



Fingers do the talking with new cellphone service

The City of Cape Town has launched an SMS service that allows members of the public to report problems or raise queries relating to municipal water and sanitation services.

The City reports that its call centre currently receives 30 000 to 40 000 customer calls per month. By rather sending an SMS, residents can report faults or ask questions without having to go through the call centre, which

will save them time, reduce call centre congestion, and shorten queuing time for operators.

All that is required in the SMS is the customer's name, Erf number and/or account number, street address and a brief description of the fault. Cape Town's technical operations centre will then log the complaint for remedial action and respond to the sender with a reference number.

The messages are received by the municipality in the form of an e-mail, which is then logged on the standard notification system, and dispatched to the relevant operational response team for action.

An SMS of no longer than 160 characters can be sent to 31373. SMS's cost 80c.

More money for water and sanitation challenges

The Department of Water Affairs & Forestry (DWAF) will be providing an additional R500-million in the next financial year (2009/10) to deal with the immediate challenges with regards to the provision of water and sanitation.

This is on top of the funding provided to provincial and local governments through the Municipal Infrastructure Grant and the Bulk Infrastructure Grant.

"Government is fully committed to the 2014 universal access target and we are working across departments and other spheres of government towards the achievement of this target," reported Health Minister Barbara Hogan on behalf of the social cluster of government departments in a media statement in March.

During the present term of government an additional 1,465 million households have been provided with basic access to water supply, and another

1,16 million with basic sanitation.

In addition the schools programme has served 51 schools with water facilities and 125 with sanitation in the last financial year. "Though implementation was slow initially, progress has improved and the remaining 3 035 schools will be addressed by December 2010," noted Hogan. This will mean that all schools in South Africa will have basic access to water and sanitation.

Meanwhile, Minister of Water & Forestry Lindiwe Hendricks commissioned a new package water treatment plant worth R3-million for the community of Bothashoek village in the Tubatse Local Municipality, Limpopo, in March. The water treatment plant is part of government's intervention to stem the recent outbreak of cholera in the area.

During her visit the minister led a delegation of provincial and local politicians on a door-to-door health and hygiene education initiative.



Report explores benefits from cooperation on transboundary waters

The Stockholm International Water Institute (SIWI) has issued a report detailing an analytical framework for effectively developing transboundary water resources in a responsible manner.

The report, *The TWO Analysis – Introducing a Methodology for the Transboundary Waters Opportunity Analysis*, outlines an approach by which transboundary water stakeholders can collaborate on the equitable and sustainable use of jointly held freshwater resources. It sets out a methodology for optimising benefits for development and economic growth and clarifies tradeoffs in developing transboundary water resources.

"TWO analysis can enable nations and regions to focus on developing benefits from their jointly shared water resources rather than just competing for access and volume," said SIWI Executive Director Anders Bertell. "We believe that it could be a highly practical tool to promote regional cooperation and, thereby, aid in conflict prevention."

The TWO framework helps stakeholders understand both opportunities and tradeoffs in four key areas, including hydropower and power trading, primary water use in agriculture, urban growth and industry, and environmental and ecosystem services. Water sources include development of potential 'new water' from such sources as desalination or wastewater reuse, as well as more efficient use of existing water sources.

"We developed the framework for practical application by water sector managers, government officials, regional economic planners, financial officers, and philanthropic organisations who need to make informed decisions about policy and infrastructure investments in transboundary water basins," noted Dr Anders Jägerskog, project director at SIWI and co-author of the report.

The TWO analysis framework and report was developed by SIWI in collaboration with the CSIR of South Africa and Phillips Robinson & Associates from Namibia. Funding for the project was provided by the Swedish Ministry of Foreign Affairs with support from the Swedish International Development Cooperation Agency, the Water Research Commission, the Swedish Research Links Programme and the Global Environment Facility of the World Bank.

Blueprint drawn up to ensure water future

The World Wildlife Fund for Nature (WWF) has called on the South African government, private sector and civil society leaders to join hands in an effort to avert a potential future water crisis in the country.

The non-governmental organisation has launched what it calls a 'blueprint' outlining specific actions to ensure that healthy freshwater ecosystems underpin economic and social well-being in South Africa. "It is time to move beyond alarm to practical action," reported Dr Deon Nel, head of the WWF Sanlam Living Waters Partnership. Speaking at the launch in March he said: "Water links all our futures in this country and we need to realise that we have a responsibility and ability to act in a way that will improve the health of our freshwater ecosystems."

According to the WWF, South Africa is at a particularly challenging environmental, socio-political and economic growth nexus. Government

is still focused on addressing the injustices of the past and ensuring basic services for all its citizens. The provision of water and sanitation services to the poor has increased the costs of preventative maintenance of related infrastructure and has posed new challenges for local government.

Meanwhile, economic demands are placing increasing demands on already limited water resources, resulting in the need to build more bulk water infrastructure. To complicate matters, climate change is likely to reduce water availability in South Africa.

The WWF Blueprint reveals ten actions for government, private sector and civil society. Actions for government include investing in the building of necessary skills to tackle the challenges, implementation of pragmatic and adaptive management approaches, and improved planning so that timely and informed investments can be made in infrastructure. The document also points out the importance of investing timeously

in other measures besides bulk water infrastructure such as curbing illegal water demand as well as water conservation and water demand management.

Key actions proposed for private sector are partnering with government to give effect to policies and legislation, and fostering corporate stewardship for water. "Big business has a vital role to play in ensuring economic growth, but it must play a stronger role helping to protect the functioning of aquatic ecosystems." Companies such as Sanlam, South African Breweries and Woolworths have already joined WWF's Water Neutral Programme.

The organisation also suggests actions for civil society, such as using market pressure to incentivise water wise behaviour. Finally, it calls on all people in South Africa to take responsibility for the way they use water and waste services.

"South Africa can avoid a water Eskom but only if we remain vigilant to a number of key threats."

Berg River Dam named after Khoi leader



The Berg River Dam will in future be known as Autshumato Dam.

Earlier this year the dam was renamed after the 17th century Khoi leader, better known as 'Harry the Strandloper', by South African President Kgalema Motlanthe. The Khoi leader was the first prisoner to be banished to Robben Island.

Motlanthe noted that the name change, which still had to go through the required legal processes, would go a way towards correcting historical injustices perpetrated against the Khoi, who had been "written out of history."

The Berg Water Project comprises the dam with a storage capacity of 130 million m³, a supplement scheme, two pump stations and 12 km of pipeline. It started storing water in July 2007 and, a year later, was full thanks to good rainfall. The

concrete-faced, rockfill dam is 250 m above sea level. It consists of an embankment of rock mined from the river bed and surrounding area, with an impermeable 300 mm layer of concrete on the upstream side. The dam wall is 68 m high and 929 m long.

WATER ON THE WEB

<http://en.cop15.dk/>

This is the official website for the United Nations Climate Change Conference, which will take place in Copenhagen, Denmark, in December.

www.phosphorusfuture.net

This is the official website of the Global Phosphorus Research Initiative (GPRI), a collaborative effort between the Institute for Sustainable Futures at the Sydney University of Technology and the Department of Water and Environmental Studies at Linköping University, Sweden. The main objective of the GPRI is to undertake quality transdisciplinary research on sustainable global phosphorus resources for food security.

STUDENT SOUGHT FOR PROJECT

A student is urgently being sought to participate in a Water Research Commission funded project on the development of a diatom-based bio-monitoring protocol for South African rivers and streams. This study is dealing with the formulation and calibration of a diatom index for South Africa. For more information, contact Dr Bill Harding of DH Environmental Consulting at Tel: (021) 855-2528 or e-mail: bill@dhec.co.za

WATER DIARY

**WATER HISTORY
MAY 28-29**

The IWA conference on Water and Wastewater Technologies in Ancient Civilisations will be held in Bari, Italy. *Enquiries: Renato Drusiani; Tel: +39 0647 865 620; Fax: +39 0647 865 625; E-mail: acqua@federutility.it; Visit: www.federutility.it*

**MICROBIOLOGY
MAY 31-JUNE 5**

The 15th International Symposium of the IWA Health-related Water Microbiology Group will be held in Naxos, Greece. *Enquiries: Alexandra Manou; E-mail: info@watermicro2009.gr; Visit: www.watermicro2009.gr*

**ENVIRONMENTAL SCIENCE
JUNE 2-5**

The 8th Worldwide Workshop for Young Environmental Scientists will be held in Paris, France, with the theme 'Urban water: Resources and Risks, a

Developing Country's Perspective'. The workshop will combine natural and social sciences to improve transdisciplinary discussions and social commitment of scientific research in the field of integrated water resource management. *Enquiries: Martin Seidl; E-mail: martin.seidl@h2o.net; Visit: www.yes.h2o.net*

**TECHNOLOGY
JUNE 9-11**

The International Water Technology Exhibition and Conference, WaterTec Africa, will be held at Gallagher Convention Centre in Midrand. The event is co-located with Pumps, Valves & Pipes Africa and endorsed by WISA. *Visit: www.exhibitionsafrica.com or www.fairconsultants.com*

**WATER TREATMENT
JUNE 14-18**

The American Water Works Association Annual Conference & Expo will take place in San Diego. *Enquiries: Cilia Kohn or Tricia Loughhead; E-mail: awwamktg@awwa.org; Visit: www.awwa.org/ace09*

**NEW TECHNOLOGIES
JUNE 23-25**

The 6th IWA Leading-Edge Conference on Water and Wastewater Technologies will take place in Singapore. *Enquiries: +31 703 150 793; E-mail: let2009@iwahq.org; Visit: www.let2009.com.sg*

**EDUCATION & TRAINING
JUNE 24-25**

The 1st WISA Education Conference will be held at the Feathermarket in Port Elizabeth. *Enquiries: Dot Zandberg; E-mail: conference@wisa.org.za*

**WATER ECONOMICS
JULY 3-5**

The 2nd IWA International Conference on Water Economics, Statistics, and Finance will be held in Alexandroupolis in Greece. *Enquiries: Konstantinos P. Tsagarakis; Tel: +30 28310 77433; Fax: +30 28310 77406; E-mail: iwa@econ.soc.uoc.gr; Visit: www.soc.uoc.gr/iwa*

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Increased human 'wants' world water's biggest threat

Humans' desire for the material luxuries of a better life could be the death knell of our precious water resources and fragile aquatic ecosystems, according to the latest United Nations World Water Development Report.

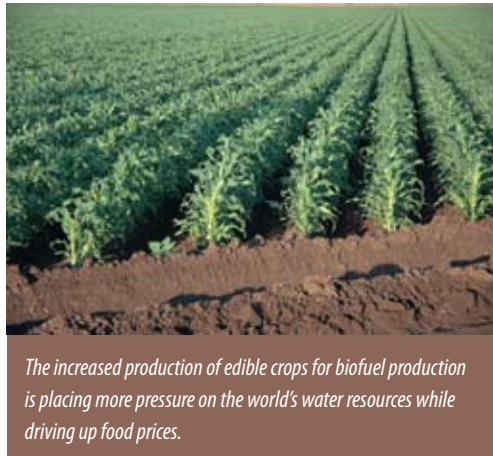
Over the last few decades countries around the world have placed much emphasis on the provision of basic services and the eradication of poverty and joblessness in communities. Massive social and economic changes taking place in many developing countries are lifting millions of people out of poverty and creating a new middle class with increasing demands for food such as milk, bread, eggs, chicken and beef to complement their traditional and less water-intensive diets.

Once their basic survival needs are met, people's requirements for increased comfort and convenience become more prominent, resulting in a rising consumption of material goods and non-essential services such as travel and leisure. This is coupled with a world population growing by some 80 million people a year, implying increased freshwater demand of about 64 billion m³/year.

According to the UN report, *Water in a Changing World*, released in March, this desire for a better lifestyle is arguably one of the most powerful human motivations, and the rapid global rise in living standards, combined with population growth poses the major threat to the sustainability of water resources and the environment. "As standards of living rise in developing countries and countries undergoing economic transition, the demand for larger homes and for luxury items such as kitchen appliances, cars and the energy to run, heat and/or cool them is increasing the demand for resources required to produce, generate and operate them," say the authors of the report.

"The production of goods to satisfy these growing human wants is often not possible without the overuse of natural resources. The major challenge is to reconcile human needs and human wants with the ability of nature to provide or replenish the resources to produce them. Global society must address the dual goal of enhancing human well-being and lifestyles while ensuring the sustainability of the ecosystems and environmental conditions that provide the desired goods and services."

Achieving this goal will prove impossible unless humans recognise and better understand the links between their actions and the condition and sustainability of the natural environment. The



The increased production of edible crops for biofuel production is placing more pressure on the world's water resources while driving up food prices.

report points out that raising awareness to bring about behavioural change is one approach, but a still elusive goal.

It is also noted that human wants and needs drive technological innovation, which could both be beneficial or detrimental to the world's freshwater. Some new technologies can have positive spinoffs – reducing water demand and increasing available water (for example, rainwater harvesting) – while others can increase water demands (such as using crops to produce bioenergy).

Several important technological trends are observed which could have important impacts on the global water sector:

Environmental research and development:

Many countries have increased their investment in environmental research and development to encourage new technologies to improve environmental quality.

Renewable energy: Innovation in renewable energy has accelerated in response to recent public and political pressure to reduce greenhouse gas emissions thought to be contributing to global climate change.

Information and communication technology (ICT): Advances in ICT can affect the cost and effectiveness of monitoring ecosystem health and quality. Reductions in the costs of sensors, coupled with satellite-based wireless data transfer, have greatly facilitated the monitoring of water resources and the delivery of water-related services, all in real time.

Biotechnology and genetically modified organisms: Plant and animal breeding has increased agricultural productivity and therefore affected water productivity. Progress has been concentrated in crop and animal productivity and resistance to pests, disease and weather extremes. With regards to genetically modified organisms, microorganisms are an especially promising avenue. As decomposers of organic material, they are capable of breaking down or otherwise neutralising many types of polluting material in the environment.

Bioenergy: Bioenergy, derived most commonly from plant materials, is a renewable energy source that is less likely to increase carbon dioxide emissions that contribute global warming. This technology is not without its challenges, however. Most notably, producing bioenergy from crops traditionally grown as food (such as maize) will require additional agricultural production to make up for the lost food sources, and more water as well.

Nanotechnology: Nanotechnology has the potential to greatly improve water quality and quantity through water treatment or remediation. Key areas are desalination, water purification, wastewater treatment and monitoring. Nanotechnology

This latest World Water Development Report, the third published since 1999, provides a comprehensive analysis of the state of the world's freshwater resources. It also, for the first time, shows how changes in water demand and supply are affected by and affect other global dynamics.

"Water is a cross-cutting issue that demands a coordinated approach," said Koïchiro Matsuura, Director-General of the UN Economic, Scientific and Cultural Organisation (UNESCO). "Our success in avoiding a global water crisis is directly linked to our ability to address other global challenges from poverty eradication and environmental sustainability to fluctuating food and energy costs and financial turmoil in world economies. It is therefore imperative that global risks, including those associated with water, be dealt with in an integrated manner."

To access the full report, go to <http://webworld.unesco.org/water/wwap/wwdr/wwdr3/index.shtml>

Hope for Africa's green heart

A World Wetlands Day announcement that Gabon is to increase its protected Ramsar sites by more than a million hectares is a major boost to conservation in central Africa, reports WWF.

The addition of the three new areas totalling 1 054 700 ha to the Ramsar register of wetlands of international importance will increase Gabon's total area of Ramsar protected areas by more than a third. "The green heart of Africa is a global conservation priority, and the basis of the region and its biological wealth are its rivers and wetlands," says Dr Lifeng Li, Director of WWF International's Global Freshwater Programme. "These new areas cover diverse habitats from impressive river rapids to extensive marshes and are vitally important to the wildlife and people of the region."

The largest of the areas is the 862 700 ha Bas Ogooué, a luxuriantly vegetated area of alluvial plain, lakes, marsh and rivers in western Gabon which is home to gorillas, chimpanzee, elephant, buffalo, the African manatee and hippopotamus. World Wetlands Day is held on 2 February each year. *Source: WWF*

Helping poor communities adapt to changing climate

A new global initiative will generate and share knowledge on strategies to help the world's poorest and most vulnerable communities adapt to the impacts of climate change.

According to online news agency SciDev.Net, the Global Initiative on Community Based Adaptation to Climate Change, will be made up of representatives of donor agencies, research institutes and non-governmental organisations from 50 countries.

The initiative will support an online platform, Community Based Adaptation Exchange, where stakeholders can share experiences and information about the kind of adaptation strategies that work best – and could be replicated and scaled up elsewhere. They will hold a number of conferences to share best practice, with the first in Tanzania in September.

The importance of the need to use simple, low-cost technologies to



enable poor communities to cope with climate change has been stressed. However, according to Ian Burton, professor emeritus at the University of Toronto, Canada, adaptation should not only focus on short-term palliative adaptation strategies that yield immediate results. "It is important to avoid maladaptation or adaptation that will make the situation worse in the long term as we are focused on what will work in the short term."

Potential adaptation techniques include crop varieties that can tolerate drought, floods and high salinity; drip and other irrigation techniques to conserve scarce water; building storm and cyclone shelters; changing crop growing cycles; and diversifying from crops to fish, shrimp, crab and livestock farming.

Trust races to build endangered food seed bank

The Global Crop Diversity Trust has announced that it is on track to save from extinction 100 000 different varieties of food crops from 46 countries, making it one of the largest and most successful biological rescue efforts ever undertaken.

"We are moving quickly to regenerate and preserve seed samples representing thousands of distinct varieties of critical food crops such as rice, maize, and wheat that were well on their way to total extinction," reported Cary Fowler, Executive Director of the Trust. The organisation, based in Chicago, in the US, started its ambitious project two years ago.

In many countries, stresses as mundane as poor refrigeration and inadequate funding and as dramatic as war and economic collapse threaten seed collections and crop varieties that do not exist anywhere else in the world. The imperilled seeds targeted for rescue by the Trust are samples of staple crops stored in crop gene banks in Africa, Central Asia, South Asia and Central and South America. They include rare varieties of barley, wheat, rice, banana/plantain, potato, cassava, chickpea, maize, lentil,

bean, sorghum, millet, coconut, breadfruit, cowpea and yam.

According to Fowler, the Trust already has agreements in place with 49 institutions in 46 countries to rescue some 53 000 of the 100 000 crop samples identified as endangered. Agreements for preserving the remaining varieties are expected to be completed soon. The initiative is one of the biggest rescue efforts ever of any threatened biological species and by far the largest rescue of endangered domesticated crop varieties.

More investment in agriculture required to avert global food crisis

National governments should reinvest in agriculture and associated infrastructure.

This is according to Dr Chandra A Madramootoo, Dean of the Faculty of Agriculture and Environmental Sciences at McGill University in Canada. He was delivering the 7th ND Gulhati Memorial Lecture for International Cooperation in Irrigation and Drainage at the last international conference held in Pakistan.

During the last four decades the crop area harvested has hardly increased, while the world cereal production has increased more than twofold. Despite this increase, close to a billion people still remain malnourished, of which some 800 million live in least developed countries.

According to Dr Madramootoo, there has been growing concerns over declining irrigation system performance and investment benefits, especially in large-scale public irrigation schemes. Improvement in both conveyance efficiency and on-farm management was a key for increasing the overall irrigation efficiency, he noted. "Efficiency gains of 14% in gross withdrawal can also be achieved through reuse of return flows. Improved surface irrigation methods like level furrows, sprinkler and micro-irrigation methods and use of advanced techniques of irrigation scheduling can help improve on-farm water management."



Childhood diarrhoea research needs 'ignored'

Childhood diarrhoea research needs a radical change of direction to reduce the death rate from a 1.8 million a year, say experts.

Online news agency SciDev.Net reports that an international survey found that experts

are far more concerned about why effective treatments are not getting to those who need them than they are about research into new products – yet the subject attracts only 3% of diarrhoea research funding. The research, published in *PLoS Medicine* (an open access journal published online by the Public Library of Science) sought to determine – and guide researchers and funders about – which research avenues should be urgently pursued to meet the millennium development goals to reduce childhood mortality by two-thirds by 2015.

Olivier Fontaine, lead author of the research, asked experts from a range of fields to suggest



research questions related to childhood diarrhoea and how to reduce deaths by 2015. These were then assessed and ranked using criteria such as their affordability.

Top priorities

were found to be health systems research into how to deliver cheap and effective treatments such as oral rehydration and zinc tablets, and health messages such as the role of exclusive breastfeeding in preventing diarrhoea. Fontaine found that 97% of research funds instead go to the development of new diarrhoea products. He claims researchers are attracted to product development because they can gain patents and visibility from it.

To access the full paper, go to <http://medicine.plosjournals.org/perlserv/?request=get-document&doi=10.1371/journal.pmed.1000041>

Move to revive ailing Iraqi marshlands

The Iraqi government and a number of United Nations (UN) agencies have launched a US\$47-million initiative to remove dykes and canals built by the regime of former President Saddam Hussein so that water can flow back into marshland areas.

The aim is to help the government strengthen services, build better governance systems and develop agriculture and public services in these areas, according to IrinNews. "People living in the marshlands are some of the poorest and most badly provided with services," noted David Shearer, UN deputy special representative of the Secretary-General, in a statement.

Reviving Iraq's marshlands, the largest wetland ecosystem in the Middle East, is an urgent environmental and humanitarian task which will need national, regional and international efforts, a local officer said. The marshlands, with their once rich biodiversity, have been damaged significantly since the 1970s due to upstream dam construction and drainage operations by Saddam's regime.

Other problems include water quality degradation caused by sewage, high levels of salinity, and pollution from pesticides and untreated industrial effluent; many people have been displaced. The UN Environment Programme and the UN/World Bank Needs Assessment Initiative for the Reconstruction of Iraq have identified damage to the marshlands and the resultant displacement as a major disaster.

"Billions of dollars are needed to implement projects to maintain livelihoods for the inhabitants. Also needed is cooperation by both Turkey and Iran to release more water to Iraq," Hamid al'Dhalimi, a member of Basra Provincial Council and head of the Marshlands Committee, said. "Low water levels mean high levels of salinity and this affects papyrus, reeds, fish, birds and cattle which are essential for the inhabitants' lives...water levels have reduced to almost half since 2003," he noted.

The government has been spending US\$50-million a year since 2006 to boost marshlands livelihoods, but recent falls in the water level have forced returnees to leave the area once more.

Global news in brief

Water district officials in Orange County, California, in the USA, are testing a **groundwater replenishment system**, which recycles wastewater using microfiltration, reverse osmosis, ultraviolet and hydrogen peroxide disinfection. The system is said to be the largest of its kind, and can treat around 70 ML of groundwater a day. Treated water will be pumped into the local aquifer to then be abstracted for drinking water.

Researchers from Duke University in the USA have found that **ancient underground wells** in water-deprived Jordan have 20 times more radiation than is considered safe for drinking. Their study showed that water from an underground source in Jordan contained high levels of a naturally occurring radioactive particle linked to some cancers, posing a health risk to thousands of people who drink it.

China is planning 59 reservoirs to collect water from the country's **melting glaciers** in an attempt to soften the effects of climate change. The western province of Xinjiang will undertake the ten-year project, which will intercept and store glacier meltwaters.

The inhabitants of a small town north of Quebec, Canada, have launched a **class-action suit** against the federal government after discovering their water supply was contaminated with trichloroethylene, a potential carcinogen, used to clean cannons at the nearby Valcartier Canadian Forces base. The runoff from the cleaning process ran into Shannon's water table.

The Coca-Cola Company has committed US\$30-million over the next six years to provide **access to safe drinking water** to communities throughout Africa through its Replenish Africa Initiative (RAIN). Implemented by the company's Africa Foundation, RAIN will provide at least two million Africans with clean water and sanitation by 2015.

Japan has announced financial assistance worth US\$5.6-million for the extension of grant aid for the implementation of a project to improve equipment for **groundwater development** in Ethiopia.

Women in the Machar Colony, the largest slum in the Pakistani city of Karachi, are refusing to use chlorine tablets to purify water because their husbands fear it will make them **impotent**. The slum houses 700 000 residents, there is no gas or electricity and the only water source is polluted.