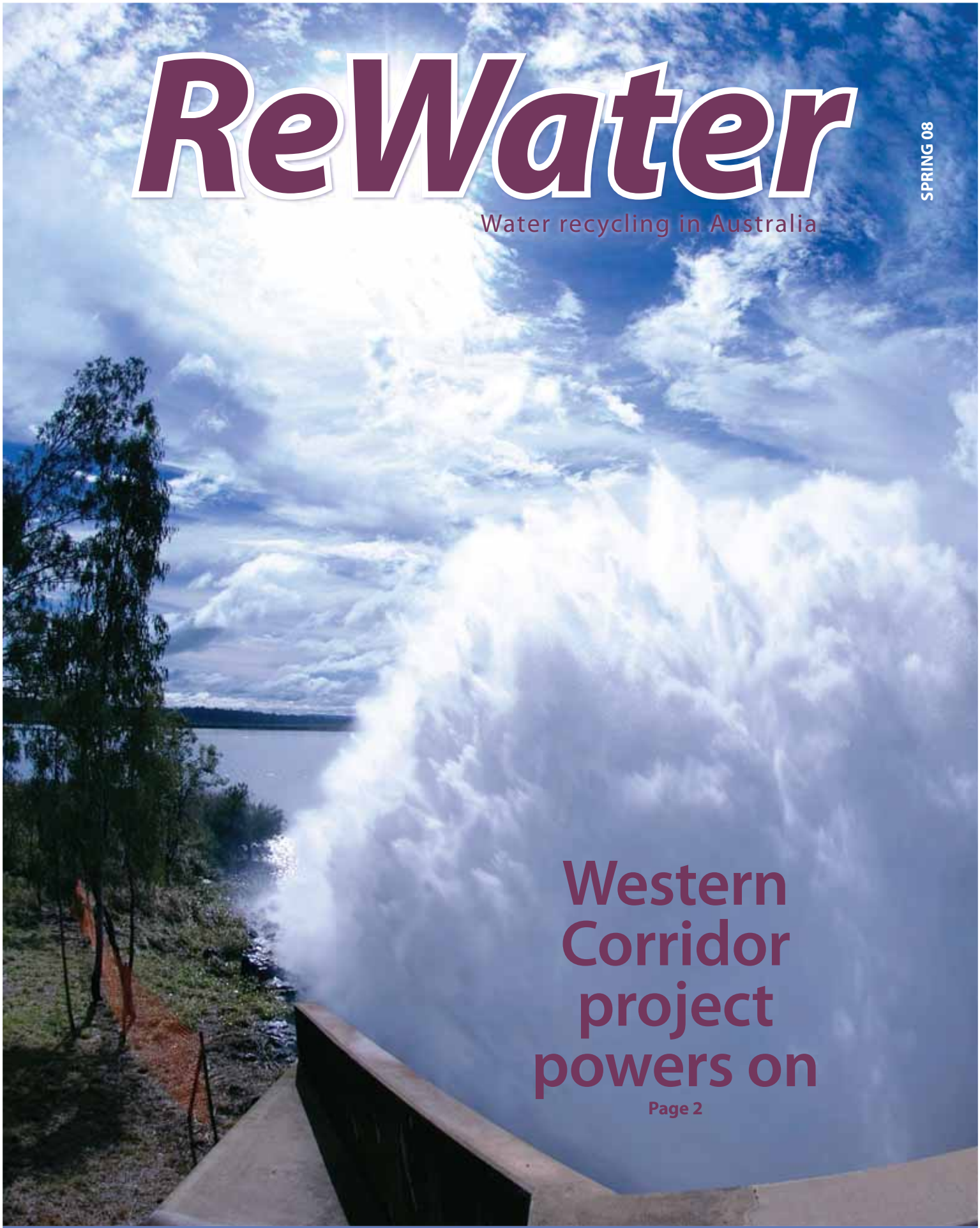
ReWater

Water recycling in Australia

SPRING 08



Western Corridor project powers on

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Drip designed for grey water

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$10.5M for recycled water

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1ML per day of recycled water for Shire oval

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ReWater

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On the cover:
Purified recycled water pumped from Bundamba Advanced Water Treatment Plant sprays into the storage lake at Tarong Power Station near Yarraman.
Photo credit: Peter Robey

About ReWater

This newsletter, ReWater, has been designed to make information relevant to recycled/recycled water use in horticulture more accessible to horticulturalists (growers/farmers), 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.

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

Your Feedback and Contributions
We would appreciate your feedback and suggestions for contributions. Please email rewater@arris.com.au or contact us on 03 9421 1701.

www.recycledwater.com.au

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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Know-how for Horticulture™

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Western Pipeline Alliance laying large-diameter pipeline up one of the hills on the way from Bundamba to Tarong Power Station

Western corridor project powers on

The Western Corridor Recycled Water Project in South East Queensland is now pumping purified recycled water to two power stations, freeing up to 41 megalitres of water per day for other purposes.

It's another significant milestone for Australia's largest recycled water project and means that both Swanbank Power Station near Ipswich and Tarong North Power Station, 195 kilometres north-west of Brisbane, no longer rely on South East Queensland's drinking water supplies to generate electricity. Based on current usage, sufficient water for about 300,000 people will remain in the region's main reservoir, Wivenhoe Dam, rather than being pumped to the power stations to generate electricity.

Infrastructure to deliver purified recycled water through underground pipelines between Bundamba Advanced Water Treatment Plant near Ipswich and Tarong Power Station was completed ahead of schedule. The second power station came on line only nine months after the Western Corridor Recycled Water Project started pumping purified recycled water to Swanbank Power Station.

5 alliances working across 45 sites

This is good news for the Western Corridor Recycled Water Project and good news for the residents of one of the most rapidly growing regions in Australia. The project is being constructed against a background of the worst drought on record, increasing demand for water and uncertainty due to climate change.

To build the Western Corridor Recycled Water Project — a water supply network consisting of more than 200 kilometres of large-diameter underground pipeline, three advanced water treatment plants, eight storage tanks and nine pumping stations — significant technological, management and regulatory challenges had to be overcome.

The Project is being constructed by five Alliances – Bundamba, Eastern Pipeline, Western Pipeline, Luggage Point and Gibson Island – working across 45 sites between Luggage Point to the east and Caboonbah towards the north-west of South East Queensland.

Project delivery is in two phases – Stages 1A and 1B, and Stage 2. The world-class Bundamba Advanced Water Treatment Plant was built as part of Stage 1A to deliver up to 20 megalitres of purified recycled water a day to Swanbank Power Station. Stage 1B works involved three of the five alliances in construction – Bundamba, Eastern Pipeline and Western Pipeline alliances.

Pivotal to Stage 1B, the Bundamba Advanced Water Treatment Plant was expanded to incorporate additional volumes of water from wastewater treatment plants in the Brisbane suburbs of Oxley and Wacol. This required construction of a second main processing building to house micro filtration, reverse osmosis, advanced oxidation, stabilisation and disinfection units. The expansion means Bundamba Advanced Water Treatment Plant has the capacity to supply up to 66 megalitres of purified recycled water per day to the South East Queensland Water Grid.

The expansion of the Bundamba Advanced Water Treatment Plant involved installing more than 5500 tonnes of reinforcement steel and pouring more than 28 000 cubic metres of concrete. Electrical cable measuring 130 kilometres in length was fitted – that's sufficient cable

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to stretch from Brisbane to Noosa on Queensland's Sunshine Coast.

To the east, construction involved 17 kilometres of pipeline from Oxley to Goodna as well as two pump stations and three raw water balance tanks at Oxley and Wacol. This second pipeline transports wastewater from these treatment plants to Bundamba Advanced Water Treatment Plant for purification.

As part of this stage, nine trenchless crossings under road, rail and river locations saw pipeline laid using technologically advanced techniques to minimise any disturbance to environmentally sensitive areas and to ensure roads and railways were not interrupted during construction.

To the west, construction of the Western pipeline began in October 2006. The 80-kilometre large diameter pipeline (900 to 1400 mm) and a network of pump stations and two five-megalitre balance tanks connect Bundamba Advanced Water Treatment Plant with Wivenhoe Dam.

Works included construction of an alternative water supply system for five towns, 11 under-bored road crossings including the Warrego and Brisbane Valley Highways, two significant shafts each more than 25 metres deep and a 180 metre long under-river tunnel crossing of the Bremer River near Bundamba. Construction of the purified recycled water offtake leading to Wivenhoe Dam is underway.

As part of its environmental rehabilitation program, Western Pipeline Alliance built 6.5 kilometres of walking trails for the Brisbane Valley Heritage Trail. A four kilometre section of the Fernvale to Lowood Walking Track in the Brisbane Valley was also resurfaced as part of the Project.

Integral to the Project's entire networked system are the nine pumping stations, the most recently completed of which was the Western Pipeline Alliance's pumping station at Lowood, 67 kilometres west of Brisbane.

To facilitate commissioning, the Western Pipeline Alliance comprising McConnell Dowell, Abigroup and GHD, completed installation of the pipeline's telemetry system and construction of a balance tank on the outskirts of Lowood to temporarily store water as it is pumped to Tarong Power Station.

It is now fully operational and is being used to pump up to 21 megalitres per day of purified recycled water from Bundamba Advanced Water Treatment Plant to Caboonbah for use by Tarong and Tarong North power stations

On 28 June, the first flow of purified recycled water was pumped from the Bundamba Advanced Water Treatment Plant to the storage lake at Tarong Power Station near Yarraman. Water roared down the pipeline from the pump station and was released in a spectacular spray that arched from the pipeline into the lake.

Work on the Caboonbah valve pit by Western Pipeline Alliance

The Western Pipeline pumps water from the Bundamba Advanced Water Treatment Plant, and from October this year, from the other advanced water treatment plants being built at Gibson Island and Luggage Point, through a single pipeline to a booster pump station 32 kilometres away at Lowood, via a balance tank. From the Lowood pump station the treated water is then on its way to Tarong Power Station.

'… the project will have the capacity to produce up to 232 megalitres of purified recycled water a day, more than half the region's current daily water use'.

This part of the project involves more than 95 kilometres of large-diameter pipeline, two major pumping stations and two balance tanks. The initial 32 kilometres of pipeline from Bundamba to Lowood was 1451mm diameter x10mm MSCL pipe. From Lowood Pumping Station the pipeline reduces to 1000mm GRP for a further 49 kilometres to its connection with the end user, Tarong Power Station. A second 1200mm GRP pipe was also installed for 16 kilometres between Lowood and the water storage reservoir at Wivenhoe Dam.

The Bundamba West Pumping Station is a focal point in the Western Corridor Recycled Water Project transfer system delivering water to end users. The pumping station is divided into two principal pump sets -the booster pumps receiving treated reverse osmosis water from the advanced water treatment plant and the transfer pumps lifting water from the treated water tanks at Bundamba. These pumps thrust into a common header manifold and into the single 32 kilometre 1451MSCL pipe to the Lowood balance tank.

"Delivery of water to Tarong is a major milestone that means we are one step closer to providing a safe, secure and climate-resilient water supply to the South East Queensland Water Grid," he said

By the end of this year, just two years after the Project started, advanced water treatment plants at Gibson Island and Luggage Point will be complete and the Western Corridor Recycled Water Project will have capacity to produce up to 232 megalitres of purified recycled water a day, more than half the region's current daily water use.

To date, more than 18 companies across five Alliances have dedicated more than 5.2 million hours to deliver the Western Corridor Recycled Water Project. At some stages, construction continued 24 hours a day, six days a week.

International recognition for the Western Corridor Recycled Water Project has been significant. The project has won global awards from a number of international bodies, including Water Project of the Year by the Global Water Intelligence and an Honour Award from the International Water Association. Closer to home, the project was a finalist in the Australian Construction Achievement Awards.

"Workplace safety, innovation, the environment and the community have been central elements that we have considered on an ongoing basis, and worked towards in delivering successful results.

"The awards we've received recognise the efforts we've undertaken throughout the planning, consultation and construction phases of this project. It is a wonderful compliment to our team and to the project to be recognised with such prestigious global awards. Equally satisfying is the positive feedback we have received from local communities during construction." ●

Source: Jann George, Corporate Communication Western Corridor Recycled Water Project.
For more information contact Jann on:
Phone: 07 3015 9765 Mobile: 0417 780 670
Email: Jann.George@westerncorridor.com.au

Special Interest Group for Water Reuse

A group of IAL (Irrigation Australia Limited) members and others are in the early stages of forming a national special interest group (SIG) for water reuse.

The initial meeting held on the 19th August in Brisbane involved 24 people representing water authorities, manufacturers, retailers, state government, consultants and industry development officers. There were 22 apologies from people who were mainly from interstate. In this meeting it was decided to agree on a strategy statement, objectives to be presented to the IAL board for endorsement at their AGM in September.

A committee was also appointed:

Guy Hoffensetz (Netafim Australia)
ghoffensetz@netafim.com.au

Karen Murday (Dept of NRW- Qld)
Karen.Murday@nrw.qld.gov.au

Sid Dyer (Consultant)
sdyer@iotc.com.au

Jeff Hilditch (Wide Bay Water Corporation)
jeffh@widebaywater.qld.gov.au

David Hawke (Biolytix Water)
david.hawke@biolytix.com.au

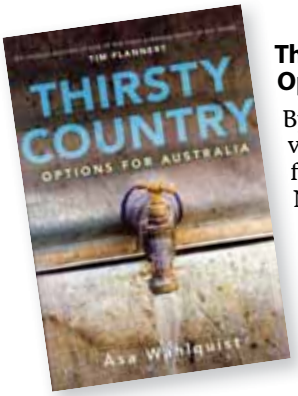
The group feels that this initiative will provide cross pollination of organisations such as government departments, consultants, manufacturers, retailers and installers on alternative water sources. The future of irrigation in Australia will rely heavily on recycled water and the industry needs a voice to advocate best policy and guidelines, educate, support research and promotion of this market.

It is the intention of the SIG to approach Australian Water Association's SIG on Water Recycling as both organisations have similar objectives. Also Horticulture Australia Limited (HAL) already has a website dedicated to water reuse issues and is a willing participant in fostering new links and information on their website. A blog site will be created for interested persons to chat about water reuse issues. For further information on this website please visit www.recycledwater.com.au.

The group plans to meet before the end of the year in Brisbane for an informal dinner with a guest speaker. It is the intention to have similar events in other states next year with other interested members. We welcome any new people interested in water reuse issues and encourage your participation in future events. ●

Source: Guy Hoffensetz, Netafim.
For more information contact one of the committee members identified in this article.

GOOD READS and website links



Thirsty Country - Options for Australia

By Asa Wahlquist (environment reporter for The Australian). Newly published and reviewed in Water Journal. A thorough examination of the problems faced by agriculture and rural sector in dealing with persistent drought, poor water management and entrenched systems. Options and choices also for urban centres with the political overlay for complicating life.
Costs $27.95 plus p&h.
Available from AWA bookshop via email.

Human Pharmaceuticals, Hormones and Fragrances

The Challenge of Micropollutants in Urban Water Management. Edited by Ternes & Joss. Often remaining as residuals, these contaminants may pose environmental and/or health risks when recycled water schemes are planned. Evaluating issues, measures to reduce and prevent their input to the urban water cycle are also addressed in this title.
Cost: $220 plus p&h.
Available from AWA bookshop via email.

Constructed Wetlands for Water Quality Improvement

By Gerald A. Moshiri.

This hardcover book of over 600 pages covers the following aspects; natural designs in wastewater treatment, water conservation and groundwater protection, waste and potable water issues, treatment of agricultural waste and run-off, treatment of hazardous waste run-off, treatment of domestic and industrial wastewater, constructed wetlands as wildlife habitats and more.
Cost: $240.30 plus p&h.
Available from www.booktopia.com.au

National Performance Report 2006-2007 for rural water utilities

The National Performance Report 2006-07: Rural Water Utilities was prepared jointly by the National Water Commission and the state and territory governments. It reports the performance of the thirteen largest rural water service providers across five states.
See: www.nwc.gov.au

Conference Proceedings for Enviro 08 (5 – 7 March, 2008) and Urban Water Reform, Governance and Structures in a Challenging Climate (19 June, 2008)

Now available for sale.
Visit www.awa.asn.au for information and online ordering.

Water Quality Complaint Investigator's Field Guide

A small AWWA pocket book with stacks of useful hints for dealing with common complaints such as odd smells from water, milky, coloured or bitter tasting water, insects in the water and more.
Cost: $48 plus p&h.
Available from AWA bookshop via email.

Industrial Waste Water Treatment

By Brian E. Clark

Realizing the importance of water as a non-renewable resource, today's industry aims to use water more efficiently and to treat industrial wastewaters to meet discharge criteria. Industrial Waste Water Treatment and Water Recovery provides discussion of conventional and advanced methods to remove contaminants from a water or wastewater supply, placing emphasis on treatment for reuse within the facility. Each method of treatment is evaluated for design considerations, operation, and overall efficiency. With case studies, this text reflects the growing trend to examine a facility's water usage from a total water management approach to determine areas for water minimization, reuse, and recovery.
Cost: $148.50 plus p&h.
Available from www.booktopia.com.au

The first drip system designed for greywater

Greywater diversion devices, which are the vast majority of greywater systems used in Australia, have long solved the diversion part but as to how to apply the water onto a garden- that has been a different story.

Dripperline is an integrated dripper inserted inside a polyethylene tube on manufacture at pre-determined flow rates and spacings. Netafim pioneered this invention 40 plus years ago in Israel and are now the largest drip irrigation manufacturer in the world with a subsidiary in Melbourne for the Australian and New Zealand market. The technology has long been used in agriculture and other wastewater applications, at times dealing with very dirty water qualities.

The greywater irrigation systems that have been used to date include open ended hoses which have to be shifted constantly or slotted drainage pipe/ pipe with holes drilled into it which doesn't give even distribution. As a result these garden systems will not provide even distribution and can cause ponding and run-off which are not considered acceptable for health and environmental reasons.

Greywater diversion devices collect some or all greywater from the house and can either divert the water to the irrigation system or back into the sewer. It is important to ensure when the irrigation area is at water holding capacity, that the greywater is then diverted to the sewer such as in the event of rainfall.

These systems have basic filtration to ensure that the irrigation system doesn't block downstream of the device. The filters are typically a sponge type material as standard screen or disc filters which often block very quickly. The filter size and material used will determine the frequency that they need cleaning which can typically vary from 1 week to 3 months. Up until now drip irrigation has been too small a passage for greywater to pass through especially when considering lint and hair from the greywater.

Netafim has developed a truly unique product that has a passage way of no less than 2.7mm which is huge in dripper design (typically drippers have passageways of around 0.5mm). This large passageway ensures the particles of lint and hair can pass through the Bioline dripperline without blocking the dripper.

The area required for a domestic system has been outlined in new Greywater Design and Installation for Single Household Handbook (Soon to be release by Standards Australia and developed by Green Plumbers Australia; see page 6) which will become the Australian benchmark for greywater use. It simply calculates the volume of greywater the household creates, dividing by the evaporation rate for that area which will give an area required. This number then needs to be cross referenced with soil type infiltration rates to ensure a given soil can handle that volume.

Once the area is determined the amount of dripperline still needs to be calculated. It is recommended that the spacing between the dripperline laterals should be 0.4m. A simple method to calculate total meters required can be made by total area divided by 0.4 will give total meters of dripperline. The irriGREY kit comes in 100m sizes will all associated fittings and it simply a matter of determining how many kits are needed. The dripperline is laid out on top of the soil under the mulch layer in garden beds and is not recommended to be buried.

This system is reliable, simple to maintain and will achieve maximum irrigation uniformity over your garden to best utilise greywater. ●

Source: Guy Hoffensetz- Water Re-use Manager, Netafim
For further information please contact Guy at
ghoffensetz@netafim.com.au
or visit: www.netafim.com.au

Green Plumbers - best practice handbooks

Handbooks for the installation of rainwater and greywater systems near completion

The Master Plumbers and Mechanical Services Association of Australia (MPMSAA) are nearing completion of their rainwater and greywater installation handbook project funded by Commonwealth Government of Australia - National Water Commission (NWC). The total project comprises three parts (Figure 1).

This **National Water Commission Waterlines Publication** provides an initial overview of necessary information for communities to understand before pursuing the installation of greywater or rainwater re-use devices in the domestic settings. The publication was an outcome of the research undertaken in the development of the two handbooks described below;

The **Rainwater Handbook** providing practical and technical information for plumbers to gain approval, install and maintain rainwater systems for single households, multi-unit dwelling, community and commercial buildings (updating HB230 - Standards Australia et al. 2006); and

The **Greywater Handbook** providing practical and technical information for plumbers to gain approval, install and maintain greywater systems for single households.

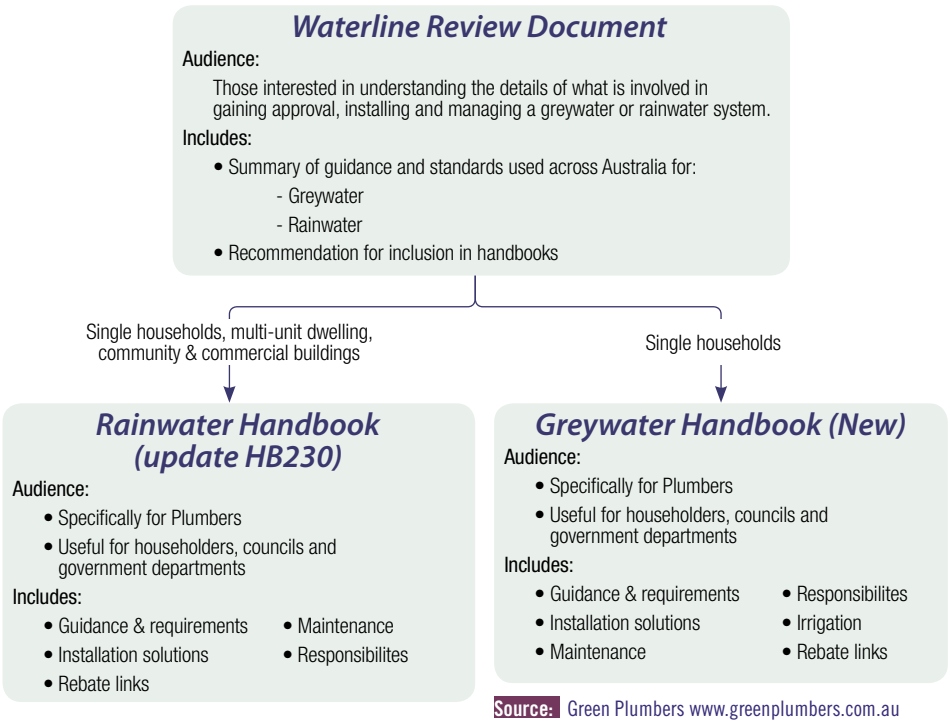
Each of the 3 parts of the project should be available to download from the NWC (Part 1) or purchase from SAI Global and MPMSAA (Part 2 and 3) later this year (September 2008).

Together this package aims to facilitate commitments under the National Water Initiative (NWI) in progressing towards the "Water Sensitive City". It will enable all those interested to understand the rainwater and greywater approval, installation, use and maintenance requirements in Australia. This will facilitate the decision to adopt and empower plumbers to give advice on and install safe and environmentally sustainable rainwater and greywater systems.

The documents produced in this three part package do not replace any national, state or territory codes of practice, guidelines or regulations. They have been developed using these documents, however, the handbooks are designed specifically to help householders and plumbers to understand in a practical sense the impact of these guidance documents with respect to gaining approval, installing, using and maintaining rainwater and greywater systems.

The handbooks were drafted jointly by MPMSAA, Green Plumbers, Australian Rainwater Industry Development Group (ARID), Royal Melbourne Institute of Technology (RMIT) University and Arris Pty Ltd. Technical advice and review has been provided by a range of organisations and individuals across Australia. ●

Figure 1: Overview of components of the NWC funded rainwater and greywater package



Source: Green Plumbers www.greenplumbers.com.au

Tony Ramunno of Witchmount Estate inspects his vines, sustained by recycled water.
Photo: The Age, Jason South

Pioneer recycled water customer's Shiraz is best in world

Witchmount Estate is now recognised internationally for its Shiraz, the 2004 vintage being named the top Shiraz in the world in the Syrah du Monde wine competition held in France.

Established 15 years ago, the Ramunno family Winery was a pioneering customer of the 42km Sunbury-Melton Recycled Water Scheme. Originally a hobby farm with 6,000 vines, the Winery now has more than 55,000 vines supported by recycled water through drip irrigation.

"During prolonged drought conditions and stage 3a water restrictions we would not have been able to support our plantings without recycled water" said Tony Ramunno, Owner.

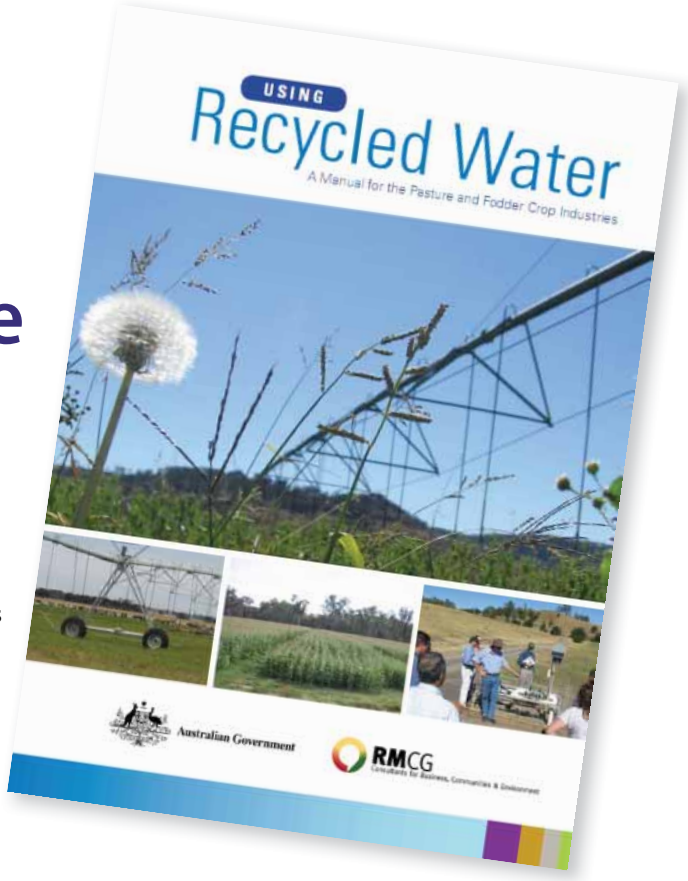
"Rockbank is not a known winemaking district. The area has fantastic soils and our vines have low disease but what was missing was water. Recycled water is an integral part of our business."

Witchmount Estate is innovative in their approach to winemaking and have received intense interest from their latest win. ●

Source: Les McLean, Western Water
For more information on Witchmount please visit: www.witchmount.com.au

Manual released for safe and sustainable use of recycled water in pasture and fodder industries

A manual aimed at providing practical information for irrigators to access and sustainably use recycled water has recently been released.



The "Using Recycled Water – A Manual for the Pasture and Fodder Crop Industries" is a primary product of a project supported by the Australian Government. This project focused on the pasture and fodder crop industries and was developed to complement existing work on the use of recycled water in the production and amenity horticulture industries.

Recycled water provides an opportunity for the pasture and fodder crop industries by supplying a secure and reliable water source with high levels of nitrogen and phosphorus contributing to plant growth. However, practices that ensure sustainable use of recycled water are not always straight forward, and often require management solutions that complement the existing (or proposed) farming practices.

A team of industry experts was therefore established to explore the major issues for consideration when using recycled water. The team focused on the practical information that irrigators require to access and sustainably use recycled water including salinity and nutrient management. This information was compiled into an 'easy to use' manual which aims to ensure that irrigators are aware of what they need to know and how they can readily apply that knowledge.

The manual focuses on the safe and sustainable use of recycled water including;

- Background information on recycled water including treatment processes and application in an agricultural context;
- Information on how a scheme can be started and how to access recycled water;
- Information on what needs to be considered when using recycled water including checklists;
- Case studies describing some of the key issues; and
- Key terminology and information sources.

Electronic copies of the manual are available from www.recycledwater.com.au ●

Source: Dr Anne-Maree Boland, RM Consulting Group
For more information contact anne-mareeb@rmcg.com.au

EVENTS diary dates

Australia

Advancing Food Safety's 15th Australian HACCP Conference

8-2 September, 2008, Holiday Inn, Adelaide

Convened by Advancing Food Safety, the conference will also include a one day Allergen Bureau Conference. Some of the topics covered include:

- Use of recycled water in the produce industry
- Toxicology of heavy metals
- E.coli 0157:H7 in Australia - is it an issue

www.ferret.com.au

Ultra Low Energy Cost Desalination Technology Workshop

19 September 2009, Melbourne
22 September 2009, Adelaide

A FREE hands on half day technical seminar focusing on delivering the lowest cost water from the highest efficiency energy recovery device design for reverse osmosis desalination plants.
www.energyrecovery.com/news/events.php4

De-Salting 2008

24-25 September, 2008, Perth

Conference on seawater and brackish water desalination. International visitors from IDA include Tom Pankratz and Lisa Henthorne plus presentations from Australia's leaders in desalination.
www.awa.asn.au

Onsite and Decentralised Sewerage and Recycling Conference 2008

12-5 October 2008, Benalla Victoria.

Keynotes speaker include Dr George Tchobanoglous, Ben Kele, Greg Andrews and Ian Allan.

An inspiring and empowering event with just on 80 papers and workshops being presented by people from Australia, New Zealand and the USA, for those interested in onsite and community-scale sewerage and recycling. The conference is limited to 250 people.
For full details see PDF or see
www.awa.asn.au/events/odsrc

EVENTS diary dates

Australia

WaterAid Ball

24 October, Melbourne Park Function Centre, Victoria

WaterAid Australia, the Australian Water Industry's International Charity of Choice, aims to provide clean, safe, drinking water and effective sanitation to some of the world's poorest communities in countries such as Timor Leste and Papua New Guinea. The Victorian WaterAid Ball will be held to raise much needed funds for this worthy cause. Please consider supporting the 2008 Ball through purchasing a table of 10 and/or sponsorship.
For further information on purchasing tables see www.wateraidball.com.au, and for sponsorship opportunities see PDF Please contact Liz Roder on 9235 7255 or wateraidball2008@melbournewater.com.au with any enquiries.

Masterclass - Pre-Treatment for Membrane Applications

26-27 November 2008, Sydney

Pre-treatment for water and wastewater destined for subsequent membrane treatment is essential to optimize plant performance, minimize disruptions and cleaning, extend membrane life and contain costs.

Topics to be covered include: why pre-treatment is necessary, biofilms, algal issues and their solutions, how to determine an appropriate pre-treatment regime for seawater desalination plants, pre-treatment regimes for inland and brackish water plants, membrane bioreactors and hybrid systems.
www.awa.asn.au

AWA Membranes and Desalination Specialty III Conference,

11-13 February 2009, Double Bay, Sydney

A 3 day conference highlighting new membrane technologies, water reclamation and desalination, membrane bioreactors, cost containment, energy use and impacts. Invited speakers include David Furukawa, Brian Bolto, Manh Hoang and experts from PUB, Singapore.
www.awa.asn.au

OZWATER 09 – Australia's National Water Conference and Exhibition

16-18 March 2009, Melbourne Convention & Exhibition Centre.

'From Challenges to Solutions' Ozwater 09 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.
www.ozwater09.com.au

International

International Expo Zaragosa

14 June to 14 September 2008, Zaragosa, Spain

"Water and Sustainable Development" is the theme underpinning this international expo. In addition to a huge variety of activities & exhibitions, the Water Tribune will explore 8 different water themes.
www.expozaragoza2008.es

IWA 2008 World Water Congress

7-12 September 2008, Vienna, Austria

The Congress brings together 3,000 delegates from around the world with the common goal of sustainable water management, with an emphasis on practice and case studies.
www.iwa2008vienna.org/i8/

23rd Annual Water Reuse Symposium

7-10 September 2008, Dallas, Texas USA

Touted as the world's pre-eminent conference devoted to water reuse and desalination.
www.watereuse.org

NZWWA's 50th Anniversary Conference and Expo

24-26 September 2008, Christchurch, New Zealand

Conference theme - 'Ensuring Water for Our Future' and will focus on the challenges of the next half century. Three primary streams - Excellence in Water & Wastes Management, Innovation & Technology for the Future, and Sustainability - Ensuring the Water Dimension. There will also be full Modelling and Operations streams and Small Wastewater & Natural Systems and Backflow Prevention streams.
www.nzwwa.org.nz

WaterSmart Innovations Conference and Exposition.

8-10 October 2008, Las Vegas, USA

Presented by the Southern Nevada Water Authority (SNWA) and the U.S. Environmental Protection Agency's (EPA) WaterSense Program, WaterSmart Innovations will serve to broaden the knowledge of innovations in urban water efficiency and water conservation including products, programs and outreach.
www.watersmartinnovations.com

Water Expo China

10-13 November 2008, Beijing, China

Water Expo China will be a comprehensive, specialised exhibition and business forum for the infrastructure development and management of water resources - water supply, conservation, dams, flood control, hydropower, irrigation, aquaculture, and related equipment and services.
www.waterexpochina.com

The Water and Energy Exchange

28-29 January 2009, Marbella, Spain

An international exchange for senior stakeholders from the water & energy sectors to find sustainable solutions to key problems and opportunities through a unique conference and 1:1 meeting format.
www.w-e-x.com

3rd African Regional Conference

11-17 October 2009, Abuja, Nigeria

Conference theme is The Role of Irrigation and Drainage in Food Security: towards attaining the millennium development goals in Africa.
www.icid2009.org/Prog.htm

Mundaring Shire oval benefits from recycled water

Installation of the subsurface irrigation system at Mundaring Shire Oval

The shire of Mundaring has taken the innovative approach to reuse water from a local Sewage Treatment Plant by dedicating an existing soccer oval to be irrigated with this recycled water. The Harry Riseborough Oval now takes up to 100,000 litres per day of treated wastewater which is irrigated via a subsurface irrigation system over the 16,000m^2 area.

The Shire of Mundaring is located about 35 minutes east of Perth in the Darling Ranges. The majority of the area's effluent water flows to Perth where it is treated at one of three large Sewage Treatment Plants before being pumped to sea.

There is a small decentralized Sewage Treatment Plant in Mundaring itself which services effluent from the local commercial/business precinct. Prior to this project the treated recycled water from this plant was pumped into a local stream which dispersed itself as the tributary travelled west to the Swan River. This practice was to be banned and the Shire had to find an alternative use for the water.

The solution

In 2006 the Shire of Mundaring undertook to re-develop the upper Harry Riseborough Oval. The oval is constructed on a clay base and has always suffered from poor drainage. Council decided to design a new drainage system and import an enormous quantity of sand to level the site and improve drainage qualities. At the same time a pipeline was installed from the decentralized treatment plant to the oval so that the recycled water could be used to irrigate the oval.

Previously the Harry Riseborough Oval was irrigated using a conventional sprinkler system from two holding tanks on site. These tanks were filled from a low yielding bore and topped up using potable water. The supply of recycled water from the WA Water Corporations sewage treatment plant at Mundaring has now been connected to these tanks.

The Shire has many sports ovals for which there is little or no underground water and many are reliant on the use of potable water for their irrigation. Recognising the Shires responsibility to use water wisely; Principle Parks Supervisor Herman Van Nus elected sub surface drip irrigation as the preferred system for utilising recycled water.

"We really wanted the safest system possible in terms of public exposure to the recycled water. This was our most environmentally friendly option available, also giving us greater system flexibility with bigger irrigation windows. The ability of these types of systems to use less water also influenced our decision"

UniBioline CNL dripline was chosen for the subsurface irrigation system. The Uniram dripper inside this tube has the largest inlet filter on the market, it is pressure compensating therefore guaranteeing a uniform wetting pattern, has an anti siphon diaphragm built into the dripper to eliminate soil suck back and a physical barrier reducing the risk of clogging from root penetration. But perhaps the greatest benefit is its CNL feature. This anti-drain feature limits the risk of ponding by not allowing effluent to drain out of the lowest drippers. On system start up all drippers open simultaneously therefore improving uniformity.

The specifications for the oval were for 600mm of free draining soil to be imported and spread over the existing oval location so as to create a large bed of sand to irrigate with the recycled water.

After the soil was imported the site was levelled and roll on Kikuyu Grass was installed. This newly laid turf was then established with a travelling irrigator for approximately 8 weeks. There were a few reasons behind establishing the turf before installation of the sub surface irrigation system. One was to ensure that when the dripperline laterals were injected the grass anchored itself and held together due to the time allowed for the development of a strong root system. Secondly, if the dripperlines were installed before the turf the uniformity of the depth would be very inaccurate in the poor sands. This would potentially lead to patchy growth due to the varying depths.

The Sewage Treatment Plant produces approx 100m^3 of treated recycled water a day which is pumped 1km to a 90,000 litre tank located at the oval. At times this recycled water is mixed with both bore water and potable water to make up the required quantity.

Drip Irrigation – Part of the Treatment

By dispersing the treated recycled water into the soil at a very slow rate the soil serves as a large filter. This system will remove organic matter and nutrients both by the vegetation growth on top of the soil, and by micro organisms within the soil thereby restricting movement off-site. Using dripperline with uniformly spaced emitters makes it possible to apply treated recycled water evenly over the entire area, causing even absorption and distribution into the soil.

Automation and Monitoring

Due to the high profile residential location of Harry Riseborough Oval it was critical for the shire to be able to monitor and control the irrigation system in

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$10.5 Million for South East Tasmania recycled water

Irrigators in Tasmania's Coal River district will have access to additional water under a $10.5 million recycled water scheme funded by the Rudd Government.

Minister for Climate Change and Water, Senator Penny Wong, said the South East Tasmania Recycled Water Scheme, developed by Clarence City Council, would also improve the ecological health of the Derwent Estuary by reducing wastewater discharge.

"The South East Tasmania recycled water scheme will increase the amount of recycled water available for irrigators and reduce the amount of wastewater discharged into the Derwent estuary," Senator Wong said.

In October 2006 the Clarence Recycled Water Scheme developed by the Clarence City Council commenced. Since that time the Scheme has expanded with a spur line to supply recycled water to the Seven Mile Beach area which was opened in September 2007.

The success and acceptance of the Scheme drove the sustainability culture in the Council and staff looked for further opportunities to integrate other recycled water initiatives under the Scheme. As a result the Richmond Waste Water Treatment Lagoons were also incorporated into the Scheme with a 25Ml holding dam being constructed in 2007 which is managed as part of the Scheme. This prevents any treated effluent entering the Coal River above the Pittwater Ramsar Site.

An increase of 1100MLof recycled water will be available for irrigation.

For the period October 2006 to June 2008, the Scheme has diverted the following from the River Derwent;

- 2119 Megalitres of treated effluent or approximately 48% of production of the Rosny Waste Water Treatment Plant during this period;
- 61.9 tonnes of Nitrogen;
- 16.1 tonnes of Phosphorus

The Seven Mile Beach spur line has created the opportunity for 3 major golf courses and a large commercial nursery to replace potable water with recycled water. The estimated ongoing demand is 645 Ml/annum with a total of 265Ml substituted in the first 9 months.

Funding for the South East Tasmania project is drawn from the $254.8 million National Water Security Plan for Cities and Towns which is funding practical projects like pipelines, water saving infrastructure and water treatment plants. The additional funding allows the work started by this Scheme to continue to improve the health of the Derwent Estuary

Stage One of the South East Tasmania Recycled Water Scheme will connect the Rokeby Waste Water Treatment Plant to the existing Scheme infrastructure to make available an additional 730 megalitres per annum of recycled water.

The Rudd Government funding will pay for construction of a 900 megalitre buffer dam at Back Tea Tree Road to enable storage of recycled water when demand for irrigation purposes is low. This will allow additional water to be made available to the Coal River irrigation area when required.

Julie Collins MP, Federal Member of Franklin, said that by 2011 when this work is complete, up to 2400 megalitres per annum of recycled water will be available for irrigation, an increase of 1100 megalitres over current supply.

"By reusing recycled wastewater, this scheme will make available more water for irrigation at the same time as improving the health of one of Tasmania's major waterways," Ms Collins said. "I am pleased to be able to deliver this election commitment and I congratulate the Clarence City Council on its initiative in developing this project." ●

Source: Clarence City Council
Media Release Minister for Climate Change and Water
28/7/08
www.ccc.tas.gov.au

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Mundaring Shire oval benefits from recycled water

the most responsible manner. It had to be simple enough to be operated on a day to day basis as well as have all the powerful logging, alarm reporting, accumulation and management tools required by upper management.

A Netafim NMC controller was installed at the ground along with a Netafim SMS 300 Alarm Dialler. One of the key features when dealing with the treated effluent at a public site is the potential for exposure of this water source. Actual irrigation flow could be monitored and recorded via the digital input of the Netafim NMC Controller where actual flow parameters could be set to ensure overflows were detected (main line, sub main, dripperline breaks) which could result in potentially hazardous recycled water pooling in an exposed area. If the set flow parameter went over this level the NMC has the capacity to shut down the actual valve in question and move onto the next station. If there was underflow (faulty valve, filter) the same situation would occur and the controller would move onto the next valve to be irrigated. These occurrences would trigger an alarm which would be remotely communicated via the SMS 300 to a land based PC and/or a mobile phone.

The NMC also manages the 24VAC field valves, filter control, dosing pumps (for fertigation or chlorine/acid injection) and has the capacity to read from field probes as to stop irrigation when the soils reach saturation point and start irrigation when the probe is under saturation.

The status of the system is remotely sent to a land based PC whenever the manager logs onto the SMS 300. This tool is very useful when mapping water use history.

Herman Van Nus the principle parks supervisor has been more that happy with the systems performance. "The sub surface irrigation system has been in at Harry Riseborough now for over 2 years. We have been most impressed with its performance especially the water savings and the capability of the system to monitor and record flows and send out alarms if there are any problems. We would not hesitate to implement this type of system again within the shire or to recommend it to others looking for this type of application." ●

For more information see:
Dealer/Installer: www.thewatershed.biz
Shire of Mundaring: www.mundaring.wa.gov.au
Netafim Pty Ltd: www.netafim.com.au

NEWS innovations & information

National

Research to Improve Farm Productivity and Water Management

A multi-million project (funded by the Federal Government) will develop a 'how to' guide for farmers to improve their water management while increasing productivity, profits and reducing wastage. The Farms, Rivers and Markets Project will operate for three years from the University of Melbourne's Dookie Campus within the Goulburn-Broken Catchment. The project will be managed by Uniwater (University of Melbourne and Monash University). Researchers in engineering, agriculture and economics will work with farmers and water managers to help identify the best mix of production for individual circumstances and practical ways to maximize the value of irrigation supplies.
Source: HWI News June / July 2008

National Performance Report Released

The 2006-07 National Performance Report for Urban Water Utilities just released, outlines water consumption trends and up to 155 indicators relating to the performance, providing nationally consistent definitions and approaches to facilitate comparisons between utilities and jurisdictions and encourages greater transparency in the way water is managed.
Source: AWA 5/5
www.nwc.gov.au

New Draft Guidelines Released

The Environment Protection and Heritage Council, the NRM Management Ministerial Council and the National Health and Medical Research Council have approved the release of draft Stormwater Harvesting and Re-use and Managed Aquifer Recharge modules as part of Phase 2 of Australian Guidelines for Water Recycling for public consultation.
Source: AWA 12/5
www.ephc.gov.au

New WELS Publication Available

A new WELS publication analyses opportunities for more water-efficient flush toilets. The study explores whether there are opportunities for five and six star rated toilet models and is available for download.
Source: AWA 26/5
www.waterrating.gov.au

Water Recycling on the Rise

The National Performance Report on water also reveals that recycling of water is on the rise, but remains low in some states and territories. ACTEW in Canberra was the poorest performer, supplying just 7.4 per cent of sewage collected as recycled water. The best performer was Adelaide, where SA water recycles nearly 30 per cent of sewage collected.
www.theaustralian.news.com.au

Wastewater Source Management Guideline

The Water Services Association of Australia (WSAA) has made available a National Wastewater Source Management Guideline (July 2008), which "provides a preventative risk management framework for managing risks to the wastewater system and provides a process for establishing wastewater quality criteria relevant to wastewater collection, transfer, treatment, recycling and disposal".
Source: WSAA
www.wsaa.asn.au

South Australia

Funding Allocated to Secure Water Supplies

The 2008/09 South Australian budget has allocated substantial funding for securing the state's water supplies. $95.6 million will be used for the first stage of the Port Stanvac desalination plant, while $426 million will be granted over four years for upgrades and expansions to wastewater treatment plants and water recycling infrastructure. $260 million will also be used over the next four years to protect and improve the health of the River Murray. Harvesting rainwater and reducing water use in households will be allocated $24 million.
Source: HWI News June / July 2008

Rural Councils to Recycle Wastewater

A nine year funding agreement, valued at $35 million, has been announced by the SA Local Government Association and the State Government to assist rural councils recycle wastewater and grey water. The funding is aimed at reducing reliance on septic tank disposal, and increasing the volume of wastewater recycled for use on parks, gardens and crop irrigation (in some instances).
Source: HWI News June / July 2008

Adelaide Pipeline Route Announced

The South Australian Government has announced the proposed route for a $75 million pipeline to transport recycled water from the Glenelg Wastewater Treatment Plant to Adelaide's CBD and parklands. Construction is to commence early next year and recycled water is expected to be available for use in mid 2010. Businesses seeking information on connecting to the recycled water can contact SA Water on 1800 812 362.
Source: HWI News June / July 2008

Saving 60 Million Litres of Murray Water a Year

Minister for Climate Change and Water, Senator Penny Wong opened a water recycling plant in the Barossa Valley that will save 60 million litres of Murray River water every year. Waste water from wineries is now being recycled at the North Para Environmental Control Waste Water Treatment Plant and piped to seven Barossa vineyards for reuse in irrigation.
Source: AWA 5/5
www.environment.gov.au

Slow to Grasp Benefits of Stormwater Reuse

The Conservation Council says South Australia has been slow to consider the benefits offered by collecting stormwater and reusing.
Source: AWA 26/5
www.abc.net.au

Construction Begins on Pilot Desalination Plant

Construction work is beginning on a $10 million pilot desalination plant for South Australia, Premier Mike Rann says.
Source: AWA 2/6
www.thewest.com.au

$3 Billion Investment in Water Infrastructure Will Continue

Money for the SA Government's massive $3 billion investment in water infrastructure will continue to flow from the State Budget for 2008-09 as construction on key water security projects is fast-tracked via the strategy, Four Ways to Water Security - desalination, managing catchments, increasing recycling, and efficient water use.
Source: AWA 9/6
www.premier.sa.gov.au

River Craft Greywater Treatment Standards

The South Australian Murray-Darling Basin Natural Resources Management Board (SAMDBNRMB) has announced its support of a project that will develop a National Standard for grey water treatment systems for river craft. The Board has provided $20,000 and will work with the Environment Protection Authority (EPA) to create "an industry accreditation system for grey water treatment systems for water craft, and in doing so, prevent the significant risks posed to the water quality of the River Murray and public health".
Source: SAMDBNRMB via Lawlex 4/6
SAMDBNRMB's media release (27 May 2008) www.samdbnrm.sa.gov.au

Recycled Sewage May Solve Crisis

South Australia will have to consider turning sewage into drinking water to deal with the worsening water crisis, one of Australia's leading water experts says. With reservoirs less than half full and River Murray inflows headed for a record low this month, University of Adelaide Professor of Water Economics and Management Mike Young said all possibilities to secure SA's water supply had to be investigated. Professor Young said the State Government could follow the lead of Queensland and look at pumping recycled sewage into drinking water reservoirs.
Source: Sunday Mail (SA) June 21, 2008
www.news.com.au/adelaidenow

Victoria

Making Snow when the Sun Shines

Water Minister Tim Holding has officially "switched on" the Mt Hotham Wastewater Reuse and Water Conservation Project. Overall, the project cost $8.4 million, and will provide up to 110 million litres of high-quality recycled water each year. The water will be used to make artificial snow, replacing water currently taken from Swindlers Creek. According to Mr Holding, the upgrade to the Mt Hotham Sewage Treatment Plant included:

- "Building a membrane ultra filtration plant;
- A 27 million litre storage reservoir at Mt Loch; and
- A 3.5 kilometre rising main connecting the treatment plant to the reservoir".

Source: Water Minister
Water Minister's media release (7 June 2008) www.dpc.vic.gov.au

Sewage Plant's Sweet Smell of Success Frees up Farmland

For the first time since the 1800s, the 5000-hectare property that wraps around the Werribee Treatment Plant is available to be privately operated. It's one of the biggest livestock farms in Victoria, running up to 15,000 cattle and 40,000 sheep at a time. Much of the farmland supports year-round lush pasture, without expensive fertilisers. And there's a guaranteed, plentiful water supply.
www.theage.com.au

Suitability of Recycled Water for Industrial Applications

Victoria University and CSIRO are undertaking a Smart Water project to assist industrial water users decide if recycled water is suitable for their applications. As part of this project, a literature review covering issues such as water quality, corrosion, health risks and public perceptions has been produced.
Copies of the literature review can be downloaded from: http://isi.vu.edu.au
Source: AWA 27/7

Investing in World Class Green Plumbing Skills

A $2.1 million investment will give Victorian plumbers world-class skills in green plumbing. Skills and Workforce Participation Minister Jacinta Allan said the Plumbing Industry Climate Action Centre, based in Brunswick would train plumbers in sustainable, energy saving, waste reducing and water saving plumbing techniques.
Source: AWA 27/7
www.premier.vic.gov.au

$4.9 Billion Major Water Projects Progress Report Released

The Brumby Government has released a report into the progress of its $4.9 billion of major water projects underway throughout Victoria. It includes progress of the desalination plant, irrigation upgrades in northern Victoria, a network of pipelines to move water around the State, increased water recycling and ongoing water conservation.
Source: AWA 23/6
Available at: www.ourwater.vic.gov.au/

$5.45 Million Peterborough Sewerage Scheme Completed

The completion of construction on the $5.45 million Peterborough Sewerage Scheme will provide recycling opportunities for local industry and improve public and environmental health according to Victoria's Water Minister Holding.
Source: AWA 5/5
www.dpc.vic.gov.au

Car Wash Association Tests Sustainability

The Australian Government Smart Water Fund has provided $244,000 grant to the Australian Car Wash Association to test efficiencies of present and possible future water saving technologies with a focus on using recycled water.
Source: www.waverleyleader.com.au

Model Water Saving in Bendigo

The National Party believes Bendigo's Recycled Water project should set the model for Melbourne in its efforts to replace potable water use with recycled water for parks, industry and horticulture.
Source: www.bendigoadvertiser.com.au

Northern Territory

Recycled Water Project Launched in Alice Springs

The new multi million dollar Alice Springs Reclamation Plant has been finished. The plant aims to recycle up to 600 megalitres of water annually to reduce discharges from the Alice Springs wastewater stabilisation ponds into Ilparpa swamp. Most of the treated water will be pumped to the Arid Zone Research Institute (AZRI) where it will be used to irrigate horticultural projects.
www.nt.gov.au/nreta/water/ilparpa.html
www.abc.net.au

Recycled Effluent for River Dam

A report submitted to the state government has recommended that "recycled effluent could be added to the Darwin River Dam to counter evaporation, expected to increase due to global warming", reports Northern Territory News. In support of his recommendation, the author reportedly pointed to research that predicted a 6% average temperature rise and a 1.5% reduction of rainfall in the Darwin region by 2030.
Source: Lawlex 26/6
www.ntn.com.au

Australian Capital Territory

Stormwater Storage (Comments Open)

Planning Minister Andrew Barr has called for public comment on a state government plan to "allow stormwater to be pumped into underground aquifers during wetter months for storage and use on playing fields and parks in the summer and during dry periods". Members of the community are encouraged to comment upon a draft variation to the Territory Plan (July 2008), which will allow for stormwater to be stored in aquifers and recovered for irrigation use when required. Submissions should be sent to the ACT Planning and Land Authority by 11 September 2008.
Source: Planning Minister
Planning Minister's media release (31 July 2008)

NEWS innovations & information

Queensland

Budget Allocates $2.2b Towards South East Queensland Water Grid

The Queensland Governments 2008-2009 state budget has allocated more than $2.22 billion of its funding towards projects that form part of the South East Queensland Water Grid. High priorities include:

- Completion of the Western Corridor Recycled Water Project by December 2008
- Gold Coast Desalination Project at Tugun
- Development of the Traveston Crossing Dam
- Completion of the Southern Regional Water Pipeline; and
- The yet to be approved Nathan and Connors River dams

Source: HWI News June / July 2008

Water Now Safer and More Reliable

The Water Supply (Safety and Reliability) Bill 2008 has been passed by the state parliament and is awaiting assent. Water Minister Craig Wallace stated that the "safety and reliability of Queensland's town water supplies will be better protected" under the legislation, which creates "new state-wide regulatory frameworks for recycled water and drinking water quality"

Source: Water Minister; Lawlex 21/5
Water Minister's media release (15 May 2008)

Global Water Project of the Year Awarded

Black & Veatch's Stage 1A of the Bundamba Advanced Water Plant (AWTP), an integral part of the Western Corridor Project in SE Queensland has received the prestigious Global Water Project of the Year Award from Global Water Intelligence. The plant produced purified recycled water only 10 months after construction began.

Source: www.bv.com

Tasmania

Drought Proofing the State with $80 Million

The Tasmanian government is to spend $80 million to drought-proof the state. A number of significant irrigation projects, with the potential to provide an additional 250 Gigalitres per year of irrigation water to the state, will be developed with the funding.

Source: AWA 16/6
www.media.tas.gov.au

Irrigators Have Access to $10.5 Million

Irrigators in Tasmania's Coal River district will have access to additional water the $10.5 million South East Tasmania Recycled water scheme. Stage One will connect the Rokeby sewage treatment plant to the existing Coal River irrigation area. A 900 megalitre buffer dam at Back Tea Tree Road will enable storage of recycled water when demand for irrigation purposes is low.

Source: AWA 27/7
(PDF) www.abc.net.au

Western Australia

Strategy for Recycled Water Released

The Western Australian Government has released its $3 million "State Water Recycling Strategy" which aims to meet the Government's target of recycling 30% of WA's wastewater by 2030. The strategy includes investigating options for recycled water use in horticulture.

Source: HWI News June / July 2008
http://portal.water.wa.gov.au

Moonyoonooka Recycled Water Project

Sport and Recreation Minister John Kobelke has officially launched the Moonyoonooka Recycled Water Project, a project using wastewater from the Geraldton Meat Works to irrigate seven polocrosse playing fields at a Moonyoonooka recreational facility

Source: Lawlex 31/7 Sport and Recreation Minister's media release (28 July 2008)

International

EIMCO Expands Down Under

EIMCO Water Technologies Limited (EWT), is expanding its activities Down Under through its acquisition of AJM Environmental Services Pty Ltd. AJM are specialists in the design and construction of wastewater treatment and recycling plants for the food, meat, dairy, beverage and metal industries

Source: AWA 5/5
www.ajmenviro.com.au

Emergency Guidance Paper Developed in US for Water & Wastewater Utilities

American Waterworks Association (AWWA) has developed a guidance white paper to assist utilities in developing Water and Wastewater Agency Response Networks (WARNs) for natural emergencies and disasters that may disrupt normal services. The document is titled, "Utilities Helping Utilities: An Action Plan for Mutual Aid and Assistance Networks for Water and Wastewater Utilities."

Source: AWA 2/6
(PDF)

Drought in Spain Easing

Recent heavy rains have eased Spain's worst drought in decades and reservoirs serving Barcelona are now at 44% capacity up from 20% at end March. The city has been shipping in drinking water for the past three months at cost of 1 Euro/KL (AU$1.63/KL).

Source:
http://geographyfieldwork.com
www.cnn.com

California Facing the Most Severe Water Shortages in Decades

Los Angeles mayor Antonio R Villaraigosa announced a proposal to begin using heavily cleansed sewage water to increase drinking water supplies. The move comes as California braces for the possibility of the most severe water shortages in decades. The requirement to increase use of recycled water by over 600 percent has been identified. Last week, Los Angeles Mayor Antonio Villaraigosa unveiled a new water plan for the city that could cost up to $2 billion over 20 years and help the city meet a projected 15% increase in water demand by 2030.

Source: http://timesofindia.indiatimes.com

Greywater for Greener Golf Courses

Research published in Inderscience's International Journal of Environment and Pollution suggests that artificial wetlands could be used to clean up urban grey water for flushing lavatories without compromising health or comfort, for gardens, cemetery and campus lawns and even golfing greens.

Source: www.innovations-report.de

Japanese Export Water Plans

A Japanese research company is investigating a plan to export water to Australia for use in the agriculture and industrial sectors, reports the Herald Sun. Nomura Research Institute is reportedly looking in to feasibility of using ships that carry Australian coal to Japan's second-largest steelmaker in Kawasaki. The containers would reportedly return to Australia carrying purified water recycled in Kawasaki after industrial use. However, a spokesman for Water Minister Craig Wallace reportedly stated that "there was no planned deal to import water from Japan".

Source: Herald Sun
www.news.com.au/heraldsun