

# rewater

farming with recycled water



## North East Water serious about recycled water

*By Ian Reimers, Reuse Coordinator, North East Water  
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North East Water means business, particularly when it comes to recycled water. By developing a commercially focused reuse business, they have created a new balance between their environmental, social and financial responsibilities.

Currently, North East Water supplies over 3,200 million litres of recycled water to 19 different schemes, from lawn irrigation at Victory Primary School, Wodonga to large scale irrigated cropping at Wangaratta, Benalla and Yarrawonga.

A review of their water recycling program in 2002 highlighted several issues with the way the schemes were managed. Like many other water authorities, North East Water did not consider the supply and use of recycled water to be a core function of the business. As a result, recycled water was supplied under agreement to lease farmers and third-party users. Given the relatively low cost of river water in northeast Victoria, it was difficult to recover the real cost of supplying recycled water. This method of management was costing North East Water \$45 per million litres to operate.

Edition May 2006

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HAL

Know-how for Horticulture™

A product of the National Coordinator for Reclaimed Water Development in Horticulture project. Funded by Horticulture Australia Limited.

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## From the editor

ReWater has been developed in recognition of the growing interest in the use of reclaimed water in agriculture.

We would like ReWater to become a forum for you to communicate your thoughts about the beneficial use of reclaimed water.

If you would like to receive a copy of ReWater electronically, email us at [rewater@recycledwater.com.au](mailto:rewater@recycledwater.com.au)

If you have articles, ideas or would like to raise issues in the letters to the editor, submit them to the National Coordinator for Reclaimed Water Development in Horticulture.

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The review recommended that North East Water resume control of selected lease properties and manage them using best management agricultural practices and the principles of land stewardship. A three-year trial was undertaken to give North East Water the flexibility to create a commercial framework while implementing a comprehensive program of property maintenance, soil improvements and environmental conservation and enhancement. In total, 756ha of farmland and 1,670 million litres of recycled water over six properties were included in the trial.

The enterprises that North East Water developed on these properties were based on providing a balance between creating the best return while managing the day-to-day risks of running a farming enterprise. The secure supply of recycled water has allowed the development of a lucerne hay, prime lamb, maize silage and agistment livestock business across these sites.

The results of the three-year trial were:

- a net return of \$106 per million litres across the six farms
- development of property environment plans
- long-term sustainability of irrigation soils managed with nutrient balancing, soil remediation and the adoption of no-till farming practices
- permanent lucerne and rye clover pastures established
- 60ha of remnant vegetation on 1.2km of river frontage protected
- increased operational control and integration with the operation of the supplying wastewater treatment plant

North East Water are now implementing the lessons learned from this management model across other sites and, with the continuous improvement of the properties, they expect the positive returns to improve.

Maize grown with recycled water at North East Water



# Encouraging levels of public acceptance: national baseline data

By June Marks, Department of Sociology,  
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## Background

Flinders University Adelaide has established national data on Australian attitudes to water recycling. Sampling covered the seven capital cities that had experienced water restrictions in the previous summer. A total of 2,504 householders participated in the telephone survey (Nov 04 to Jan 05) and were given clear explanations of fit for purpose alternative sources of water.

## Findings

It was found that 68% are in favour of using reclaimed water for vegetables and fruit crops (Figure 1). A spokesman for a water authority has confirmed that this proportion of acceptance meets the two-thirds majority yardstick that is used in deciding whether to implement a project. Based on previous research, Dr June Marks believes that familiarity with water recycling and a clear flow of information builds trust in the use of the water. The figures for Adelaide support this claim, where the use of reclaimed water for market gardens (Virginia) and vineyards (Virginia and Willunga) is well established: Adelaide has the highest level of acceptance for this application, being 6% more than the national average.

Another encouraging finding is that people seem to be ready to discuss the idea of mixing 'drinking water quality' reclaimed water with traditional sources for showering, cooking and drinking. A total of 73% of Australians in this sample are either willing without hesitation or willing with some qualifications to use the product water for all uses in the home. When confidence levels were investigated, acceptance was confirmed (Figure 2) for showering (76%) but, as predicted, fell for uses involving direct ingestion: cooking (54%) and drinking (42%). Even so, these confidence levels are robust and are higher than earlier findings for Perth (16% acceptance) and Sydney (26% favour) and better reflect recent results in Perth (Po et al 2005).

## Further details

Marks J S, B. Martin and M. Zadoroznyj (2006) Acceptance of water recycling in Australia: national baseline data, Water, March, pp.151-157.

## Reference

Po M., B.E. Nancarrow, Z. Leviston, N.B. Porter, G.J. Syme and J.D. Kaercher (2005) Predicting community behaviour in relation to wastewater reuse: What drives decisions to accept or reject? Water for a Healthy Country National Research Flagship, CSIRO Land and Water, Perth.

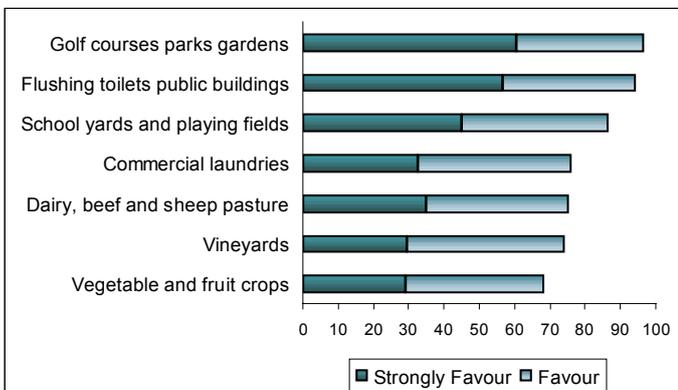


Figure 1 Percentage 'strongly favour/favour' recycling reclaimed water (n=2504)

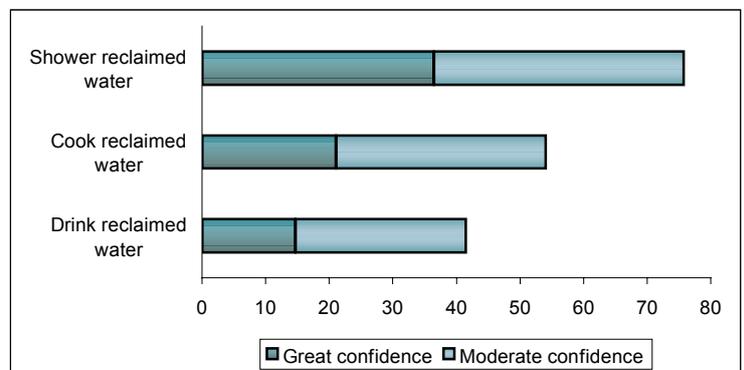


Figure 2 Confidence in indirect potable reuse (percentages, n=2504)

## Eastern Irrigation Scheme delivering a sustainable future

By Leif Ericson, Communications, Earth Tech  
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Craig Arnott benefits from the Eastern Irrigation Scheme



Earth Tech plant operator David Aitken

The Eastern Irrigation Scheme, which has been successfully delivering Class A recycled water for more than a year, is proving to be a winner for business, the environment and helping to secure Melbourne's water future.

The scheme is a joint project between Earth Tech and Melbourne Water to recycle treated effluent from the Eastern Treatment Plant. Peter Everist, Earth Tech's national operations manager, said that the water recycling plant for the scheme was commissioned in February 2005 and began delivering recycled water to customers in April 2005.

"This summer, Earth Tech delivered 15 to 18 million litres per day of Class A recycled water to satisfy demand from our customers," Peter said.

The ultrafiltration plant, which is the largest of its kind in Australia, was designed and constructed by Earth Tech's Melbourne engineering, construction and process design team. John Cotter from Anco Seed and Turf in Cranbourne said the secure supply of recycled water from the Eastern Irrigation Scheme has enabled the company to increase the amount of grass grown over summer.

"The scheme's been fantastic. All water should be reused instead of pumping it out into the ocean," John said.

Horticulture is the fastest growing industry in agriculture, but it has been increasingly difficult to grow high quality produce with the decreasing quantity and

quality of existing water sources. Craig Arnott, a fourth generation vegetable grower from Clyde, said that as a result of the Eastern Irrigation Scheme his business has a reliable supply of high quality water for the first time ever.

"In the past, we've run out of water and had to shut down the business several times in the summer. This year, our dams were still full in March. The recycled water has meant we've been able to ensure even growth and produce better quality vegetables," Craig said.

Mark Schruers uses a mixture of recycled water and dam water to grow high quality vegetables such as leeks and lettuce.

"The nutrients in the recycled water appear to have a positive effect on our crops. The quality of our dam water had been declining due to increasing mineral and salt content and was causing problems such as tip burn. With about a 60/40 ratio of recycled water to dam water we no longer have these problems," Mark said.

"In January, we temporarily increased the ratio of dam water to recycled water we were using and found that problems we'd had in the past using dam water returned," Mark said.

Earth Tech will own and operate the Eastern Irrigation Scheme for 25 years.

## New information resources about recycled water

By Jess Moschetti, Communications Officer, Arris Pty Ltd  
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New information resources for understanding and using recycled water are now available, including two full-colour brochures and a 200-page book.

The documents are the result of two projects, one managed by Horticulture Australia Limited (HAL) and another by the National Program for Sustainable Irrigation (NPSI).

The general public guide, *Water Recycling in Australia*, is for those seeking more detailed information on recycled water use in Australia, particularly for agricultural and amenity uses. It is clear and easy to understand with information sectioned under common questions and topics. Download the PDF (850-900Kbytes) at [www.recycledwater.com.au/documents/Water%Recycling%Aust%Web.pdf](http://www.recycledwater.com.au/documents/Water%Recycling%Aust%Web.pdf)

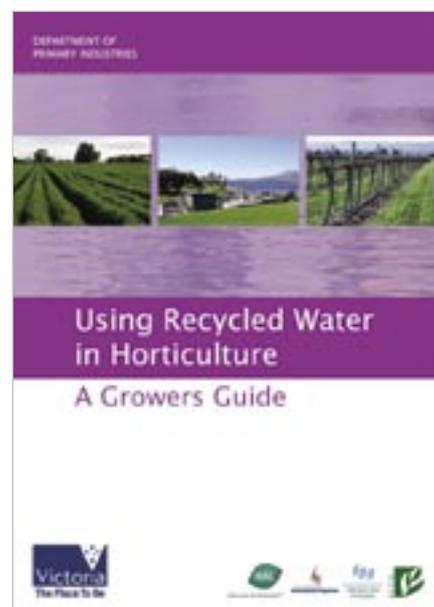
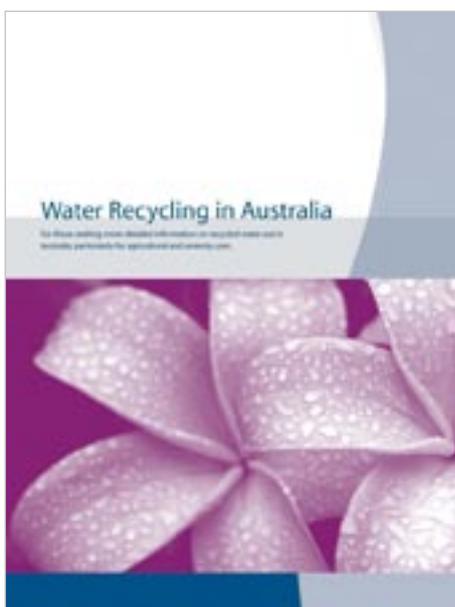
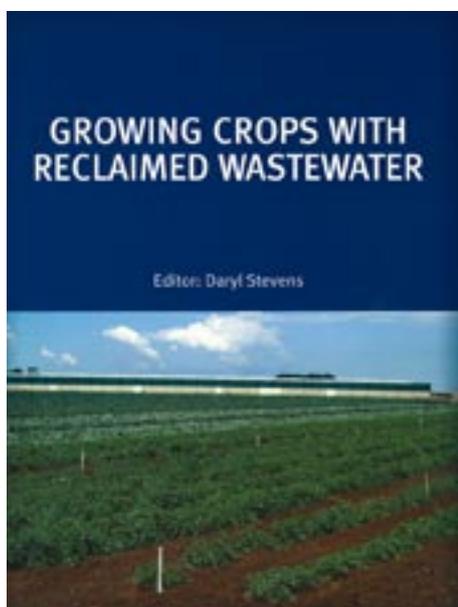
*Using Recycled Water in Horticulture: A Growers Guide* is designed to assist growers in managing irrigation with recycled water. It outlines best management practices in helpful question-and-answer checklists and also includes salinity unit converters and salt tolerance wheels for both vegetable and fruit crops. Download the PDF (850-900Kbytes) at [www.recycledwater.com.au/documents/Growers%Guide%web.pdf](http://www.recycledwater.com.au/documents/Growers%Guide%web.pdf)

Jointly, the two brochures are the research and development outcome from the National Coordinator for Recycled Water Development in Horticulture project (funded through HAL) and the use of Reclaimed Effluent Water in Australian Horticulture Project (funded by NPSI).

Another outcome of the HAL project is the book *Growing Crops with Reclaimed Wastewater*, which has arrived after eight years of extensive research and fieldwork funded by HAL. The comprehensive work examines the fundamentals required for reclaimed water schemes to deliver sustainable farming operations. It is produced by over 30 leaders in the field of recycled water in Australia and is edited by Dr Daryl Stevens, a Principal Scientist at Arris Pty Ltd and an expert in the reuse of wastewaters in horticulture.

The book reviews the historical background of water treatment, its use and disposal from Australian wastewater treatment facilities and the technologies now utilised to treat wastewater for reuse. It also reviews the regulatory requirements of key jurisdictions both in Australia and overseas, examines the potential environmental and health risks involved, and includes information on the social acceptance of reclaimed water in agriculture.

The two brochures are available electronically at [www.reclaimedwater.com.au/e-info.php#1](http://www.reclaimedwater.com.au/e-info.php#1) and *Growing Crops with Reclaimed Wastewater* is available for purchase online from CSIRO at [www.publish.csiro.au/pid/5120.htm](http://www.publish.csiro.au/pid/5120.htm).



## Australia

### Nationals announce wastewater study

[www.page.org.au/downloads/mr20060327.pdf](http://www.page.org.au/downloads/mr20060327.pdf)

The Page Research Centre has announced that it will conduct a study into “options for better targeting of public funds for water projects to deliver the best outcomes identified by the National Water Initiative”. The chair of the study, Queensland Nationals President and Federal Member for Maranoa, Bruce Scott, said he is “concerned primarily with waste water only being used once”.

“If we want to meet the demands of water needs from industry agriculture, recreation and the public, it is necessary to develop strategies to reuse and recycle our urban waste water which is currently being used only once,” Mr Scott said. He also believes that “targets should be set for ending outflow of urban waste water into the oceans and rivers”. He plans to talk with major stakeholders in water policy, such as local government, industry and farm organisations.

### Australians on top for recycling

[www.theaustralian.news.com.au/story/0,20867,18911326-30417,00.html](http://www.theaustralian.news.com.au/story/0,20867,18911326-30417,00.html)

Australians get top marks for recycling and their concern over the country’s water crisis, a new international poll has found. The survey compared the environmental attitudes of 9,000 people from nine countries — the UK, France, Germany, USA, Russia, Canada, Brazil, China and Australia. Australians lead in participation levels for recycling with 89% of Australians recycling at home on a regular basis, compared to a 68% average. Australians felt the most significant issue affecting the country was its water crisis with 84% saying they believed the issue was top priority.



## Victoria

### Recycled water supply for Lake Wendouree, Ballarat

From LAWLEX Water Newsfeed 3/2/06

[www.dpc.vic.gov.au/domino/Web\\_Notes/newmedia.nsf/8fc6e140ef55837cca256c8c00183cdc/a01378b94310e80eca25710100037be8!OpenDocument](http://www.dpc.vic.gov.au/domino/Web_Notes/newmedia.nsf/8fc6e140ef55837cca256c8c00183cdc/a01378b94310e80eca25710100037be8!OpenDocument)

The Victorian Government will provide \$2.1 million to support the “proposed \$7 million-plus project that will supply recycled water and stormwater for the drought-stricken” Lake Wendouree, “the social and recreational centrepiece of Ballarat”. Water Minister John Thwaites said that by supplying the lake with 600 million litres annually of recycled water from the Ballarat North Wastewater Treatment Plant and up to 250 million litres of stormwater from Paul’s Wetland, this would “free up to 500 million litres a year of drinking water previously supplied to Lake Wendouree” and open up “further opportunities for recycled water in the Ballarat North region”.

Central Highlands Water and the City of Ballarat will contribute around \$3 million and \$2 million respectively to the project’s capital costs and will share ongoing operating and replacement costs. The project will be gradually implemented in the next two years with further community consultation.

### Black Rock water plant upgrade

From LAWLEX Water Newsfeed 24/2/06

[www.barwonwater.vic.gov.au/emplibary/7142B4A6-D78B-A01D-0F4503B4BB88EC43.pdf](http://www.barwonwater.vic.gov.au/emplibary/7142B4A6-D78B-A01D-0F4503B4BB88EC43.pdf)

Barwon Water has completed a \$3 million upgrade to its Black Rock water reclamation plant. A new pumping station, storage lagoon and pipeline will increase the supply of recycled water per day to customers from 5 to 34 million litres. Currently, more than 14% of Barwon Water’s recycled water is committed for beneficial uses, including vineyards, golf courses, sporting grounds and flower, tomato and potato farms. Barwon Water will continue to monitor and evaluate a range of water recycling projects with the objective to increase water recycling to 25% by 2015.

### Bendigo to solve water crisis with irrigation water

[www.theaustralian.news.com.au/story/0,20867,18980867-30417,00.html](http://www.theaustralian.news.com.au/story/0,20867,18980867-30417,00.html)

With water storages down to 15%, Bendigo is negotiating to buy out an entire irrigation area in the biggest transfer of agricultural water to urban use in Australia. Geoff Michell, CEO of the local water authority, Coliban Water, said its water strategy included “a recycling project for non-potable use”, as well as “the purchase of irrigation water from either Campaspe or Goulburn River irrigators”.



## South Australia

### Victor Harbor wastewater treatment plant benefits Inman River

[www.sawater.com.au/SAWater/WhatsNew/NewsRoom/Victor%2BHarbor.htm](http://www.sawater.com.au/SAWater/WhatsNew/NewsRoom/Victor%2BHarbor.htm)

SA Water has announced that reuse water from the new \$42 million Victor Harbor wastewater treatment plant and reuse scheme will be used to enhance natural flows in the Inman River (environmental allocation of recycled water). "As agreed with the Environmental Protection Authority (EPA), this will be part of routine operations during the winter period," SA Water said. The new plant uses the latest membrane filtration technology to produce high quality Class A treated wastewater suitable for unrestricted irrigation of agriculture, parks, sports fields and enhancing environmental flows.

### Water for mine expansion to come from desalination plant

[www.theadvertiser.news.com.au/common/story\\_page/0,5936,18371721%255E913,00.html](http://www.theadvertiser.news.com.au/common/story_page/0,5936,18371721%255E913,00.html)

With investment in water treatment projects in Australia expected to "surge over the next five years", GE Water is targeting SA's potential as it seeks a big slice of an estimated \$5 billion to be spent by 2011. BHP Billiton and the State Government have agreed water for the proposed Olympic Dam mine expansion will come from a new \$300 million desalination plant, proposed for near Whyalla, with a \$400 million pipeline linking it to the mine.

## New South Wales

### \$9.2 million for water saving projects

[www.deus.nsw.gov.au/new/index.htm](http://www.deus.nsw.gov.au/new/index.htm)

The New South Wales Government has allocated \$9.2 million towards 27 water recycling and conservation projects in Round One of the Water Savings Fund. The Water Savings Fund was announced in October 2004 as part of the Metropolitan Water Plan for Sydney, Blue Mountains and Illawarra. It provides \$30 million per year over four years to deliver significant water savings and encourage recycling. The projects include initiatives to install new technologies for water recycling in the food processing and manufacturing sectors, stormwater and rainwater harvesting programs for irrigation, as well as water efficiency initiatives for farmers, restaurants, plumbers and city office blocks.

### Draft regulatory framework: private decentralised recycled water systems

[www.deus.nsw.gov.au/new/Management of Private Decentralised Recycled Water Systems - 427KB.pdf](http://www.deus.nsw.gov.au/new/Management%20of%20Private%20Decentralised%20Recycled%20Water%20Systems%20-%20427KB.pdf)

The NSW Department of Energy, Utilities and Sustainability (DEUS) has prepared a *Draft Regulatory Framework for the Management of Private Decentralised Recycled Water Systems*. The framework has been designed to "streamline the process for the implementation of decentralised recycled water projects, while protecting public health and the environment". The framework outlines the requirements for obtaining council approval, with a view to providing "some consistency across the state".

### Three shortlisted for Camellia recycling project

[www.sydneywater.com.au/WhoWeAre/MediaCentre/MediaView.cfm?ID=306](http://www.sydneywater.com.au/WhoWeAre/MediaCentre/MediaView.cfm?ID=306)

Sydney Water has announced that three consortia have been shortlisted to make detailed submissions by July 2006 for the Camellia recycled water project. Sydney Water said the project "could provide up to six billion litres of recycled water each year", making it "one of the largest industrial water saving schemes in Australia". Sydney Water will consult with potential customers "to gauge their interest in receiving recycled water and to determine what their needs are".

### Water reuse in urban development important to Landcom

[www.landcom.nsw.gov.au/ourinitiatives/wastewater\\_reuse](http://www.landcom.nsw.gov.au/ourinitiatives/wastewater_reuse)  
[www.landcom.nsw.gov.au/LANDCOM/NSW/RESOURCES/DOCUMENTS/OurInitiatives/Wastewater\\_reuse\\_technology\\_report\\_links3.pdf](http://www.landcom.nsw.gov.au/LANDCOM/NSW/RESOURCES/DOCUMENTS/OurInitiatives/Wastewater_reuse_technology_report_links3.pdf)

Landcom NSW has released a report *Wastewater reuse in the Urban Environment: selection of technologies* (February 2006). Wastewater reuse initiatives are an important element of Landcom NSW projects. "Sustainable water management is one of the key elements of sustainable urban development. Wastewater reuse is one of the options that must be considered in the broader context of a Water Sensitive Urban Design (WSUD) Strategy," Landcom said.

## Community consultation campaign

From LAWLEX Water Newsfeed 27/4/06

[http://goulburn.yourguide.com.au/detail.asp?class=news&subclass=local&story\\_id=475727&category=General News&m=4&y=2006](http://goulburn.yourguide.com.au/detail.asp?class=news&subclass=local&story_id=475727&category=General News&m=4&y=2006)

The *Goulburn Post* reports that the Goulburn Mulwaree Council will begin a community consultation campaign in two months to assess public opinion on its "integrated water cycle management strategy" and Sustainable Cities project, which proposes to recycle 2,000 million litres of water annually in order to combat the city's severe water shortage. The National Water Commission will not contribute to the \$30 million project unless the community supports the project.

## Sydney's water supply assured until 2015

[www.smh.com.au/news/national/water-supply-assured-at-least-till-2015-iemma/2006/05/08/1146940435830.html](http://www.smh.com.au/news/national/water-supply-assured-at-least-till-2015-iemma/2006/05/08/1146940435830.html)

Sydney will have sufficient water to meet demand until at least 2015, announced the NSW Premier Morris Iemma, as the NSW government unveiled its Metropolitan Water Plan on 8 May. Mr Iemma said the amount of recycled water had doubled in the past decade and will grow to 70,000 million litres a year. By 2015, "Sydney'siders will be saving 145,000 million litres of precious drinking water every year," Mr Iemma said. The focus of the plan is the Western Sydney Recycling Initiative which will recycle 100% of wastewater at Penrith, St Marys and Quakers Hill sewerage treatment plants and create 27,000 million litres of recycled water per year.

## Western Australia

### Restoring groundwater in Cottesloe

From LAWLEX Water Newsfeed 7/4/06

[www.pm.gov.au/news/media\\_releases/media\\_Release1862.html](http://www.pm.gov.au/news/media_releases/media_Release1862.html)

Prime Minister John Howard has announced funding of \$782,000 from the Water Smart Australia Program towards a \$2.35m project to "improve recycling of stormwater and reduce ocean outfall in and around the town of Cottesloe" to replenish the Cottesloe groundwater aquifer in Western Australia.

## Queensland

### Western corridor recycled water scheme pushed forward

<http://statements.cabinet.qld.gov.au/MMS/StatementDisplaySingle.aspx?id=44605>

The proposed recycled water pipeline to reduce the demand for industry drinking water in southeast Queensland's western corridor has been fast-tracked for 2007 completion. Premier Peter Beattie said that when both stages are complete, the scheme could "provide an additional 250 million litres of water each day", which will mean "up to 130,000 million litres of treated water will be turned around and used by industry". Stage one will save up to 110 million litres from Wivenhoe Dam by taking recycled water from wastewater treatment plants to supply power stations at Swanbank and possibly Tarong.

### UDIA backs water reuse

[www.abc.net.au/water/stories/s1581306.htm?backyard](http://www.abc.net.au/water/stories/s1581306.htm?backyard)

The Queensland branch of the Urban Development Institute of Australia (UDIA) has released a policy statement (February 2006) that endorses the use of recycled water in both industrial and urban settings, including the use of treated water for potable purposes. "But the policy is contingent on a program of public consultation and the setting of national standards for water supplies," *ABC News* reports.

### Council implements HACCP quality management system

From LAWLEX Water Newsfeed 24/3/06

[www.toowoombawater.com.au/media-releases/toowoombafirsttoachievewaterstorageotaphaccpcertification.html](http://www.toowoombawater.com.au/media-releases/toowoombafirsttoachievewaterstorageotaphaccpcertification.html)

Toowoomba City Council has become the first Council in Queensland to implement the quality assured Hazard Analysis Critical Control Point (HACCP) system for potable water production. Council Engineering Quality and HACCP Coordinator Bob Brownley said the internationally recognised system "identifies the risks and proposes corrective actions before problems occur". Stage two of the HACCP schedule, the accreditation of the water reclamation plant at Wetalla, is expected to be completed by the end of 2006.



## Community to vote for \$68m Toowoomba water project

From LAWLEX Water Newsfeed 28/3/06  
[www.nwc.gov.au/publications/project\\_info\\_QLD.cfm](http://www.nwc.gov.au/publications/project_info_QLD.cfm)  
[www.malcolmturnbull.com.au/news/default.asp?action=article&ID=405](http://www.malcolmturnbull.com.au/news/default.asp?action=article&ID=405)

The National Water Commission (NWC) will match the Queensland Government's contribution of \$22.9 million to the Water Futures Toowoomba water recycling project, as long as a majority of voters in Toowoomba city vote in favour of introducing recycled water into their drinking water system at a referendum to be held by the end of September 2006. Parliamentary Secretary Malcolm Turnbull said the \$67.8 million project "will combine the provision of reliable new water supply through indirect potable water recycling with efforts to maximise the beneficial use of existing sources while minimising demand" and will be the first of its kind in Australia.

## New treatment plant at Yeppoon

[www.cabinet.qld.gov.au/MMS/StatementDisplaySingle.aspx?id=45818](http://www.cabinet.qld.gov.au/MMS/StatementDisplaySingle.aspx?id=45818)

A new sewage treatment plant at Yeppoon will help the area recycle water and better protect the Barrier Reef environment of the Capricorn Coast. The Queensland Government contributed \$6.9 million to the plant and associated infrastructure at a total cost of \$17 million. Livingstone Shire Council, already reusing about 40% of its treated effluent, is now aiming for 100%. The treated water will be used on sporting fields, ovals, Council parks and gardens as well as sold for commercial use.

## Australian Capital Territory

### National funding for domestic water reuse project

[www.nwc.gov.au/publications/project\\_info\\_grey\\_water.cfm](http://www.nwc.gov.au/publications/project_info_grey_water.cfm)

The Australian Government will provide up to \$2 million in contingency funding for Delfin Lend Lease's \$4.4 million project to integrate domestic water reuse systems into new housing developments. Demonstration trials are planned for developments at Forde in the ACT and at a second site to be determined. The project will include the recycling of stormwater, grey water and waste water to use as a substitute for potable water.

## Overseas

### New California state water plan advocates more recycling and desalination

[www.watereuse.org/news/wrnews\\_020706.htm](http://www.watereuse.org/news/wrnews_020706.htm)  
[www.waterplan.water.ca.gov/cwpu2005/](http://www.waterplan.water.ca.gov/cwpu2005/)

The California Department of Water Resources (DWR) has released a new state water plan which advocates more water recycling and desalination to help meet water demands through 2030. With the state's population expected to increase from 36.5 million to 48 million over the next 24 years, the new forecast relies less on building new reservoirs and emphasises more environmentally friendly alternatives. The DWR predicts that the state will be able to meet water supply demands through a combination of 25 different strategies, including more efficient use of water, recycling, desalination, cloud-seeding, new reservoirs, and more groundwater storage.

### Florida officials encourage Miami-Dade to pursue alternative water sources

[www.watereuse.org/news/wrnews\\_020706.htm](http://www.watereuse.org/news/wrnews_020706.htm)

Officials from the Florida Department of Environmental Protection and the South Florida Water Management District (SFWMD) met with Miami-Dade officials recently to encourage the county to aggressively pursue alternative water sources such as water reuse and desalination to prevent a water crisis, according to the *Miami Herald*. Miami-Dade uses about 346 million gallons of water a day and applied for a permit in 2004 to withdraw another 100 million gallons a day to address projected population increases. SFWMD says it will not approve the permit until the county comes up with a plan for alternative water supplies. Most of the 16 counties in the district reclaim about 60-70% of the water it uses, while Miami-Dade only reclaims about 5%, according to the article. A water supply crisis could affect planned growth as counties must show they have water to supply the demands of a new development.

### More recycled water approved to prevent seawater intrusion

[http://www.watereuse.org/news/wrnews\\_033006.htm](http://www.watereuse.org/news/wrnews_033006.htm)

The West Basin Municipal Water District in US has won approval to use more recycled water as a barrier to prevent seawater intrusion into local aquifers, the *Daily Breeze* reported. The agency, which services southwest Los Angeles County, provides 16-17 million gallons of barrier water each day that is injected into the groundwater basin. Previous rules only allowed 50% of the water to be recycled. Under the new plan, the barrier water will gradually be supplied as 100% recycled water.

► p.9

## Wetlands-based water recycling plant for Petaluma, California

[www.watereuse.org/news/wrnews\\_033006.htm](http://www.watereuse.org/news/wrnews_033006.htm)  
[www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2006/03/07/BAGSHHJH0J1.DTL](http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2006/03/07/BAGSHHJH0J1.DTL)

A \$110 million wetlands-based wastewater treatment and water recycling plant is under construction in Petaluma, California and scheduled for completion in 2009, according to an article in the *San Francisco Chronicle*. When the plant opens, wastewater will be screened to remove large particulates and grit and then purified in a series of ponds and marshes, creating a wetland for a variety of wildlife. As much as 65% of the water will be further filtered and sterilised with ultraviolet light and then recycled to irrigate golf courses and parks.

## Contract approved for UNC-Chapel Hill water reuse system

[www.watereuse.org/news/wrnews\\_033006.htm](http://www.watereuse.org/news/wrnews_033006.htm)  
[www.owasa.org/Press\\_Releases/press\\_release\\_03\\_24\\_2006\\_boardapprovesreuse.htm](http://www.owasa.org/Press_Releases/press_release_03_24_2006_boardapprovesreuse.htm)

The Orange Water and Sewer Authority approved a contract with the University of North Carolina at Chapel Hill on March 23 to finance, build, operate, and maintain a water reuse system. The university plans to use reclaimed water in cooling towers at its chiller plants by 2008. The initial water savings from reuse will be about 530,000 gallons per day or 6% of the community's total drinking water demand. The long-term reduction in drinking water demand from reuse on the main campus is estimated at 13%.



## AWA Biosolids Specialty III Conference

**7-8 June 2006, Melbourne, Vic, Australia**

[www.awa.asn.au/Content/NavigationMenu/NewsEvents/BSCIII/Biosolids\\_Specialty.htm](http://www.awa.asn.au/Content/NavigationMenu/NewsEvents/BSCIII/Biosolids_Specialty.htm)

Registrations open for AWA Biosolids Specialty III conference. Over 40 papers, Dr Stephen Smith (Imperial College, UK) and James Smith (US EPA) speaking on pathogens and their survival in processed biosolids, six years of results from CSIRO research on metal residues and nutrient release to soils and crops.

## Sustainable Water in the Urban Environment II

**19-21 June 2006, Brisbane, Qld, Australia**

<http://qld.ieaust.org.au/jetspeed/static/items/2/2825/SWUERegistration.pdf>

Conference at the University of the Sunshine Coast, Maroochydore. For sponsorship, trade display opportunities or further details email Kathy, AWA Qld on [awaq@bigpond.net.au](mailto:awaq@bigpond.net.au) with your contact details.

## 5th International Symposium on Irrigation of Horticulture Crops

**28 August-2 September 2006, Mildura, Vic, Australia**

[www.dpi.vic.gov.au/dpi/nrenfa.nsf/LinkView/F5FA46F7DD7E7A8BCA256FF1000AC37CF744A1A3F9FF74D14A256DEA0012605A](http://www.dpi.vic.gov.au/dpi/nrenfa.nsf/LinkView/F5FA46F7DD7E7A8BCA256FF1000AC37CF744A1A3F9FF74D14A256DEA0012605A)

Hosted by the Victorian Department of Primary Industries (DPI), the 5th International Symposium on Irrigation of Horticulture Crops will be held in Mildura from 28 August to 2 September 2006. Early Bird registrations close 31 May 2006.

## 9th International Riversymposium

**4-7 September 2006, Brisbane, Qld, Australia**

[www.riversymposium.com/](http://www.riversymposium.com/)

The 9th International Riversymposium focuses on river management and the integration of science, business, institutions and the community in managing the problems facing rivers, waterways and catchments around the world. Early Bird registrations close 30 June 2006.

## ANCID Conference 2006

**15-18 October 2006, Darwin, NT, Australia**

**Post conference tour 18-20 October 2006,**

**Kununurra, WA, Australia**

[www.ancid.org.au/](http://www.ancid.org.au/)

Final call for abstracts for the Australian National Committee on Irrigation and Drainage (ANCID) Conference 2006: 'The North – Opportunities for the Future – The Catchment Community Working Together'. Deadline 15 June 2006. For more information contact ANCID Conference Secretariat via email [services@cogroup.com.au](mailto:services@cogroup.com.au) or telephone (03) 5995 4599.

## **AWA Membranes Specialty II Conference**

**21-23 February 2007, Melbourne, Vic, Australia**

[www.awa.asn.au/Content/NavigationMenu/NewsEvents/MembranesSpecialtyConferenceII/Feb\\_07\\_b\\_Membranes\\_S.htm](http://www.awa.asn.au/Content/NavigationMenu/NewsEvents/MembranesSpecialtyConferenceII/Feb_07_b_Membranes_S.htm)

Call for papers for AWA Membranes Specialty II Conference, Melbourne February 21-23, 2007. Paper submissions are invited for streams 1) membranes – technological developments and project applications, 2) membranes for recycling – “fit for purpose” water, and 3) membrane bioreactors – research and applications. Closing date for abstract submissions is Friday 29 September 2006.

## **Ozwater 2007**

**4-8 March, 2007, Sydney, NSW, Australia**

[www.awaozwater.net](http://www.awaozwater.net)

Ozwater 2007 is AWA's 22nd biennial convention. It will address the spectrum of issues facing Australia's water industry today. These include major national reforms, climate change and its possible impacts, advances in technology, the research agenda, the challenge of human resources for the industry, iconic projects, water reuse, desalination, water accounts, monitoring and more.

Increasingly, the interconnectedness of water is being acknowledged: in the ecological sense, in the complexity of groundwater and surface water interactions, in the need for trade between areas and between rural and urban users, and in the need to link all facets when working towards more sustainable income.

Ozwater 2007 will feature papers by water experts from Australian and overseas. There will be inspirational keynote speakers, oral and poster presentations and workshop sessions that will enable delegates to actively engage with the experts. As always, the exhibition will be the focus of many business meetings and deals, since everyone will be there.

## **WEFTEC 07**

**13-17 October 2007, San Diego, California, USA**

[www.weftec.org/Education/CallforAbstracts/](http://www.weftec.org/Education/CallforAbstracts/)

Call for papers for the 80th Water Environment Federation's Technical Exhibition and Conference (WEFTEC). They will solicit abstracts on cutting-edge water quality topics of interest to all environmental stakeholders, including water reuse and reclamation.





Earth Tech plant operator David Aitken

## Websites

### Water Reuse News

The latest news on water reuse and desalination in the United States.

**March 30, 2006**

[www.watereuse.org/news/wrnews\\_033006.htm](http://www.watereuse.org/news/wrnews_033006.htm)

**February 8, 2006**

[www.watereuse.org/news/wrnews\\_020706.htm](http://www.watereuse.org/news/wrnews_020706.htm)

### Draft Regulatory Framework for the Management of Private Decentralised Recycled Water Systems

[www.deus.nsw.gov.au/new/Management of Private Decentralised Recycled Water Systems](http://www.deus.nsw.gov.au/new/Management%20of%20Private%20Decentralised%20Recycled%20Water%20Systems) - 427KB.pdf

Prepared by the NSW Department of Energy, Utilities and Sustainability (DEUS).

## Other good reads

### The GHD Book of Water Treatment

[www.ghd.com.au/aptrixpublishing.nsf/Content/WaterBook\\_feature](http://www.ghd.com.au/aptrixpublishing.nsf/Content/WaterBook_feature)

A concise manual which gives a complete and simple language explanation of the processes involved, how equipment operates and a guide to product quality and safety. Price \$121 plus postage and handling. Each copy of the book purchased will enable WaterAid to provide water, sanitation and hygiene education for two people for life.

## About ReWater

This newsletter, ReWater, has been designed to make information relevant to reclaimed/recycled water use in horticulture more accessible to horticulturalist (growers/farmers), the water industry and other interested people. It is part of the service provided by the National Coordinator for Recycled Water Development in Horticulture ([www.recycledwater.com.au](http://www.recycledwater.com.au)), funded through Horticulture Australia.

Back issues and instructions for subscribing to receive ReWater electronically quarterly can be accessed at [www.recycledwater.com.au/newsletter.php](http://www.recycledwater.com.au/newsletter.php)

We would appreciate your feedback and suggestions for contributions. Please email to [rewater@arris.com.au](mailto:rewater@arris.com.au) or contact us on 08 8303 6706.

*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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