

# rewater

farming with recycled water



Edition August 2006

## Dairying and recycled water

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A number of Victorian dairy properties are irrigated sustainably with water recycled from treated sewage. RM Consulting Groups' (RMCG) recycled water team (Rob Rendell, Anna Killiher, Cara Byrt and Matt Shanahan) have been involved in the development of a number of schemes involving the use of recycled water on dairy farms. The number of cows fed with pasture irrigated with recycled water is impressive (Table 1, ►p.2). These figures are for schemes where RMCG has provided input; they cover the majority of, but not all, dairy farms using recycled water in Victoria.

Recycled water provides dairy farmers with increased security of water supply, which has been critical in recent drought conditions. There are also occasions where the recycled water is substituted for other freshwater sources, and water savings are created for use by the environment or the wider community.

Nutrients within the recycled water are also of benefit. Dairy farms require significant nutrient inputs to ensure high production levels are achieved. Recycled water can replace fertiliser use, which cuts costs for the farmer and ensures recycling of nutrients that could otherwise be harmful to the environment. ►p.2

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For the producer of the recycled water, dairy farms provide a cost-effective and reliable reuse solution, through access to existing infrastructure and irrigation management skills. This is taken one step further in schemes involving milk-processing factories. Where the recycled water is provided to factory milk suppliers, it can ensure security of milk production in addition to the benefits discussed above.

To ensure the benefits discussed above are achieved, assessment and management of environmental and health risks are required. Key aspects include water quality, hydraulic loading, salinity, and drainage. Shandyng of the recycled water with other fresh water supplies has been found to be a useful management tool. It ensures nutrients can be spread over a wide area of a farm and that salinity is reduced to sustainable levels (an electrical conductivity less 800  $\mu\text{S/cm}$  in most cases).

Recycled water irrigation is regulated (generally by the EPA) and as a consequence is highly scrutinised. Properties recycling water are therefore leading the way in environmental management, monitoring and reporting within the dairy industry. In many cases they are achieving better than accepted "best practice", with innovative irrigation systems being developed. An example is the installation of pop-up sprinklers at Heywood in South-West Victoria. Previously, these had not been used in the dairy industry and it was found that the cows do less damage to these sprinklers than the above ground fixed variety.

The dairy industry is one of Australia's largest agricultural industries and uses a significant proportion of irrigation water. There is potential to increase the use of recycled water on dairy farms and thereby help to secure our future water and milk supplies. With correct planning and management, dairy farms can provide a viable and sustainable means of utilising recycled water.

Table 1 Magnitude of recycled water use on Victorian dairy farms

| No. of schemes | Recycled water volume | Irrigation area | Approximate no. of cows |
|----------------|-----------------------|-----------------|-------------------------|
| 15             | 10,500 ML/annum       | 6,000 ha        | 18,000                  |

## 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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## Recycled water in turf management

Dr Daryl Stevens, Arris Pty Ltd

### TGAA Seminar, Canberra, 25 July 2006

Over three hundred people associated with managing sport turf attended this year's annual seminar, organised by the Turfgrass Association of Australia (TGAA – ACT region) by Keith McIntyre and his team.

The turf industry ranges from golf courses and horse racing tracks through to landscaped gardens and recreational playing fields (e.g. football ovals). The turf industry recognise the importance of a guaranteed water supply and that recycled water can provide this for them.

The seminar presenters highlighted the benefits and risks associated with using recycled water and how these risks are managed to grow the best turf for an intended purpose. Speakers included: Drs Grey Leslie and Daryl Stevens discussing recycled water quality, regulations, managing risks to human health, and turf growing and environmental performance in the context of the new National Guidelines for Water Recycling; Tony Towndrow talking about the effective use of wetlands to recycled water; Prof Peter Martin outlining his research and experience in developing grasses for use with recycled water; and several speakers talking about their experience and the practicalities of using recycled water to grow turf.



Some of the benefits highlighted were:

- Drought proofing
- Free nitrogen, phosphorus and other nutrients
- Helping the environment by reducing the nutrient load to aquatic systems and using them beneficially on land

The major risks being managed so high quality playing surfaces could still be produced were:

- Coping with water restriction, generally by securing a source of recycled water from treated sewage or rainwater harvesting
- High sulfur concentration building up in soil
- Salt build-up
- Sodium build-up causing soils structure and drainage problems (i.e. increases in sodium adsorption ratios, exchangeable sodium percentage, compounded by high carbonates)
- Algae growth in storage dams
- Alkaline hydrolysis of some pesticides used (due to >7pH of some recycled water)
- Excess nutrients causing excessive growth and decreasing in wear tolerance of turf

In most cases, the benefits of using recycled water can be realised and any associated risks managed to allow continued production of high quality turf.

More information can be obtained from [www.tgaa.asn.au](http://www.tgaa.asn.au) or [www.tgaa.asn.au/States/ACT/Docs/seminar2006PROG.pdf](http://www.tgaa.asn.au/States/ACT/Docs/seminar2006PROG.pdf) or by contacting Keith McIntyre, Seminar Convenor on [horteng@bigpond.com](mailto:horteng@bigpond.com)

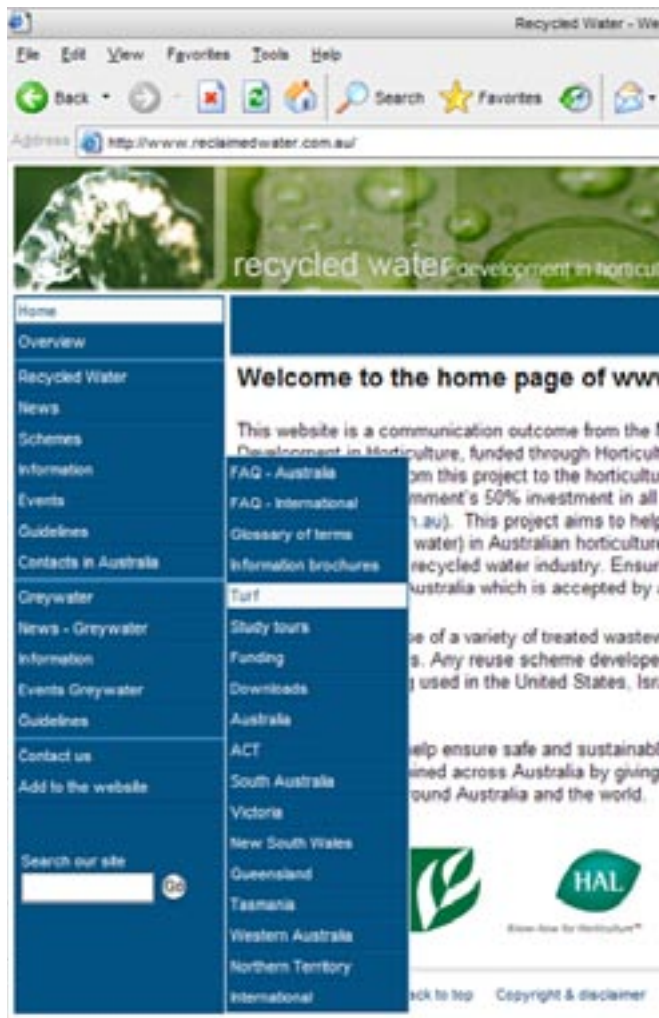
Photos by Garry Dawson, ACT TGAA President.

Copies of the Proceedings can be obtained from Keith McIntyre, 5 Brimage Place, Kambah ACT 2902. Download the order form from [www.recycledwater.com.au/index.php?page=past](http://www.recycledwater.com.au/index.php?page=past)



## New website for recycled water in Australia

Dr Daryl Stevens, Arris Pty Ltd



The website developed and maintained as part of the Horticulture Australia Limited (HAL) project National Coordinator for Recycled Water Development in Horticulture (NCRWDH) has been significantly upgraded. Direct your web browser to [www.recycledwater.com.au](http://www.recycledwater.com.au)

The new website contains a range of new pages designed to help you easily find more information about recycled water. Significant changes are:

- A completely new look with pictures of reuse schemes and plants/crops grown with recycled water
- News pages that give you access to our quarterly newsletter (ReWater - farming with recycled water) and Australian and international news related to recycled water and greywater use in the urban and rural environment
- Sections on greywater use in Australia and overseas, which provide you with links to websites that contain general information and advice as well as specific information on gardening with greywater and greywater systems
- A page to submit your own information to the website or suggest additions and changes
- Upgraded pages with additional information and links added
- A comprehensive list of all greywater and recycled water guidelines in Australia and overseas as well as a list of related events such as conferences and workshops on recycled and grey water.
- Many links to recycled water schemes currently operating around Australia

To find out more visit [www.recycledwater.com.au](http://www.recycledwater.com.au)

A project funded by HAL. Delivering R&D outcomes is made possible by the Australian Government's 50% investment in all HAL's R&D activities.

## Evaluating water recycling projects

### Water Industry Master Classes – AWA 2006 Series

[www.awa.asn.au/events/masterclass](http://www.awa.asn.au/events/masterclass)

All properly planned projects (including those for water recycling) need an in-built evaluation component to establish if it will meet an organisation's economic, social and environmental requirements.

AWA is a strong advocate of water recycling as a vital component in urban and rural development to address increasing demand on available water resources. Yet, little has been done to determine what applications, schemes and designs best exploit the available technologies.

Which schemes have achieved desired outcomes socially, environmentally and financially? Can we "road test" a recycling scheme in advance weeding out failures and making innovations so both the water and reuse scheme are "fit-for-purpose"?



Presenters will examine:

- The technical, environmental, legal and financial issues involved in deciding to develop a reuse scheme
- The social and political issues that need to be addressed
- How outcomes can be measured and benchmarked

Case studies and examples are central to examining the options and predicting the results.

Ideally, with the consolidation of results from a number of evaluations, it should be possible to predict in advance the best type of scheme to suit a pre-defined set of conditions. This would streamline the planning process for water recycling schemes for local government, water utilities and catchment trusts — and it could reduce costs.

Presenters include:

- Dr Daryl Stevens – Scientific Advisor (Environment) to the National Environment Protection Council for the redrafting of the National Guidelines for Water Recycling, Arris Pty Ltd
- Clive Wright – Consultant who has worked closely with the development of the Virginia Pipeline Scheme, Adelaide and other recycled water schemes around Australia
- Claude Piccinin – Deputy Executive Director, Water Services Australia
- Dr June Marks – Research Fellow, Department of Sociology, Flinders University
- Philip Murray – Allens Arthur Robinson
- Grahame Simpson – Project Manager, Recycled Water Scheme, Luggage Point Wastewater Reuse Scheme, Brisbane Water
- Barry Dennien – Manager, System Planning, Brisbane water

## Australia

### Howard urges water recycling

[www.theage.com.au/news/National/Howard-urges-water-recycling/2006/07/17/1152988438080.html](http://www.theage.com.au/news/National/Howard-urges-water-recycling/2006/07/17/1152988438080.html)

Prime Minister John Howard has announced that "Australia needs a revolutionary approach to tackle the country's urban water shortage" and that he will urge the states to recycle water. He said he will outline minimum criteria for the states, with an emphasis on recycling and capturing stormwater.

### Australian growers using recycled water win industry awards

[www.worldgrower.com/features/feature\\_story.ehtml?o=229](http://www.worldgrower.com/features/feature_story.ehtml?o=229)

Two Australian production nurseries using recycled water have won their respective category at the Australian Garden Industry Awards. Tree Growers Advanced Pty Ltd in Victoria was recognised for their leading drainage system, recycling, and water treatment and storage. Dream-time Wholesale Nursery in Victoria was recognised for their various filtration methods and water treatment system.

### National Guidelines for Water Recycling accelerated

[www.abc.net.au/pm/content/2006/s1665131.htm](http://www.abc.net.au/pm/content/2006/s1665131.htm)

Malcolm Turnbull said: "We have agreed to accelerate the work on national guidelines for the use of recycled water, which is becoming an increasingly important part of the water answers, the water solutions for our towns and cities in Australia."

### Australians must recycled more water – John Howard

from AWA News 27th August.

[www.smh.com.au/news/NATIONAL/Australia-must-recycle-more-water-PM/2006/08/23/1156012591579.html](http://www.smh.com.au/news/NATIONAL/Australia-must-recycle-more-water-PM/2006/08/23/1156012591579.html)

PM Howard says Australian's desperately needs to recycle more water, but any reuse programs need to be tailored to individual communities and the issue does not need to go to a referendum.

### Australians must accept the need for recycled water

[www.theage.com.au/news/editorial/were-still-a-nation-of-wallies-with-water/2006/08/04/1154198330444.html](http://www.theage.com.au/news/editorial/were-still-a-nation-of-wallies-with-water/2006/08/04/1154198330444.html)

Australians must accept the need for recycled water, according to an article in The Age. The article said: "Progress will be limited until being water-wise is a generally accepted practice ... Our political leaders have a duty to better educate the public about the recycled water, which has long been used for drinking in places such as Singapore and London and should be accepted here. In the meantime, recycled water should be used in other ways. There can be no excuse for flushing potable water down the toilet or using it for the greening of golf courses."

### Recycled water from treated sewage not recycled sewage

[www.bordermail.com.au/news/bm/local/351415.html](http://www.bordermail.com.au/news/bm/local/351415.html)

Following the wake of a referendum in Toowoomba, where residents of the Queensland city rejected a proposal to have treated sewage returned to their water supply, Daryl McGregor (previously water manager at Albury council) said the message Toowoomba residents appeared to get was they were to be given "recycled sewage" when it was water claimed from sewage that was being recycled. North East Water chief executive Jim Martin said: "It's a matter of getting over the mindset as some people don't understand about water technology." He said education was the key.

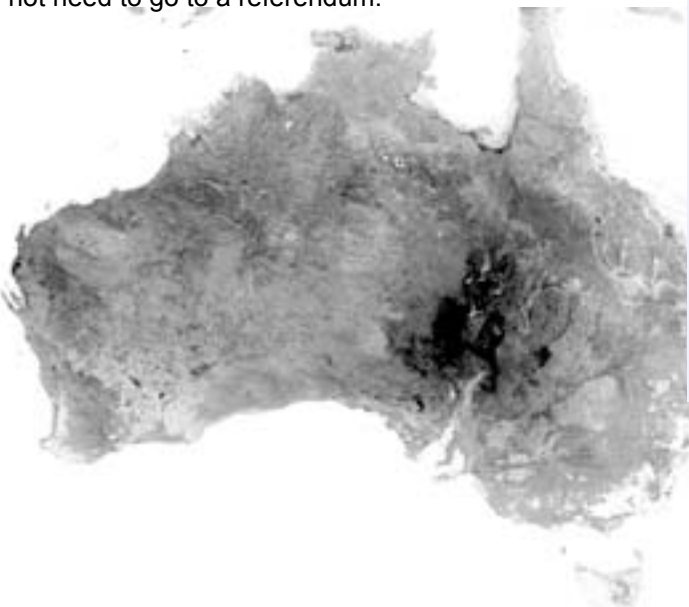
## Victoria

### Zoo to recycle its water

[www.dpc.vic.gov.au/domino/Web\\_Notes/newmedia.nsf/b0222c68d27626e2ca256c8c001a3d2d/843162e1316fa6e0ca2571bf0008debb?OpenDocument](http://www.dpc.vic.gov.au/domino/Web_Notes/newmedia.nsf/b0222c68d27626e2ca256c8c001a3d2d/843162e1316fa6e0ca2571bf0008debb?OpenDocument)

[www.melbournewater.com.au/content/news/media\\_releases/media\\_releases/200608021.asp](http://www.melbournewater.com.au/content/news/media_releases/media_releases/200608021.asp)

Melbourne Zoo will dramatically cut its use of Melbourne's drinking water, saving up to 95 million litres a year, while improving the health of Moonee Ponds Creek. The Zoo's stormwater will no longer flow into the creek but instead be collected, treated and stored by the \$5 million water recycling plant and be reused throughout the site, distributed by a network of four kilometres of underground pipes. The recycled water will be used for watering gardens and lawns, topping up lakes and pools, washing down animal exhibits and flushing toilets. ►p.7







► p.6

### Recycled water “perfectly safe” to drink

[www.theage.com.au/news/National/Recycled-water-perfectly-safe-to-drink/2006/06/30/1151174377986.html](http://www.theage.com.au/news/National/Recycled-water-perfectly-safe-to-drink/2006/06/30/1151174377986.html)

Political leaders have been urged to better promote the use of recycled water and overcome its “yuck” factor, stated an article in The Age. Queensland University of Technology microbiologist Dr Megan Hargreaves said recycled water when treated properly was perfectly safe to drink. Dr Hargreaves said the biggest barrier to accepting recycled water was community perception. “Safety wise there are no microbiological problems with recycled water,” she said.

### Three-pronged attack to saving water

[www.abc.net.au/melbourne/stories/s1667443.htm?backyard](http://www.abc.net.au/melbourne/stories/s1667443.htm?backyard)

The Victorian Minister for Water and Environment, John Thwaites, announced an extension of the rebate scheme for water saving products. In addition to the water rebate scheme, they are also “engaged in building a major water strategy, which includes extra recycling”. They are also considering extra connections to water supplies. “So we’ve really got a three-pronged attack: water savings, recycling, and connecting up extra water sources,” he said.

### Ski resort recycling waste water into snow

[www.snowboardclub.co.uk/tb.php?/news/article.html?newsid1150448553,9100](http://www.snowboardclub.co.uk/tb.php?/news/article.html?newsid1150448553,9100),

Mount Hotham in Victoria will become what is believed to be the first resort in the world to use purified waste water to fuel its snow guns for winter 2007. The resort hopes to recycle 110 megalitres of waste water used to make up 275,000 cubic metres of snow each season. Their just-opened 27 million litre reservoir will hold recycled sewage and waste water from the resort next season. The recycled water will also be used for flushing toilets in some buildings at the resort.

## South Australia

### SA produces innovative technology for disinfecting water

[www.unisa.edu.au/unisanews/2006/August/main2.asp](http://www.unisa.edu.au/unisanews/2006/August/main2.asp)

UniSA’s Ian Wark Research Institute has developed an inexpensive water disinfection product. The science is still a carefully guarded secret. The water disinfection technology will allow businesses and everyday families to clean and reuse water again and again without the use of external chemicals. Known as Hydro-dis™ the technology uses a three-stage disinfection process.

The technology is now being rolled out into commercial pools, domestic pools and spas, potable water, water reuse and reclamation, cooling towers and municipal waste water treatment plants.

## New South Wales

### Recycled water may be inevitable for Goulburn

[www.abc.net.au/news/newsitems/200608/s1702364.htm](http://www.abc.net.au/news/newsitems/200608/s1702364.htm)

The use of recycled water in Goulburn may be inevitable because there are no longer any other viable options to increase its water supply, the Mayor of Goulburn-Mulwaree Council said. Residents in Toowoomba recently rejected a proposal to put recycled water in drinking water. Mayor Paul Stephenson says the council is considering building a water recycling plant in Goulburn and over the next six months an independent company will consult residents to gauge their reaction to the idea.

### NSW Councils would consider recycled water

[www.theage.com.au/news/National/NSW-councils-consider-recycled-water/2006/08/05/1154198380695.html](http://www.theage.com.au/news/National/NSW-councils-consider-recycled-water/2006/08/05/1154198380695.html)

One in three regional councils in NSW would consider using recycled waste water for domestic consumption if the state’s water crisis was to worsen, stated an article in The Age. A survey by The Sunday Telegraph found 35 out of 110 councils would be prepared to recycle sewage water for everyday use if drought conditions continued to dry up supply. ► p.8

► p.7

## Hoxton Park Recycled Water Scheme – dual reticulation

[www.sydneywater.com.au/SavingWater/RecyclingandReuse/RecyclingAndReuseInAction/HoxtonPark.cfm](http://www.sydneywater.com.au/SavingWater/RecyclingandReuse/RecyclingAndReuseInAction/HoxtonPark.cfm)

Development of the Hoxton Park Recycled Water Scheme will eventually serve 13,000 new homes and 185 hectares of new industrial development in new release areas in Cecil Hills (south), Edmondson Park, Glenfield Road, South Hoxton Park Aerodrome, Hoxton Park Airport, Inghams, Ingleburn Gardens and Yarrunga. Construction of mains and pipelines begins in 2006, with recycled water available from mid 2009. Sydney Water will provide homes in the area with two water supplies - recycled water and drinking water – known as dual reticulation.

## NSW irrigators threaten to pull out of the National Water Initiative

From AWA News 16 July 2006

[www.nswirrigators.org.au/pdf/press\\_release/IPART-NWI%2012%20July.pdf](http://www.nswirrigators.org.au/pdf/press_release/IPART-NWI%2012%20July.pdf)

NSW irrigators have threatened to pull out of the National Water Initiative because of the financial burden it is placing on them, unless the Federal and State governments come up with changes to address their woes. They are mainly concerned about forecast draft bulk water price rises of 92% for regulated systems and 144% for unregulated and groundwater systems.

## Recycling NSW ocean outfalls

[www.nsw.liberal.org.au/media/view.cfm?media\\_id=2723](http://www.nsw.liberal.org.au/media/view.cfm?media_id=2723)

A taskforce will be formed in order to reclaim a valuable source of water by recycling ocean outfalls off the NSW coastline. The Ocean Outfalls Recycling Taskforce will meet on Monday 28 August to develop an action plan to close NSW's ocean outfalls and recycle the wastewater for industrial use, environmental flows and for non-drinking purposes.

## Hunter Water to drought-proof region with recycled water

[www.abc.net.au/news/newsitems/200607/s1690632.htm](http://www.abc.net.au/news/newsitems/200607/s1690632.htm)

Hunter Water says its proposed \$20 million water recycling plant on Kooragang Island in New South Wales is part of an overall plan to drought-proof the region. The water corporation says the plant has the potential to cut the region's water use by 4%.

## Be self-sufficient: recycle your own sewage

[www.smh.com.au/news/national/be-self-sufficient-recycle-your-own-sewage/2006/06/16/1149964746490.html](http://www.smh.com.au/news/national/be-self-sufficient-recycle-your-own-sewage/2006/06/16/1149964746490.html)

Homes and apartment blocks could halve their water use by installing revolutionary sewage recycling technology, Sydney scientists said. About the size of four refrigerators, it uses bacteria and fungi to convert sewage into water fit for gardens, flushing toilets and cleaning.

## Industrial use of recycled water

[www.smh.com.au/news/national/5m-water-recycling-plant-for-kurnell/2006/05/11/1146940658413.html](http://www.smh.com.au/news/national/5m-water-recycling-plant-for-kurnell/2006/05/11/1146940658413.html)

The NSW government has announced \$5.18 million in funding for an industrial water recycling plant at Kurnell in Sydney's south. The industrial scale plant will recycle six million litres of water from sewage effluent every day from the Cronulla sewerage treatment works for use by the Caltex and Continental Carbon plants at Kurnell.

## Port Kembla's recycled water fit to drink

[www.abc.net.au/news/newsitems/200608/s1718931.htm](http://www.abc.net.au/news/newsitems/200608/s1718931.htm)

There are new claims that water from Australia's largest industrial water recycling plant is fit to drink. The plant, located at Port Kembla, south of Wollongong, has been sitting idle for nearly a year because of a ban by the Fire Brigade Employees Union (FBEU). The recycling plant uses microfiltration and reverse osmosis technology, in line with best practice around the world. The quality of that water generally surpasses any drinking water standard in the world.





## Queensland

### Toowoomba to decide again on drinking recycled water

[www.news.com.au/story/0,23599,19957585-2,00.html](http://www.news.com.au/story/0,23599,19957585-2,00.html)

Despite almost 62% of Toowoomba residents voting against Mayor Di Thorley's water recycling plan in July, Premier Peter Beattie has announced a referendum for the entire southeast of Queensland to be held on 29 March 2008.

### Western Corridor Recycled Water Project

[www.westerncorridor.com.au/home.aspx?docID=1](http://www.westerncorridor.com.au/home.aspx?docID=1)

The Western Corridor Recycled Water (WCRW) Project is the largest recycled water scheme to be constructed in Australia and will be the largest project of its kind in the southern hemisphere. The WCRW Project will involve building a pipeline from several of Brisbane and Ipswich's treatment plants to take recycled water to industry and agriculture.

### Microbiologist urges recycled water attitude shift

[www.abc.net.au/news/newsitems/200607/s1676569.htm](http://www.abc.net.au/news/newsitems/200607/s1676569.htm)

A Queensland researcher says there is nothing wrong with drinking recycled water when it is treated properly. Microbiologist Dr Megan Hargreaves said people oppose the idea because they do not know enough about it. "The concept of drinking recycled waste water is just that step too far," she said. "That's where I think the education needs to come in that perhaps people need to see that noone's saying that they should go to a recycling plant and drink the water from the pipes there. What we're saying is that that water would be then treated to a level where it would be safe to drink."

### Queenslanders may have to drink recycled water

[www.bordermail.com.au/news/bm/national/302648.html](http://www.bordermail.com.au/news/bm/national/302648.html)

Queenslanders may one day have little choice about drinking recycled water if the worst drought for 100 years continues in the state's southeast, Premier Peter Beattie said. Level three watering restrictions banning the use of hosing are already in place in most of the region.

## Overseas

### Study finds recycled water safe for use on turf grass, Texas

[www.theeagle.com/stories/063006/gardening\\_20060630030.php](http://www.theeagle.com/stories/063006/gardening_20060630030.php)  
[www.ntxe-news.com/artman/publish/article\\_35071.shtml](http://www.ntxe-news.com/artman/publish/article_35071.shtml)

New Texas Agricultural Experiment Station research found few adverse effects when recycled water was used on grass in the Edwards Aquifer recharge zone. The finding is significant, researchers say, because it could help reduce daily demands from the diminishing aquifer.

### More frequent droughts in the Mediterranean regions

From AWA News 16 July 2006

[www.panda.org/about\\_wwf/where\\_we\\_work/mediterranean/index.cfm?uNewsID=75500](http://www.panda.org/about_wwf/where_we_work/mediterranean/index.cfm?uNewsID=75500)

With thirsty cash crops replacing traditional agriculture in the Mediterranean, the region must brace itself for harsher and more frequent drought, according to WWF, meaning that fresh water could become a scarce commodity, with communities and livelihoods set to suffer. A major shift in European and national policies that govern the way water is used is called for.

### Virginia recycled water scheme set to start, USA

<http://home.hamptonroads.com/stories/story.cfm?story=107658&ran=173669>

After years of false starts and study, Virginia is poised to launch a program for recycling tap water to irrigate parks, lawns and crops, cool industrial equipment, wash cars and streets, and flush toilets.

### Orange County Groundwater Replenishment System receives prestigious award, California

[www.gwrsystem.com/news/releases/071106.pdf](http://www.gwrsystem.com/news/releases/071106.pdf)  
[www.gwrsystem.com/](http://www.gwrsystem.com/)  
[www.ocwd.com/](http://www.ocwd.com/)  
[www.ocsd.com](http://www.ocsd.com)

The Groundwater Replenishment (GWR) System, Orange County's local water purification, received a 2006 Protos award – the highest honor possible – from the Orange County Chapter of the Public Relations Society of America (PRSA) for their efforts in gaining community support necessary to make the water purification project a reality. ► p.10

► p.9

### San Diego Mayor opposes indirect potable reuse

[www.signonsandiego.com/news/metro/20060720-9999-1n20reuse.html](http://www.signonsandiego.com/news/metro/20060720-9999-1n20reuse.html)

San Diego Mayor Jerry Sanders has announced his opposition to a plan to use highly purified recycled water to augment a drinking water reservoir. The mayor does not dispute the science behind water purification but calls the proposal expensive and divisive, according to the article.

### Plenty of treated water for ethanol plant

[www.pantagraph.com/articles/2006/06/25/opinion/115086.txt](http://www.pantagraph.com/articles/2006/06/25/opinion/115086.txt)

The Bloomington-Normal area would be an ideal spot to locate an ethanol plant, according to an article on Pantagraph.com. Two key needs are plentiful - corn and, strangely enough, water. The area has been seeking a long-range water supply for decades, but there is a daily supply of 23-25 million gallons at the nearby Water Reclamation District plants. The article stated: "There's no reason to tap a valuable resource for drinking water, such as the Mahomet Aquifer, when the discharge from the reclamation districts could be used."



## Australia

### 5th International Symposium on Irrigation of Horticulture Crops

**Starts 28/8/2006, Mildura, Vic**

[www.dpi.vic.gov.au/irrigationsymposium](http://www.dpi.vic.gov.au/irrigationsymposium)

The objective of this symposium is to provide a forum for the exchange of scientific work on irrigation across a broad range of horticultural crops including fruit, nuts, winegrapes, citrus, olives, parks and gardens, vegetables, flowers and berries. There will be a focus on key action areas of irrigation and water use efficiency, product quality, environmental sustainability, irrigation with recycled water and technology adoption.

### 69th Annual Victorian Water Industry Engineers and Operators Conference

**Starts 5/9/2006, Bendigo, Vic**

[www.wioa.org.au/conference/conference\\_program.htm](http://www.wioa.org.au/conference/conference_program.htm)

Conference goals:

- Distribution of the latest technical and research based information through platform and poster presentations
- Update of technology and staff skills through interaction with fellow Water Industry employees
- Provide the opportunity to view and discuss the latest advances in technical equipment with suppliers and trade consultants

### Evaluating Water Recycling Projects, AWA Water Industry Master Classes - 2006 Series

**Starts 22/11/2006, Brisbane, Qld**

[www.awa.asn.au/Content/NavigationMenu/NewsEvents/Mar06bMasterClassThePriceofWaterbbr/Mar\\_06\\_Master\\_Class\\_.htm](http://www.awa.asn.au/Content/NavigationMenu/NewsEvents/Mar06bMasterClassThePriceofWaterbbr/Mar_06_Master_Class_.htm)

Presenters in this Master Class will examine:

- The technical, environmental, legal and financial issues involved in deciding to develop a reuse scheme
- The social and political issues that need to be addressed
- How outcomes can be measured and benchmarked

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### **AWA Membranes Specialty Conference**

**Starts 21/2/2007, Melbourne, Vic**

[www.awa.asn.au/events/msc2](http://www.awa.asn.au/events/msc2)

### **Oz Water 07**

**Start 4/3/2007, Sydney, NSW**

[www.awaozwat.net/o7](http://www.awaozwat.net/o7)

This conference addresses 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.

## **International**

### **Stars of the Future: Reuse & Desalination**

**Starts 10/9/2006, Hollywood, California**

[www.watereuse.org/2006Symposium/index.html](http://www.watereuse.org/2006Symposium/index.html)

21st Annual WaterReuse Symposium - the world's preeminent conference devoted to water reuse and desalination. It is expected to attract more than 700 attendees.

### **IWA World Water Congress and Exhibition**

**Starts 10/9/2006, Beijing, China**

[www.iwa2006beijing.com/](http://www.iwa2006beijing.com/)

Themes are Operating Water and Wastewater Systems; Integrated Water Resource and River; Basin Management; Managing Water Services; Sustainably Health and the Environment; and Appropriate and Non-Conventional Wastewater Systems

### **Opportunities and Challenges in Agricultural - Water Reuse Speciality Conference**

**Starts, 29/10/2006 Santa Rosa, California**

[www.watereuse.org/USDA\\_conf.html](http://www.watereuse.org/USDA_conf.html)

Organised in conjunction with the WaterReuse Association, the US Department of Agriculture (USDA) and Washington State University. This conference will cover success stories in agricultural water reuse, the USDA's role in water management, regulations and health aspects of the use of recycled water on edible and non-edible crops, economics, technology, and public perception.







## Good reads

### The Weather Makers, by Tim Flannery

Our water resources are being threatened by increasing populations and changes in our weather patterns. Both these pressures increase the demand for water recycling. The Weather Makers is an excellent read to give an appreciation of the history and future impacts of climate change. You should be able to find a copy at book stores.

### IAA (2006) 'Best practice Guidelines for Urban irrigation. Part 1.

Your Guide to Good Garden Watering.' Irrigation Association of Australia.  
[www.irrigation.org.au/download/standards/Home%20Gardener%20FINAL%20web.pdf](http://www.irrigation.org.au/download/standards/Home%20Gardener%20FINAL%20web.pdf)

### IAA (2006) 'Best practice Guidelines for Urban irrigation. Part 2.

Urban Best Management Practice Guidelines.' Irrigation Association of Australia.  
[www.irrigation.org.au/standards.html#qi\\_stds\\_03](http://www.irrigation.org.au/standards.html#qi_stds_03)

## 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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DISCLAIMER: Every attempt is made to ensure the accuracy of all statements and claims made in ReWater. However, due to the nature of the industry, it is impossible for us to know your precise circumstances. Therefore, we disclaim any responsibility for any action you take as a result of reading ReWater.

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