

ReWater

Water recycling in Australia

AUTUMN 2011

Australia's first groundwater replenishment trial

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Visitor Centre combines drought tolerant plantings and educational materials.



Trial and tours commence at water recycling plant

Australia's first Groundwater Replenishment Trial has been launched by the Water Corporation in Western Australia.

A purpose-built Advanced Water Recycling Plant will produce up to five megalitres of recycled water each day which is then recharged to a confined aquifer 120-200 metres underground. The trial will determine if recycled water could potentially help boost Perth's drinking water supplies. The trial is now fully operational and recycled water was first recharged into groundwater on Wednesday 10 November 2010. The advanced water recycling plant has been operational since late 2009 and has been producing water that meets all the required standards. The WA Department of Health gave approval for the Water Corporation to commence re-charging in early November 2010.

In the trial, treated wastewater from the Beenyup Wastewater Treatment Plant is further treated to meet Australian guidelines for drinking water before replenishing groundwater. Some of the best minds have been brought together to ensure the trial meets rigorous health and environmental requirements. These include CSIRO, ChemCentre, Curtin University and the Departments of Health, Water and Environment and Conservation.

National and international expertise has also been used to design and construct the plant. Although the technologies used in the advanced water recycling process work suc-

cessfully elsewhere in the world, the trial will test them in local conditions.

The treatment process involves three main stages - ultra filtration, reverse osmosis and ultra-violet (UV) disinfection. Reverse osmosis is also used to desalinate seawater for use in drinking water supplies. Over time, water from the trial will mix with existing groundwater which acts as a natural filter, however, this water will not be used in drinking supplies.

At the end of January 2011, we had recharged about 230 million litres of water.

The trial is being conducted in an environment very similar to where it could be used on a larger scale and is looking in detail at removal of micro organisms and chemicals through the treatment process to ensure the water produced is safe for people and the environment. It will also monitor the effects the replenished water may have on the groundwater environment, and its effect on the groundwater quality.

Recycled water from the trial will be recharged into groundwater 120 to 220 metres underground. This groundwater is very deep and separated from the shallower groundwater system that is used to supply residential and other private bores.

In addition, the Water Corporation has also completed construction of an interactive Visitor Centre at the advanced water recycling

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About ReWater

ReWater is a newsletter designed to make information relevant to recycled water use in horticulture more accessible to horticulturalists (growers/farmers/landscapers), primary producers, members of the water industry and other interested people. It is part of the service provided by the Australian Coordinator for Recycled Water Use in Horticulture, funded by Horticulture Australia Limited.

Back issues and instructions for subscribing to receive ReWater electronically on a quarterly can be accessed here: www.recycledwater.com.au/rewater

Your Feedback and Contributions

We would appreciate your feedback and are always looking for suggestions and contributions. Please email rewater@recycledwater.com.au or contact us on 03 9602 4001.

www.recycledwater.com.au



Know-how for Horticulture™

The delivery of research and development outcomes from this project to the horticultural industry is made possible by the Commonwealth Government's 50% investment in all Horticulture Australia's research and development initiatives.

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plant and public tours of the facility are now available. Water Corporation Chief Executive Officer, Sue Murphy, said the Visitor Centre will play a key role in helping the community grasp the concepts of water recycling in a local context.

Water Corporation Principal Engineer Nick Turner said the Advanced Water Recycling Plant had performed well during its first few months of continuous operation, and the recycled water had met all health and environmental water quality guidelines.

"At the end of January 2011, we had recharged about 230 million litres of water."

"The water is now starting to reach monitoring bores 60 metres from the recharge bore and this is consistent with our groundwater modelling," he said.

"Testing confirms that the water underground continues to meet all health requirements."

The first full Groundwater Replenishment Trial Water Quality Report will be available to download from the Corporation's web site next month.

"The Trial is very much a community focused project," said Mrs Murphy. "The Visitor Centre will provide the public with an opportunity to tour the facility and learn more about groundwater replenishment, the recycling



Water quality monitoring is an ongoing element of the trial.

process and how this can help address the challenges of our drying climate."

Mrs Murphy said visitors would be taken on the water cycle journey through the use of interpretive walkways and film and learn how groundwater replenishment can play a role in sustaining Perth's water supplies.

"We invite anyone who has an interest in our water future to visit the facility and see it for themselves," she said.

For more information or to book a tour phone 08 9420 2655 or email groundwater.replenishment@watercorporation.com.au. General information on the Trial can be found on the Water Corporation website at www.watercorporation.com.au. The latest fact sheets are also available on the web at www.watercorporation.com.au. For more information on the Trial or to fill out an online booking form visit www.watercorporation.com.au. Contributors: Angela Hugo, Communications, Water Corporation.

The Hawkesbury-Nepean River Recovery Program

Hawkesbury City Council, NSW will receive up to \$9,138,500 from the Australian Government for a \$9.8 million Recycled Water Treatment and Distribution System to be located at the South Windsor Sewage Treatment Plant (STP).

The funding will go towards the construction of the South Windsor Effluent Reuse Scheme, an effluent treatment plant to recycle water and a distribution system from the existing South Windsor site. This will allow the supply of recycled water to numerous sites, including Council Reserves (14 hectares) and up to four local schools (six hectares) in South Windsor and Bligh Park for irrigation.

Advantages of the Project include the reduction in nitrogen and phosphorous being discharged into South Creek and thus the Hawkesbury River. The availability of a continuous source of water to irrigate playing fields will also increase the safety for users because of improved playing surfaces. The project will provide necessary capacity for development in the area with the construction of a new pump station, rising and carrier mains eliminating wet weather

Aims to improve river health by increasing environmental flows and reducing nutrient loads.

overflow issues and it also removes the need for an expensive upgrade to the sewer carrier main under Macquarie Street.

The Project has the potential to produce up to 100 Megalitres per year of recycled water, helping to offset some river extraction.

Murphy McCarthy & Associates signed the contract for the project on 11 November, 2010, with the project due to be completed by 15 September, 2011. The contract is for the survey, geo-technical investigation, design, construction, testing, commissioning and process proving of the South Windsor Sewerage Treatment

Plant (STP) recycled water plant, rising main, on-site storage tanks, recycled water toilet flushing systems, sprinkler irrigation systems and distribution network.

A sod turning on the site will be made when the design process has been finalised and



the contractors are ready to start construction. This is anticipated to take place within the next few weeks.

The project is part of the \$77.4 million Hawkesbury-Nepean River Recovery Program which consists of seven projects and aims to improve river health below the major water supply dams by increasing the water available for environmental flows in the river and reducing nutrient loads. The Hawkesbury-Nepean River Recovery Program is funded by the Australian Government through the Water for the Future Program.

For more information on the South Windsor Effluent Reuse Scheme, please contact Chris Daley on 02 4560 4506 or Ramiz Younan on 02 4560 4519. For more information on the overall Hawkesbury-Nepean River Recovery Program or its seven component projects, please visit the Office of Hawkesbury-Nepean website at www.ohn.nsw.gov.au

Source: Hawkesbury City Council media releases Monday 25 May 2009 and Thursday 2 December 2010 www.hawkesbury.nsw.gov.au

Desal and recycled water plant save the day

'Quality water supplies are secure for residents in Brisbane and Gold Coast thanks to the Tugun Desalination and Brisbane recycled water plants

The Gold Coast Desalination Plant at Tugun and the Western Corridor recycled water scheme have both been operating to supplement the SE Queensland region's drinking water supply and to ensure water quality remains high following the floods. The Minister for Natural Resources Stephen Robertson said the desal plant would run at 66 per cent capacity for several more weeks while mud stirred up by the flood continues to result in dirty water in the Brisbane river.

Mr Robertson said it was estimated up to 1,000 tonnes of silt is flowing over the Mt Crosby Weir each day where the intakes are located for the region's two main drinking water treatment plants. In the past, high levels of sediment in the river after a major wet weather event have on occasion caused a slight discoloration of tap water in some suburbs. "There is a lot of waste water in the system and it makes sense to recycle and purify this water for use in the clean up effort," Mr Robertson said. The high-grade recycled water is cleaned by ultra-filtration, reverse osmosis and UV-advanced oxidation.

Production at the Mt Crosby drinking water treatment plants is also reduced by the time it takes to remove the silt. This shortfall also is being negated by output from the desal plant. "The desal plant is doing exactly what it was designed to do and is proving to be an extremely valuable asset for maintaining water quality," Mr Robertson said.

The Western Corridor Recycled Water Scheme has also been re-activated as part of the emergency response to the floods. It also continues to supply water to industrial customers.

It has been providing purified recycled water for the critical wash down and clean up easing demand on potable water in those areas hardest hit by the floods.

Last year, the Government announced plans to place the Tugun Desalination Plant and part of the Western Corridor Recycled Wa-



Desalinated water has been used in the post flood clean up in Brisbane.



The Tugun desalination plant continues to operate following the Queensland floods.

ter Scheme into standby mode. The plan included a provision for both operations to be activated in emergency situations. "These climate resilient assets have performed perfectly for our emergency response and have allowed us enormous flexibility in handling the flood crisis," Mr Robertson said. Mr Robertson said the ongoing operation of the two plants would have no impact on the reductions to bulk water prices that were announced by the government in December 2010.

This is a very different story to that reported in December 2010 when it was announced that the desalination plant at Tugun would be turned off and that the Western Corridor recycled water project would provide water for power stations and industry only.

At the peak of the water shortages in 2007, there were fears water supply in SE Queensland would run out within months. Now, dams are overflowing with at least four years' supply and flooding has become a serious concern. The government has taken the opportunity to review the water grid and in addition to mothballing the desalination plant, it intended to merge bulk water authorities Seqwater and WaterSecure from July next year, creating a total of \$18 million in savings. Natural Resources Minister Stephen Robertson said the government had delivered on water security and was now working to bring down water costs. He called on local councils, some of which make a profit from selling water to households, to now do their bit to reduce prices.

Member for Currumbin Jann Stuckey, who had been calling for months for the Tugun desalination plant in her electorate to be mothballed, said the government's decision would have been better supported if the plant had been built with less disruption and cost. The plant has been plagued by problems with rusting pipe joints and faulty water valves. "Everyone understood the need for water security but the way that the government went about this was shameful," Ms Stuckey said. A spokesman for Mr Robertson said the desalination plant was a valuable asset that had insured the state against future drought. "If the dams ever drop below 60 per cent it will be turned back on," he said. "The desalination plant is a key part of the water grid network. The dams are full [so] this is the right time to review the entire operation and that's what the government has done."

It seems, though not initially planned for use in flood situations, the desalination plant and recycled water schemes have been vital in the clean up after the floods and securing water supplies during natural disasters. This highlights the need for an integrated approach to water management and identifies additional functionality of recycled water and desalination schemes.

For more information on the desalination plant go to www.watergrid.com.au

Contributors/sources: Queensland Government Ministerial Media statement 'Desal Plant is the key to water quality' Queensland Government Minister for Natural Resources, Mines and Energy and Minister for Trade The Honourable Stephen Robertson Sunday, January 23, 2011 <http://statements.cabinet.qld.gov.au/MMS/StatementDisplaySingle.aspx?id=73390> Brisbane Times 'Water Quick Fix a long term drain' Courtney Trenwith December 6, 2010 <http://www.brisbanetimes.com.au/queensland/water-quick-fix-a-longterm-drain-20101206-18ln1.html>

The future of Canberra sewerage management

ACTEW Corporation has recently released a report with findings regarding the future of sewerage management for the ACT.

The Future Sewerage Options Review: Canberra Sewerage Strategy 2010-2060 report focused on identifying a sewerage management approach for the region that considers adapting to climate change, technological advances and environmental sustainability.

The report explored different ways to collect, manage and treat sewage in the ACT to a high standard, and the related possibilities for use of recycled water and biosolids.

Future use of recycled water was examined, with a focus on increasing the proportion used from the ACT sewerage system. Canberra currently has three schemes that recycle water from treated effluent; the North Canberra Water Reuse Scheme, Southwell Park and Lower Molonglo Water Quality Control Centre (LMWQCC). At present, about eight per cent of water is recycled from treated effluent (excluding internal uses for the wet scrubber at LMWQCC, which is currently included in reporting to Water Services Association Australia).

A key driver for an expanded recycling scheme is to meet the ACT Government's target for increasing the use of recycled water to 20% by the year 2013, an aspirational target under the Think water, act water strategy.

Different levels of recycled water use were examined, from the existing amount reused to a major expansion of the network to recycle 100% of the annual volume of effluent by storing recycled water over the cooler months, and supplying a large proportion

of recycled water for beneficial use in a local agricultural precinct.

There were a number of factors limiting a possible increase in the use of recycled water in the ACT, including an impact on the flows to the downstream waterways and to the Murray Darling Basin; lack of major manufacturing or other industries in the ACT; and high energy use and greenhouse gas footprint.

A variety of end uses were considered to enable an increase in recycled water use, including supply to residential areas; irrigation of parks and open spaces; irrigation of agricultural areas and for enhancement of local wetlands.

Report findings indicated that increases in the proportion of recycled water are possible and have potential for positive community benefits. The scheme considered to have the best potential is to extend existing schemes to supply public open spaces in the vicinity of the city centre (15-30%). To achieve higher levels would require irrigation of all Canberra's open spaces (40%); some of which are intended to be irrigated with other non-potable sources, such as stormwater. To achieve above this level would require irrigation of a substantial agricultural scheme and associated sizeable storages (up to 100%). The report recommended further investigation of a scheme to achieve 15-30% recycling be undertaken. For further information visit www.actew.com.au

Source: Kate Elliott, Project Manager Canberra Sewerage Strategy, ActewAGL.
ActewAGL are undertaking the Canberra Sewerage Strategy on behalf of ACTEW.



Use of recycled water for irrigation of public open space has best potential in Canberra.



Recycled water for algae production

With Victoria University, Western Water is undertaking research into the use of algae as biofuels.

Using recycled water from the Bacchus Marsh Recycled Water Plant, two species of algae are being tested. The growth rates of the algae and the water quality are being monitored. One species of test algae has high oil content and may have the potential to be used for biofuel. The other algal species has low protein content and high carbon content and could be used to produce biogas.

Biogas can be used to generate electricity in a system such as Western Water's co-generation plant at Melton Recycled Water Plant. The experiment also aims to discover the most efficient technique for harvesting the algae. The project will continue for 12 months to study the effects of all seasons on the algae. Two 'raceway' tanks are being used during the experiment, where the water is circulated during sunlight hours via a paddle wheel - pictured above - to promote algal growth. To date, growth rates of the local species of algae are showing an increase in the two raceway tanks in comparison to the growth rates in the waste water treatment lagoons. Harvesting trials are currently occurring to dewater the standing crop of algae by flocculation and filtering. Depending on the results, Western Water may continue the research on a larger scale.

Source: Western Water Recycled Water News December 2010 www.westernwater.com.au

Drought and salinity tolerant plants investigated

EL PASO – Frustrated green thumbs in the desert, be patient. The days of groveling in gravel may be nearing an end, according to a Texas AgriLife Research horticulture scientist.

“Be positive. We can find plants that can tolerate difficult weather and climate situations like in El Paso,” said Dr. Genhua Niu.

Dr. Genhua Niu, scientist at the Texas AgriLife Research and Extension Center in El Paso, has been putting everything from petunias to roses through heat, drought and salty water tests that would wither the stoutest of humans much less a helpless plant. It's a project aimed at bringing more colour to yards without sacrificing precious water and other natural resources.

“My research project is on landscape water conservation,” Niu said. “In El Paso, we have limited water, so we need to try to use landscape plants that do not use a lot of water or that can be irrigated less frequently. And another thing is to (be able to) use the saline water or the recycled water to irrigate the landscape plants.”

Her research plots in El Paso include numerous EarthKind and other roses that are potentially drought tolerant, heat tolerant and salt tolerant for West Texas and the whole southwest region, she said. The plots also include many bedding plants which have not been previously studied for their tolerance of heat, salt or drought stress.

“In some gardens, (in other areas) you see so many beautiful, different varieties of roses,” she said. “They can grow well in certain places, but what if they are irrigated with saline water or recycled water? Can they tolerate that?” Niu said. “And also in El Paso when the weather would be much drier, and with much heat you need to irrigate. But not every

They can handle the drought and also can be irrigated with recycled water.

garden has a good irrigation system, and some people forget.”

Her goal is to find roses and other garden plants tough enough to take the natural and human-made “abuse.”

“People want to have beautiful roses of different colors and fragrances,” Niu said.

“Many people think that in El Paso, they can just plant shrubs and trees and have a lot of gravel in their yard. But actually there are many potentials. In the past few years, we've found

many bedding plants that can conform very well in El Paso's climate. Some are tolerant to salt, some are tolerant to drought.



Associate professor Genhua Niu with plant trials in El Paso.

“But for those that can tolerate drought it is not necessarily that they can tolerate salinity. So we need research to find out if they are tolerant to salt, to drought and to heat.” Studies are just beginning for the rose project, she said, so her research team has just started to identify qualifying plants. Several bedding plants have already been targeted.

“For example, we found that many types of petunia can be irrigated with recycled water, without affecting their foliage or flowers,” she said. “And they're just doing fine. They can be a little compact, which is good for petunia because petunia tends to grow so fast in other places.

“Another example is a number of ornamental peppers. Ornamental peppers can increase a lot of colors (available to gardeners) and these plants also can tolerate some salt and drought. So if they can handle the drought and also can be irrigated with recycled water, then they are fine with the El Paso climate.”

Niu plans to summarize her research in a few years and give a list of recommended plants to gardeners so they can select the proper plants when dealing with harsh climates.

“Then, they can have more choices in colors and plant varieties, not just gravel, not just shrubs and trees,” she said.

Source: Agrilife today ‘Scientist envisions lush, environmentally friendly gardens on horizon in harsh climates’ by Kathleen Phillips
<http://agrilife.org>
For more information contact
Dr Genhua Niu: gniu@ag.tamu.edu
<http://elpaso.tamu.edu>



Urban water reuse promoted

There are a number of stories this quarter promoting the use of recycled water in our urban water supplies.

Acting CEO of the National Water Commission, Mr James Cameron has called for greater use of recycled water within Australia's cities. In a new position statement on urban water recycling, the Commission urges even-handed assessment of the relative merits of water recycling. The Australian Water Association has joined the NWC's call for greater use of recycled water. Tom Mollenkopf, CEO of the AWA, said that recycled water offers an effective and viable additional supply option to meet Australia's water needs. This comment follows the release of the State of the Water Sector survey, commissioned by AWA and carried out by Deloitte¹.

The National Water Commission considers that water recycling - including for drinking purposes - can provide a significantly greater proportion of Australia's future urban water supplies. Greater recycling offers the prospect of more secure, less climate-vulnerable water supplies. There is unrealised potential also for environmental and urban amenity benefits.

The Commission argues that arbitrary policy bans on recycled water should be removed so that recycling options can be considered alongside alternatives on their relative merits. The Commission recognises there are intrinsic risks associated with recycled water. However, in their judgement, advances in science and improved regulatory arrangements mean that such risks can now be managed to levels of safety that are equivalent with other supply sources.

To capture the full potential of recycled water, leadership is required by governments and water sector decision makers. For its part the National Water Commission is an unambiguous supporter of expanded use of recycled water throughout Australia, subject to four conditions:

- Prior cost/benefit and risk analyses are conducted which take full account of social and environmental externalities and avoided costs.
- The best available science is utilised.
- The project is subject to best practice regulatory arrangements (based on the Australian Guidelines for Water Recycling).
- The community participates in decisions to introduce recycling and that subsequent management arrangements are transparent and accountable.

Chris Davis, the National Water Commissioner, was also promoting the use of stormwater in our cities when he gave a keynote address



Green roof garden at Queens Street, Melbourne.

to an international stormwater conference in Sydney. He said 429 gigalitres of water, equivalent to almost the entire contents of Sydney Harbour, was going into the sea each year instead of being captured and used.

Across the metropolitan area, about two gigalitres of stormwater was collected each year, a fraction of what could be harvested. There were at least 70 to 100 initiatives across Sydney that captured and re-used stormwater, but this could be increased significantly. Capturing stormwater was not easy and it was hard to store and treat. But there were real opportunities in the newly developed urban areas of the north-west and south-west, where urban water-capturing design could be built into the infrastructure.

The conference heard that there had been an evolution from the old 19th century concept that all city authorities had to do was to maintain a water supply. Other services, such as sewerage, had been introduced since, but the present ideal was "water-sensitive" cities that had adapted to rainfall.

Mr Davis said Warragamba Dam supplied about 570 gigalitres and remained the principal water supply but the city need not be totally dependent on this supply. If use of stormwater, capture of rainwater and recy-

cling of treated sewage were employed, it was possible to supplement Sydney's water supply by 70 gigalitres a year.

Dr Chris Walsh, a principal research fellow in resource management from the University of Melbourne, also spoke at the conference and said that the present drainage system in cities whose aim was to get rid of water quickly was doing nothing for the urban environment. "Ninety per cent of water in urban areas is washed down the drain and into the nearest stream, where 80 to 90 per cent of the water that falls on a forest doesn't get to the stream at all," he said. "Virtually none of the water that gets to the stream from a forest gets there through overland flow: it all gets there slowly and cleanly through the soils. "In contrast all the water that gets to the stream through the drainage system gets there directly through the pipes, picking up pollutants along the way. When it stops raining, urban streams are starved of water because they are no longer receiving flows through the soils that once filtered into the ground now covered by roofs and roads. "Addressing this problem, by changing the way we are managing stormwater to keep it in our catchments and use most of it, will not only protect our streams, but will provide our

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¹AWA/Deloitte State of the Water Sector 2010 – 2015 Preliminary report November 2010 www.awa.asn.au

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cities with plentiful water that can reduce our demand on imported water, cool our cities, make them greener, healthier places and reduce the risks of summer flash floods.”

In another article from the US, the Earth Advantage Institute, a leading nonprofit green building resource and research organization that has certified more than 11,000 sustainable homes, was also promoting use of greywater. The Institute announced its annual selection of top ten green building trends to watch for over the next 12 months. The trends, which range from “affordable green” to lifecycle analysis of materials, were identified by Earth Advantage Institute based on discussions with a range of audiences over the latter part of 2010. These sectors included policymakers, builders, developers, architects, real estate brokers, appraisers, lenders, and homeowners.

Number 8 on the top ten list is residential grey water use. With water shortages looming in many areas including the Southwest and Southern California, recycling of grey water – any household wastewater with the exception of toilet water – is gaining traction. Benefits include reduced water use, reduced strain on septic and stormwater systems, and groundwater replenishment. Although many cities in the US have been slow to leg-



Alternative household drainage system in Canberra.

islate on grey water use, some communities have increased the amount of allowable grey water use for irrigation. Systems can be as simple as a pipe system draining directly into a mulch field or they can incorporate collection tanks and pumps.

WSAA have also released their Cities of the Future report which emphasises the need for a city wide integrated approach to help reduce the ecological footprint of the services provided to a city. The report suggests the development of a plan that integrates the

management of all parts of the water cycle with urban planning and relevant activities in other sectors. The aim of this plan is to integrate delivery of sustainability actions at a city wide scale to improve city liveability and resilience to climate change.

The plan should provide clear responsibilities for each component of the water cycle at a range of scales. At the Government level, planning will establish city wide objectives and provide leadership. Local level planning can then empower customers to make local choices. Integrated water management planning should also be extended to the surrounding region and neighbouring cities.

With the support of all these national organizations, stormwater and recycled wastewater use look set to be an intrinsic part of our urban water infrastructure.

Source: National Water Commission Urban Water Recycling: National Water Commission position November 2010 www.nwc.gov.au

‘City urged to tap heaven-sent gift’ Sydney Morning Herald Malcolm Brown November 10, 2010

www.smh.com.au

Top Ten Green Building Trends for 2011 Selected by Earth Advantage Institute Portland, OR (PRWEB) January 6, 2011 www.benzinga.com

WSAA Cities of the Future Program ‘Spatial Planning and Institutional Reform Conclusions from the World Water Congress’ www.wsaa.asn.au

Privately owned micro water utility in Sydney

A new project in Sydney’s north-west is demonstrating why NSW is now Australia’s leading arena for water business opportunities.

This is possibly the start of a trend that will change Australia’s water services in new developments. For the first time in Australia, businesses and developers can choose who will provide their water and wastewater infrastructure and services.

The Water Factory Company will provide facilities to collect wastewater from more than 940 residences at Vermont, in Pitt Town, and supply recycled wastewater to the local com-

munity bioreactor. Wastewater from over 200 existing homes will be used to start up the plant prior to the Pitt Town development completion. The project builds on previous Water Factory experience with other recycled water

schemes at Sydney Water HQ, Pennant Hills Golf course, Sydney Airport, Workplace 6, Couran Cove and Durham Green.

Source: Water Factory Company media release 9 February 2011, Terry Leckie

**An Australian first
that provides developers
with real choices**

munity for washing cars, clothes, flushing toilets, and watering gardens, parks and in community facilities. “The NSW Water Industry Competition Act is an Australian first and has provided developers with real choices – they can now consider and engage services other than the services of government agencies such as Sydney Water,” Water Factory Company CEO Terry Leckie said.

The wastewater will be collected via a low pressure sewer and then treated via a mem-



Computer generated view of Water Factory at Pitt Town.



GOOD READS and website links

Water in Australia: Facts and Figures, Mythes and Ideas. 2nd Edition

The 2nd edition, enlarged and revised. This title provides a basic overview of water resources in Australia, their management and use. Issues of importance from a policy and future planning perspective, including suggestions for handling perennial problems such as drought and maldistribution of water are addressed.

Email: bookshop@awa.asn.au

The Water for Good Annual Statement 2010

The Water for Good Annual Statement 2010 and Progress Report Card 2010 have been developed to assess South Australia's progress in achieving goals and targets in Water for Good. The Annual Statement shows South Australia is in a good position to achieve long-term targets to secure and manage the State's water future – and in some cases to meet targets earlier than envisaged. The report shows that South Australia will exceed 20 gigalitres of stormwater harvesting by 2013. The report also notes

that the Adelaide Desalination Plant is on track to produce water by April 2011.

www.waterforgood.sa.gov.au

Cities of the Future report

The Water Services Association of Australia has released its Cities of the Future report: Conclusions from the World Water Congress, September 2010. This paper provides a set of Principles for a Sustainable City of the Future. WSAA Cities of the Future Program 'Spatial Planning and Institutional Reform Conclusions from the World Water Congress'

www.wsaa.asn.au



Future growth in recycled water in Australia

Stevens D. and Diaper C. Technical Review No. 31 New Zealand Land Treatment Collective (2010) www.scionresearch.com

Governance and management for sustainable water systems

Introduces the subject of governance of water systems and illuminates relatively unexplored topics of water resources management. The material is practical but advanced in the sense that theories of industry organisation, governance, and institutional analysis are applied in new ways.

Costs \$120 plus postage

Email: bookshop@awa.asn.au

Simon Judd's The MBR BOOK New 2nd edition:

On the principles and application of membrane bio-reactors for water and wastewater treatment. A bigger book with expanded section on anaerobic MBRs, micro pollutant fate and hybrid systems. New operation and maintenance section. Over 50 case studies from municipal and industrial projects. Costs \$295 plus postage.

Email: bookshop@awa.asn.au



EVENTS diary dates

Australia

Ozwater'11

OzWater'11

9-11 May 2011. Adelaide SA

Ozwater is an event like no other, organised by the industry for the industry where the issues that drive the industry are discussed and future directions decided. Ozwater '11 will address the wide ranging issues that face the water industry today. These include major national water reforms, climate change and its impacts, technological advances and the challenges of human resources to name a few.

For more information:

www.ozwater11.com.au

AWA Water Education, Water efficiency and WICD conferences

1-3 March 2011, Sebel Hotel Albert Park Melbourne - Call for papers open

Following the success in 2008, AWA will again run three specialty conferences in parallel - 4th National Water Efficiency, 4th National Water Education, and 2nd Water Industry Capacity Development (WICD). This provides excellent opportunities for delegates to attend presentations of interest

in their own and other disciplines, to share knowledge and network. Full papers are due by 4 February 2011.

For more information: www.awa.asn.au

or download the program: www.awa.asn.au

Free Open Day!

To celebrate World Water Day, Western Water invite you and your family to a free open day at their Rosslynne Water Filtration Plant, near Gisborne, on Sunday 20 March 2011. 10 am to 2.30 pm. Join Sammy the Snake for a great day out: live entertainment, hands-on activities, guided tours, sausage sizzle, face painting, giveaways, Western Water info stall. Numbers are limited, so book early to avoid disappointment.

Bookings: Telephone (03) 9218 5449 or email education@westernwater.com.au

The IDA World Congress 2011 on Desalination and Water Reuse

4-9 September 2011. Perth, Western Australia - Call for papers now open.

The International Desalination Association is pleased to present the Call for Papers for the IDA World Congress 2011 on Desalination and Water Reuse. This biennial event will be held from 4 - 9 September at the Perth Con-

vention and Exhibition Centre, Perth Australia. Themed, "Desalination: Sustainable Solutions for a Thirsty Planet" the Congress is the premier global event on desalination and water reuse. Printed copies of the Call for Papers are being mailed to all current IDA members.

For more information: www.idadesal.org

The EnviroTox Conference

Darwin Convention Centre. 17-20 April 2011.

The meeting aims to promote the sharing of knowledge to gain a better understanding of the environmental risks, impacts and management of contaminants to ensure a healthier environment. The conference will consist of plenary, keynote, general platform and poster sessions, as well as a range of social events and post-Conference workshops/field trips. Keynote Speakers include Dr Donald Baird, Mr Jon Brodie, Prof David Fox, Prof Louis J. Guillette Jr, Prof Jack Ng and Dr Stuart Simpson.

For all registration, abstract and conference information, visit www.envirottox2011.org



EVENTS

diary dates



9th IWA Specialist Conference on Waste Stabilisation Ponds

Stamford Grand Adelaide, Glenelg Adelaide
1-3 August 2011

The aim of this conference on waste water management in rural and urban areas is to provide a forum for the exchange of the most recent ideas, techniques and experience in all areas of system management that could contribute to more efficient and sustainable use of waste water. This conference will focus on techniques for the delivery of the maximum volumes of clean, environmentally safe, treated waste water for amenity and agricultural purposes, using minimal energy inputs and having low maintenance requirements.

For more information: www.iwawsp11.com

International



15th Annual Water Reuse & Desalination Research Conference

Las Vegas, Nevada 16-17 May 2011

Abstracts open until 13 December 2010

The WaterReuse Research Foundation's Research Conference provides an opportunity for the water reuse and desalination communities to hear and see presentations by researchers on the latest results of ongoing research. The conference provides a forum for water reuse and desalination research professionals to interact, network, and discuss current and future research needs and trends. This is the conference you need to attend to learn about technologies that will become mainstream in 5-10 years.

For more information: www.watereuse.org

Cities of the Future - Stockholm, Sweden

Sustainable Urban Planning and Water Management, 22-25 May 2011

Today we are faced with an unprecedented set of issues that call for a change of approach to urban water management. Urban planners, policy makers and water manag-

ers must respond effectively and urgently to the impacts of climate change, population growth, growing resource constraints, rapidly increasing global urbanization and the importance of urban needs that create competition between regions and other water uses. These issues are complex and not subject to readily defined solutions because of the multiple and often competing values held by various stakeholders. The regulatory and policy settings do not adequately incorporate resource constraints or recognition of the challenges being addressed by the urban sector.

The objective of the conference is to highlight the need and benefits of integrating and emphasising water in the planning of European cities of the future.

The conference focuses on the intersection between urban spatial planning and the planning, construction and operation of sustainable urban water systems. The conference program will involve city planning and design (water centric cities, water as a design element or defining constraint in the urban setting, water for pleasure and well-being etc.), interaction with other infrastructure systems (biowaste, biogas, heating and cooling, transports, fibre optic communication etc.), the surrounding land (agriculture and food production, energy, aquaculture, recreation), as well as evolving technical and managerial solutions.

For more information see: *Cities of the Future*



Global water Summit - Focusing on performance

Berlin 18-19 April 2011.

The Intercontinental Hotel, Berlin Global Water Intelligence and the International Desalination Association

The Global Water Summit is the most important event in the international water calendar. Our central aim is to create a large scale gathering of top level executives which remains as intimate as a private meeting. We put together the big ideas that set the agenda, and follow it up with a multitude of smaller opportunities to talk and meet. This is not a summit of grand declarations and anonymous applause. It is about inspiration, interaction, and personal connection. This is how we make change happen. At the Global Water Awards Gala Dinner, Kofi Annan will be speaking about water and the future of the world.

www.watermeetsmoney.com

Conference on Decentralised Wastewater Treatment Systems (DEWATS) for Urban Environments in Asia

Manila, Philippines 25- 28 May 2011

The World is facing immense challenges arising from rapid population growth and intense urbanization. In Asia, about 45% of the population now live in towns and cities, and by 2030 it is estimated that this will reach 60%. Population densities in Asian cities are much higher than other parts of the world, and the predominance of poverty in urban slums is ubiquitous throughout the region.

Against this backdrop, the lack of wastewater management continues to be a huge challenge. Conventional centralised approaches to wastewater management have largely failed to address the wastewater disposal needs of poor communities due to high capital investment, poor operation and maintenance or low connection rates. As a result, many urban dwellers remain unserved with basic sanitation and the vast majority of wastewater and septage is discharged without any form of treatment into rivers and water bodies, seriously polluting water resources and causing a diversity of economic impacts.

As a result of this crisis, demand for affordable but effective wastewater management systems is increasing and there is a growing body of science and practice which demonstrates the opportunities for implementing wastewater management systems based on a decentralised approach. The decentralised approach – referred to as DEWATS – has been demonstrated to be a cost-effective and efficient way of wastewater treatment to improve environmental health conditions as well as providing opportunities for re-use and resource recovery. Decentralised approaches also offer increased opportunities for local stakeholder participation in planning and decision-making.

For more information see: *Conference on Decentralised Wastewater Treatment Systems (DEWATS) for Urban Environments in Asia* www.iwadewats-manila.com

8th IWA Leading-Edge Conference on Water and Wastewater Technologies

Amsterdam, The Netherlands 6 - 10 June 2011

IWA introduced its leading-edge conference series on water and wastewater treatment technologies in response to the need to highlight the most significant advances in these fields. It covered technologies ranging from those just emerging from the laboratory to those just making their way to full commercial applications.

The annual leading-edge conference on water and wastewater technologies is focused specifically on advances and development in water and wastewater technologies. To keep the programme targeted and discussions meaningful, the conference consists of a single plenary session on invited speakers on the first day, followed by two parallel sessions (one for drinking water and the other for wastewater) on days two and three.

This year's drinking water track focuses on technology developments that relate to water scarcity and improved efficiency. The wastewater track will focus on the primary drivers for technology development: better economy and performance of systems, and adaptation or mitigation of climate change effects.

For more information see www.let2011.org

Cities of the Future 2011

Xi'an, China, 15-18 September 2011

Sustainable water and wastewater management is a hot topic for urban water environment improvement nowadays and toward the future development. In China, as well as other developed and developing regions in the world, there has increasing demand of water supply for domestic, municipal, industrial and environmental uses in the expanded and/or newly developed urban areas. Many

efforts have to be made to overcome water shortage and environmental deterioration. In China, a series of national projects are underway for this purpose. The IWA conference "Cities of the Future Xi'an: Technologies for Integrated Urban Water Management", will thus provide a good opportunity for Chinese scientists, engineers, and environmental decision makers to seat together with professionals from all over the world to exchange their opinions and experiences in the related fields.

For more information see www.cof-xian2011.com



8th International Conference on Water Reclamation & Reuse: "a dependable water resource under the uncertainties of climate change"

Barcelona, Spain 26-29 September 2011

In many water stressed areas, traditional measures for increasing water efficiency (water conservation) have gradually evolved towards measures to ensure water self-suffi-

ciency. The case of Barcelona, in Catalonia, will serve to illustrate this concept during the Conference.

For the last 20 years Spain has made a major effort in developing water and wastewater infrastructures. About 90% of Spanish municipal wastewater is treated to European Directive's standards; this has stimulated the gradual emergence of numerous water reclamation and reuse projects that account for about the 13% of treated effluent flows. From the regulatory standpoint, Spain has led development and implementation of water reclamation and reuse regulations at regional and national level. The Conference will be chaired by Prof. Rafael Mujeriego and Mr. Lluís Sala as Vice Chair. Prof. Rafael Mujeriego and Mr. Lluís Sala have been involved in the IWA Specialist Group on Water Reuse for many years, and have an internationally recognized experience in water reclamation and reuse practice.

For more information www.waterbcn2011.org

NEWS innovations & information

Victoria

Coburg to receive stormwater harvesting project

Coburg, Victoria is set to become one of the first Principal Activity Centres in Australia to incorporate a recycled water pipeline alongside its existing water and sewerage infrastructure. Yarra Valley Water Managing Director Tony Kelly said that the water utility is committed to delivering more sustainable water and sewerage services, and would be working with Moreland City Council and Melbourne Water to achieve this through the Coburg Stormwater Harvesting and Reuse Project.

As part of the proposed project, stormwater will be diverted from two existing Melbourne Water drains into a large underground storage tank which will be built under the McDonald Reserve, Coburg.

Source: Trenchless Australasia
17 December 2010
<http://trenchless-australasia.com>

Wyndham pool water recycled

WATER from the Wyndham Leisure and Events Centre will not go to waste while the venue is renovated. Instead, water removed from the centre will be used at venues includ-

ing the Werribee Open Range Zoo, Presidents Park, Cambridge Reserve and Featherbrook and Alamanda ovals. About 700,000 litres of water will be transferred from the pool after tests ensured it was suitable for reuse. It's not just human residents who will benefit from the use of recycled water - the zoo will use the water for its new gorilla plantation and the Kubu River Hippos water play area.

Wyndham mayor John Menegazzo said the water would be used this summer. "Although we have had a good period of rain, stage two water restrictions are still in place," he said. "This creative reuse of water demonstrates Wyndham City's commitment to recycling water and providing safe and modern sporting facilities for residents, both at sporting ovals and the leisure and events centre."

Source: Tara Murray, Wyndham Weekly
12 January 2011
www.wyndhamweekly.com.au

Rural Sewerage Scheme in Planning

North East Water (NEW) has announced that it "is planning to complete four new sewerage schemes" in Oxley, Milawa, Glenrowan and Tungamah by 2013. NEW customer and financial services executive manager Anthony Hernan stated that the septic tanks that the towns currently rely on to dispose of

wastewater "are old and in poor condition, and their treatment and disposal methods don't meet current Environment Protection Authority standards". NEW has also expressed its interest in finding "sites to house wastewater treatment plants for Milawa and Oxley...and Tungamah, with all the new facilities designed to produce recycled water suitable for irrigation".

Source: NEW's media release 15 December 2010

West Werribee to benefit from water recycling project

A landmark water recycling project will make West Werribee one of the most water conscious areas in Victoria.

Gillard Government funding of \$11.4 million will enable City West Water to roll out an Aquifer and Storage recovery scheme as part of its West Werribee Dual Supply project. The scheme will draw recycled water from Melbourne Water's Western Treatment Plant, further process it to reduce salt, and inject it into an underground aquifer for storage. The treated recycled water will then be extracted and piped to customers via the West Werribee Dual Supply Project for use in home gardens, toilet flushing and public open spaces such as Werribee Racecourse.

The West Werribee Dual Water Supply project aims to deliver about 3.1 billion litres of treated recycled water to new homes in the surrounding area. About 9,200 homes have already been approved for construction and the project will have the capacity to supply an estimated 19,200 homes expected to be constructed in the area by 2035.

For more information:

www.environment.gov.au

Source: Federal Urban Water Parliamentary Secretary's media release 22 November 2010 and City West Water's media release 24 November 2010

Australia's largest UV disinfection system - Water and Wastewater

Seven closed vessel (in-pipe) UV reactors will be installed as part of the Eastern Treatment Plant Tertiary Upgrade Project in Melbourne. The UV system will disinfect average and peak tertiary treated effluent flows of 380 and 700 million litres per day respectively, making it the largest UV installation in Australia. The objective of the upgrade project is to significantly improve the quality of treated water at the plant. This will further reduce the impact associated with the current discharge quality on the receiving marine environment Boags Rocks, near Gunnamatta Beach, as well as produce a high quality recycled water resource which can be used for a broader range of non-potable recycling applications. These include residential third-pipe schemes (e.g. toilet flushing, garden watering, car washing), watering public gardens, open areas and sports grounds, and irrigating food crops.

Australia's Largest UV Disinfection System. By Trojan Technologies 26 January 2011

New South Wales

\$35 Million to further increase Sydney's recycled water network

The Keneally Government has injected a further \$35 million into boosting recycled water supplies in Sydney's south west. The investment will cover design and construction of a water recycling plant and pumping station at the Glenfield wastewater treatment plant and a recycled water reservoir at Edmondson Park.

"The Hoxton Park Recycled Water Scheme will eventually supply 1.4 billion litres of recycled water a year to about 14,000 new homes and industrial areas," Dr McDonald said. "It will deliver high quality recycled water to Edmondson Park, Middleton Grange, Ingleburn Gardens, Yarrunga Industrial Estate, the Inghams Development in Prestons, the Hoxton Park Aerodrome development, Cecil Park South and the Panorama Estate development.

"Construction is almost complete on a 22-kilometre pipeline to deliver the recycled water to homes, and work will start on the recycled water plant in the first half of next year."

Source: Parliamentary media release, Phil Costa, Minister for Water Minister for Corrective Services, NSW Government Friday 12 November 2010

Sydney to launch first recycled water network

A consortium led by engineering consultants GHD and including the Institute of Sustainable Futures at the University of Technology, Sydney and Public Private Partnership Consultants P3iC has been selected by the City of Sydney to develop a decentralised water masterplan for the Local Government Area (LGA) which would include Australia's first city-wide recycled water network. The consortium will develop different business models to implement the decentralized water plan including a private sector water services company or a public/private joint venture. The recycled water network would connect to apartment, commercial and institutional buildings which are responsible for 80 per cent of the water consumption in the LGA. In an Australian first it would allow buildings to take recycled water from the network and to supply any excess recycled water to the network.

Source: Sydney to launch first recycled water network and Desalination and Water reuse GHD leads Sydney water recycling consortium. Joyce R, International Business Times Australia, 14 January.

Queensland

Wastewater Network Repairs Underway

Urban Utilities has announced that "strong progress [is] being made" in repairing seven major wastewater treatment plants and 120 wastewater pump stations across the state. Urban Utilities has stated that following "extreme mechanical and electrical damage", wastewater treatment plants at Fairfield, Oxley Creek, Karana Downs, Rosewood, Bundamba, Goodna and Fernvale are "now partially operational".

Source: Urban Utilities' media release 20 January 2011

New Regulation - Standard Plumbing and Drainage Amendment

The Standard Plumbing and Drainage Amendment Regulation (No. 1) 2011 No. 2 (Qld) amends the Standard Plumbing and Drainage Regulation 2003 No. 265 (Qld).

The amending Regulation amends: s. 4A to update the reference to the recently updated

Queensland Plumbing and Wastewater Code (19 January 2011); and makes other minor amendments to Schedule 6 (Dictionary).

The amending Regulation commenced on 21 January 2011.

Source: Department of Infrastructure and Planning; Lawlex Legislative Alert & Premium Research

Western Australia

Broome North Wastewater Treatment Plant Almost Complete

Water Minister Bill Marmion has announced that the Broome North Wastewater Treatment Plant, situated 10 kilometres north-east of Broome's central business district, is close to completion and looks to be operational by May 2011. According to Mr Marmion, all of the water treated at the plant will be recycled to be used as irrigation water on Rhodes grass, "which will be harvested for stock feed". Mr Marmion stated that the plant will have the capacity to produce 3.5 megalitres of waste water per day but will commence operation at 1 megalitre per day, "increasing as demand required".

Source: Water Minister's media release 19 January 2011

International

How NASA is recycling urine into drinking water

What would you say if someone handed you a cup of water and told you that it was recycled from urine?

Yuck? But NASA engineers think recycling water from the loo is the best way of giving astronauts access to a sustainable water supply while they are stuck in space.

Michael Flynn is a life support engineer at NASA Ames Research Center and he works on technologies required to keep humans alive in space. But launching clean water into space is cost-prohibitive, so for years, Flynn and his team have been working on new ways to recycle waste water into safe, drinking water.

"Space flight is extremely expensive and the expensive part of space flight is launch costs and spending money to launch water into space is prohibitively expensive so NASA has embarked on developing water recycling systems that allow us to recycle all waste water that is produced on board a spacecraft that includes urine and hygiene water and recycle that back to water that provides drinking water for astronauts," Flynn said.

Source: Smart Planet 'How NASA is recycling urine into drinking water' by Boonsri Dickinson 13 January 2011
www.smartplanet.com

Bottling wastewater expands islands oasis

Recycled treated wastewater, which Singapore has branded "NEWater", is providing 30 percent of the Southeast Asian island city-state's total demand for fresh water. Until this year, imports from neighboring Malaysia accounted for 40 percent of the nation's 300-million gallon daily demand for fresh water. For political and economic reasons, however, the government decided not to renew the import contracts, which were signed in 1961 and expire in 2011 and 2061. When imports end, all Singapore's three freshwater sources will be local—rainfall in catchments, desalination, and NEWater.

Source: [Bottling Wastewater Expands Island's Oasis—Singapore's NEWater Path to Independence](#). Brett Walton, Circle of Blue. Friday 14 January 2011
www.circleofblue.org

La Cruces Water Reclamation plant

A Water Reclamation Plant - built to exceed state standards for reclaimed water, and meet the California standards - treats wastewater from the east side of Las Cruces, New Mexico, for irrigation purposes. The 260,000 gallons/day plant collects water from sinks, showers, toilets and drains from commercial users, restaurants, and homes via a series of lift stations to the water reclamation plant. The water is filtered and sterilised and stored in the water tower covered with quail artwork and released through purple pipes to travel back underground to storage and irrigation of the Sonoma Ranch Golf Course. Two nearby parks also have access to the purple pipe water, as will a future high school to be built for irrigation of their green space.

Source: [Reclaimed, recycled water put to good use](#). Suzanne Michaels, Las Cruces Sun-News.

Napa State to pipe in reclaimed water

The Napa Sanitation District board is expected to award a \$2 million construction contract for building an underground pipeline for reclaimed wastewater to Napa State Hospital. The 6,100-foot line will carry recycled wastewater to irrigate Napa State's expansive landscape, reducing the need to use the city of Napa potable water, and may someday bring water relief to the Coombsville area where the water table is dropping. Napa State Hospital will have to cover the cost of separating its irrigation and potable water systems to get access to the recycled water. Napa State has been looking into how much that might cost, but nothing has been finalized. Napa State Hospital uses about 64 million gallons each year to water its grounds, Moore said. The pipeline is part of a larger future project which will extend into

the Coombsville area, bringing in recycled water to irrigate golf course land at Napa Valley Country Club and area vineyards, Healy said.

Source: [Napa State to pipe in reclaimed water](#). Napa Valley Register.

California City upgrades water treatment plant to ease the burden on its water table

A growing demand for water is taking a heavy toll on the water table under the central California city of Visalia. To ease this burden, the city is upgrading its wastewater treatment plant, which will increase the amount of water that can be recycled and help reduce the need for pumping groundwater. The upgraded plant will be the largest MBR (membrane bioreactor) plant in California when it enters service in 2013. "The upgrade will provide the city with an additional source of water and will ease the demand on the water table, which we are concerned about reaching lower levels," said Andrew Benelli, public works director for Visalia. "The treatment plant now will have the capability to provide recycled water for a number of additional uses such as golf courses and agricultural areas."

Source: [California City Upgrades Water Treatment Plant to Ease the Burden on Its Water...](#) Business Wire (press release).

Recycled water dream in pipeline

A pilot scheme to recycle water for industrial and agricultural use has been implemented by the Drainage Services Department in Hong Kong. The recycled water is being used to wash garbage bins and facilities at the a Sewage Treatment Works site. There is no water shortage in Hong Kong but recycled water "can be used for agriculture, fish-rearing and industrial washing," said Eddie Pak Kan-ming, the plant's senior engineer. The plant will further explore the feasibility and the cost of producing recycled water until November before a decision is made on whether it can be introduced to the public. It employs a number of technologies, including reverse osmosis and an ultraviolet disinfection system that removes bacteria.

Source: [Recycled water dream in pipeline](#). The Standard.

South Africans to drink recycled toilet water for the first time

South Africans will drink recycled toilet water for the first time later this month when a reclamation plant in the drought-stricken town of Beaufort West starts operating. The facility will treat effluent from the town's sewerage-treatment works and pump purified water directly into its reservoir. A water shortage forced Beaufort West to cut supplies for 36 hours at a stretch this month and the Gamka Dam, Beaufort West's main source of water,

dried up for the first time in the town's 173-year history. The drought in the southwestern Karoo region where Beaufort West is situated has reached "critical proportions," according to Agri Wes-Cape, a farmers association. "It's developing into a crisis," Carl Opperman, chief executive officer of the Cape Town-based group, said in a telephone interview. Some regions in the Karoo have been declared disaster areas, he said. Farmers mainly breed sheep in the region.

Source: [South Africans to Drink Recycled Toilet Water for The First Time](#). Bloomberg BusinessWeek 17 December.

Designs unveiled for new terminals at Chennai Airport in India

The Airports Authority of India (AAI) has unveiled design details of the new terminals at the Chennai Airport in India. The design is a collaborative effort of four firms and the terminal buildings will incorporate various water management techniques like water-efficient landscaping, rain water harvesting, water-efficient fixtures, use of treated gray water for air conditioning cooling system and effluent treatment plant to treat the waste water for reuse.

Source: [World Interior Design network](#) 31 January 2011
www.worldinteriordesignnetwork.com

Works Begins on Advanced Water Treatment Facility

To ensure an adequate and reliable supply of high-quality water for the region, the Santa Clara Valley Water District, located in San José, CA, has partnered with cities and water retailers in the county to develop recycled water supplies. In March 2010, the Santa Clara Valley Water District and the City of San José signed a 40-year agreement to build the new Advanced Water Treatment facility (AWTF) and increase the use of recycled water in Santa Clara County. A groundbreaking ceremony for the facility was held in October.

The new state-of-the-art water treatment operation will use three advanced water treatment technologies to produce highly purified water. The AWTF will have the treatment capacity for 10 mgd microfiltration (MF), 8-mgd reverse osmosis (RO), and 10-mgd ultraviolet light disinfection (UV). This water will be blended with the tertiary-treated water already being produced by the San Jose/Santa Clara Water Pollution Control Plant (WPCP) and distributed by the South Bay Water Recycling (SBWR) program to Milpitas, Santa Clara, and San José.

Source: [Jeannine Larabee and Hossein Ashktorab](#), Waterworld www.waterworld.com