such research. A key driver behind this project is the fact that little of this information is publicly available.

According to the final report, initiatives of this nature are important as they promote coordination, improve collaboration between research organisations, and encourage greater transparency, particularly with regards to research funding and dissemination of information. The study considered all projects related to irrigated and rainfed agriculture, woodlands and agroforestry, grassland and livestock watering as well as freshwater aquaculture and inland fisheries.

A total of 65 water-related agricultural research projects were identified valued at a total of R208-million. Of this, the WRC contributed around R130-million. The Commission is also funding the highest number of projects. Other significant funding organisations are the KwaZulu-Natal Department of Agriculture, Environmental Affairs and Rural Development and the Department of Water Affairs (DWA) (this includes funding for Working for Water).

Most of the research was found to be conducted by the Agricultural Research Council, both in terms of funding value and number of projects. The majority of the funding for these projects is attributed to the WRC and DWA. The University of KwaZulu-Natal conducted a similar number of projects, but the funding value was nearly half the value of the ARC projects. Other organisations conducting notable agricultural water-related research include the CSIR, University of Pretoria, University of the Free State and Stellenbosch University.

The high number of projects in the irrigation agriculture category reflects the maturity of South Africa's irrigated commercial sector, and shows big investments being made into the sector, which not only uses most of the country's water but contributed significantly to food production and employment. Much research funds are also focused towards water utilisation for poverty reduction.

To order the report, *Water-related research projects in agriculture undertaken in South Africa* (**Report No: TT 503/11**) and accompanying CD, contact Publications at Tel: (012) 330-0340; Fax: (012) 331-2565; Email: orders@wrc.org.za; or Visit: www.wrc.org.za to download a free copy.

Government to set up fog harvesting project

The Department of Rural Development and Land Reform plans to conduct a pilot project to investigate the viability of fog harvesting along the eastern escarpment of Mpumalanga.

"If the pilot project yields positive results, we will consider a large scale roll-out to feed into local water distribution networks," reported department spokesperson Eddie Mochoebi. It is hoped the project will alleviate water shortages in South Africa. Communities in Cabazane village near Mount Ayliff, in the Eastern Cape, and Thohoyandou, in Limpopo, are already harvesting fog to provide in their basic water needs.

The Mpumalanga pilot project aims to produce 5 000 ℓ/day of water. The first fog harvesting nets will either be erected in Piet Retief, Donkerhoek, Madadeni, Shibange or Ntunda. "At this point it is difficult to determine where exactly the fog will be harvested. The outcome of the feasibility study will determine the suitable area," noted Mohoebi.

Water diary

WATER IN AFRICA
FEBRUARY 20-23

The 16th Africa Water and Sanitation Congress will be held in Marrakech, Morocco, with the theme 'Collaborative mechanisms and innovations for sustainable development of the water and sanitation sector in Africa'. *Email: contact@afwa-hq.org or Visit: http://www.afwa-hq.org/siteweb/index.php?option=com_content&view=article&id=169%3Amarrakech-2012&catid=53%3A-congres&Itemid=111&lang=en*

WATER LOSS
FEBRUARY 26-29

Water Loss 2012 will be held in Manila, Philippines. The conference is intended to present and discuss latest developments, strategies, techniques and applications of international best practices in non-revenue water management. The Conference is the sixth event in a series of IWA water loss reduction speciality conferences. *Email: 2012committee@iwa-waterloss.org or Visit: www.iwa-waterloss.org/2012*

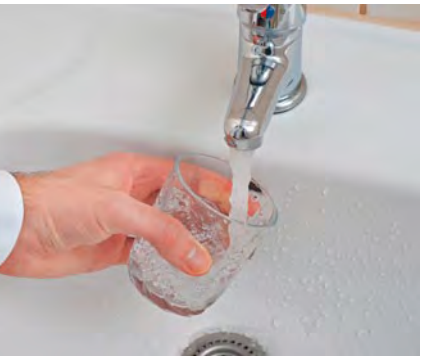
WORLD WATER
MARCH 12--17

The 6th World Water Forum will take place in Marseille, France, with the theme 'Time for Solutions'. The forum, organised every three years, is considered the largest international event in the field of water. *Email: secretariat@worldwaterforum.org or Visit: www.worldwaterforum6.org*

WATER HISTORY
MARCH 22-24

The Third IWA International Symposium on Water and Wastewater Technologies in Ancient Civilisations will be held in Istanbul, Turkey. The symposium is dedicated to themes relevant to water and wastewater technologies in ancient civilisations. The event will bring together research scientists, historians, archaeologists, and engineers from academic to industries around the world. *Email: ww2012@itu.edu.tr or Visit: www.iwa-ww2012.org*

Blue Drop 'not a factor' when it comes to SA consumers perception about water quality – study



When it comes to rating their tap water quality, consumers in South Africa's towns and cities are lead by their eyes, noses and tongues rather than chemical and microbiological quality reports.

This is according to a new study funded by the Water Research Commission. The study, conducted last year, involved a dip-stick survey which investigated urban South Africans' perceptions of their water quality and the variables that influence perceptions.

The majority of urban South Africans (81%) believe that their tap water is safe to drink. However, rather than relying on media reports or the results of the national Blue Drop certification process, most consumers depend on their sense of sight, taste and smell to determine the quality of their water.

In line with international experience, this study found that media reporting has very little impact on the individual's risk perception of drinking water safety. Only a small percentage of people questioned based their perception that tap water is safe or unsafe to drink on what they heard or read in the media. The fact that the Blue Drop status of cities and towns scored very low on the list of drivers of perceptions seems to indicate a general unawareness of the certification process among general members of the public.

Interestingly women are less confident about the safety of tap water than men and more likely to boil or filter water or drink bottled water instead. Younger consumers surveyed (16-35 years) were also found to be more positive about the safety of drinking water than older consumers. Living standards and income made no different to how people perceived the quality of their water supply.

Residents of South Africa's metropolitan areas were found to be more confident about the quality of their water supply than residents in other urban centres, with eThekwini (94% of respondents believe the tap water is safe to drink) coming out tops, followed by Cape Town (93%) in second place and Ekurhuleni (91%) in third place. Regarding survey results for smaller towns, urban residents residing in Gauteng were most confident about their water supply (88% believe the tap water is safe to drink), followed by KwaZulu-Natal (80%) and the Western Cape (78%).

"There is an increasing awareness globally that drinking water quality standards should include consumers' judgement of safety," the report states. "A better understanding of the underlying drivers of consumers' perceptions about the safety of drinking water will assist the regulator and municipalities to improve water management, consumer services and risk communication."

The report will be available later this year.

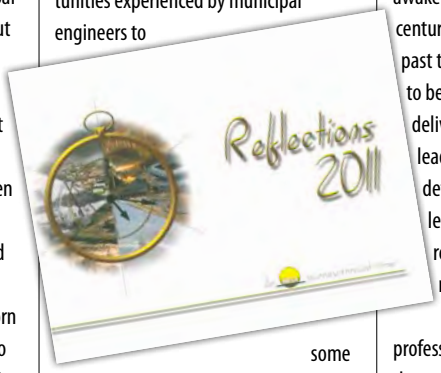
New book explores history of IMESA

In celebration of its 75th anniversary, the Institution of Municipal Engineering in Southern Africa (IMESA) has published a book on its origins and history.

Reflections 2011 – An IMESA Journey through Time is authored by well known civil engineer Johannes Haarhoff, and takes the reader to the start of municipal engineering in South Africa. Throughout the history of the country's towns and cities, the municipal engineer has been a vital contributor at the forefront of new methods of municipal service provision. These engineers had the often difficult task of integrating scientific advances of the time with practical and cost-effective engineering solutions.

Many early town engineers were born and educated in the UK, which stems to reason why IMESA has its foundations in the formation of the African District of the Association of Municipal Engineers (Britain) in South Africa in 1905. This marked the official start of the institutional arrangements that led to the South African association as we know it today.

Reflections investigates the factors influencing municipal engineering over time, from the challenges and opportunities experienced by municipal engineers to



some of the landmarks constructed through the decades. The book also includes information on some of the country's most remarkable municipal engineers, including William Ingham, David Ernest Lloyd-Davies and Solly Morris.

In all, the history of IMESA shows that the challenges are not so different today than they were at the start of the sanitary awakening in the early nineteenth century. There were several factors in the past that were forcefully demonstrated to be prerequisites for timely, efficient delivery. This includes sound political leadership and electoral support; defined interface between political leadership and appointed officials; respectful relationship between municipal engineers and elected politicians; as well as young professional engineers being attracted to the profession.

For more information on the purchase of *Reflections*, Visit: www.imesa.org.za

Water by numbers

- **4,5 million** – The number of job opportunities the government aims to create with Phase 2 of the Expanded Public Works Programme. Last year Public Works Minister Thembelani Nxesi berated local government for underspending on the programme.
- **8,7 million** – The total number of species of Earth, according to the latest count by North American scientists.
- **2,7 mm/year** – The observed sea level rise in Durban in the last 33 years, according to KwaZulu-Natal MEC for Agriculture, Environmental Affairs & Rural Development, Lydia Johnson.
- **81%** – The combined average level of the six major dams feeding the City of Cape Town and surrounds. After lower than usual rainfall this past winter, the municipality has urged its residents to use water sparingly.
- **364 ℓ** – The average per capita consumption per day in the United Arab Emirates. People here have been dubbed the world's largest water consumers.
- **R69-million** – The value of 'irregular expenditure' by the Department of Water Affairs in the last financial year, according to the Auditor General. This department has received a qualified audit on the basis of deficient bookkeeping.
- **US$350-million** – The value of a current project to deconstruct two dams on Washington state's Elwha River. The project is reportedly one of the world's largest dam-removal and river restoration projects currently being undertaken.
- **R12-billion** – The estimate cost at completion of the De Hoop Dam, currently being constructed in Limpopo. Impoundment was scheduled for November 2011.
- **50%** – The drop in incidence of diarrhoea among children under five when hands are washed after going to the toilet and before eating.