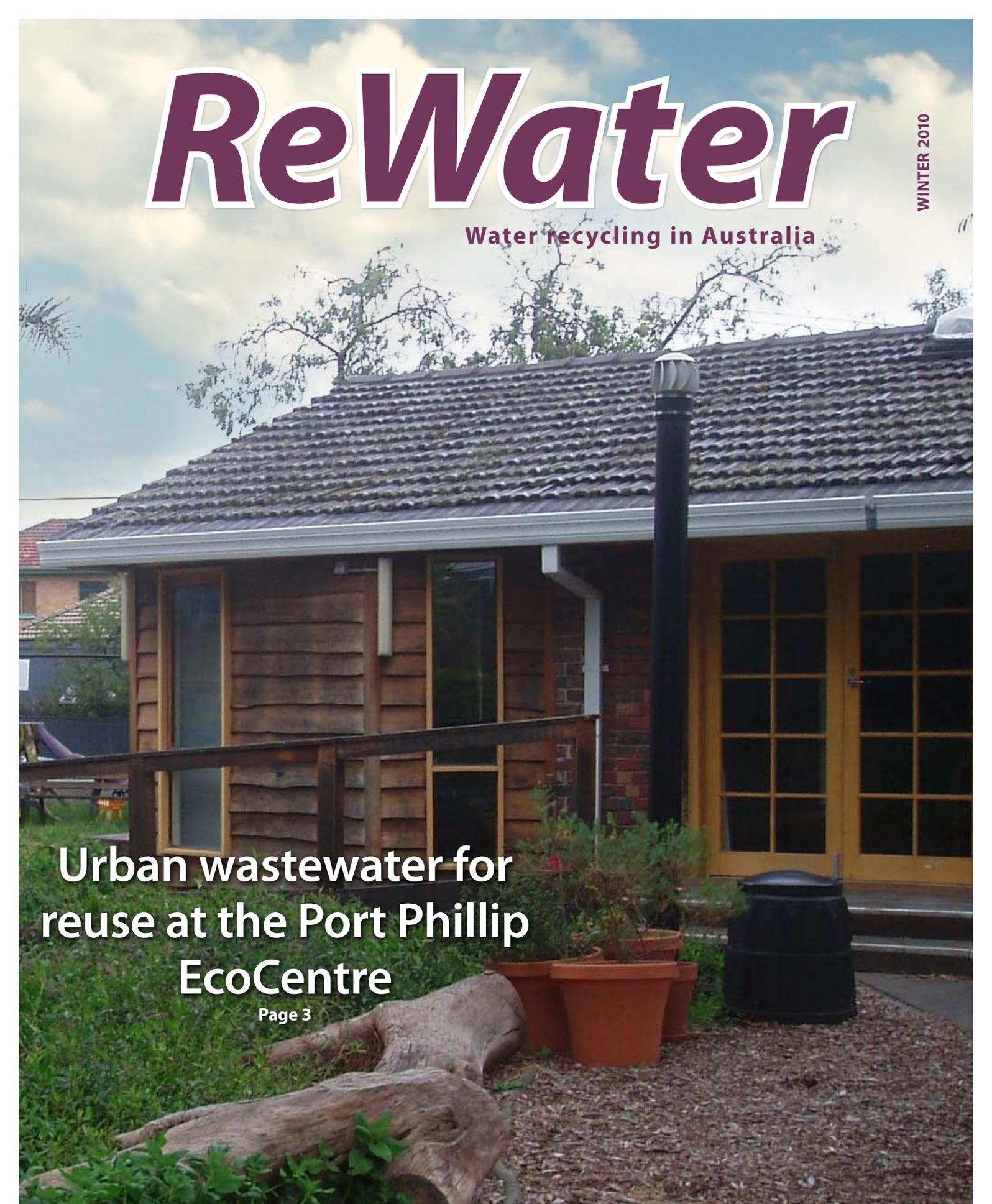


ReWater

Water recycling in Australia

WINTER 2010



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ReWater

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On the cover:

Port Phillip EcoCentre with worm farm tank access and vent.

About ReWater

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

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

Your Feedback and Contributions

We would appreciate your feedback and are always looking for suggestions and contributions. Please email rewater@arris.com.au or contact us on 03 9640 0221.

www.recycledwater.com.au



Know-how for Horticulture™

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

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. issn1449-9800



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Editorial

Welcome to the 25th Edition of ReWater; a timely number for reflecting upon the growth and diversity in recycled water applications both here in Australia and internationally.

The number of irrigation schemes operating in Australia is but one indicator of recycled water uptake, as we see all kinds of urban industries and businesses, from manufacturing to carwashes implementing water recycling measures. It is also great to witness the diversity of scale at which water recycling is taking place; this is also seen in the variety of technological approaches to water treatment that enable such applications to develop.

This edition has a focus on small scale wastewater treatment, and touches upon some of the 'low key' innovations that have been implemented with inspiring and sustainable



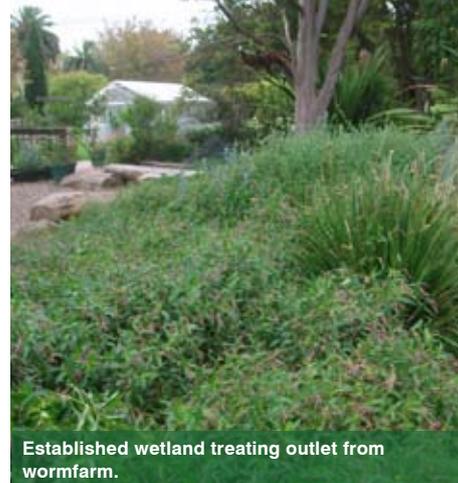
results. They demonstrate that when it comes to water recycling, green does not have to be grand to be great.

Our next edition will explore the topic of greywater and present a variety of case studies in onsite greywater reuse covering issues of water quality for gardens, landscaping and other potential uses.

If you have any suggestions for articles please email me at cassie@atura.com.au

Urban wastewater for reuse at the Port Phillip EcoCentre

There are not many case studies in our cities where wastewater is used for irrigation of productive plants, but the EcoCentre in the City of Port Phillip in Melbourne has been doing so for over ten years.



Established wetland treating outlet from wormfarm.

The EcoCentre was founded in 2000, and includes a productive community garden, outdoor community space and the EcoHouse, a building renovated to:

- Promote sound living practices.
- Be energy efficient and provide its own energy.
- Use non-toxic, recycled and local materials.
- Collect available water and transform waste water into a resource.

The wastewater system selected for the site needed to treat the wastewater from the EcoHouse to an appropriate quality, be low in energy use, minimise materials requirements and provide an educational tool for visitors and users of the EcoCentre. The system needed to treat all wastewater generated at the EcoCentre, which can vary significantly in volume as events at the EcoCentre can include groups of up to fifty people, and provide water to irrigate fruit trees on the site.

The treatment system incorporates four main processes; the worm farm or wet composting vermiculture system, which is a Victorian EPA approved system, a wetland, an adsorption trench and an evapotranspiration bed preceded by a storage tank (schematic top right). The system was designed to treat around 1000 L/day and was developed in consultation with service engineers, landscape architects, permaculturalists, wetland plant specialists and building design consultants.

Wastewater is collected from the EcoHouse kitchen, low flush toilet and shower. The toilet and shower being supplied with rainwater, the kitchen with mains water. The collection network allows diversion of wastewater to

sewer if desired. The wastewater then flows to the sub surface worm farm, where organic material accumulates on a screen located at the midpoint of the tank height. Over time this organic layer becomes a filter through which liquid percolates and on which further solids accumulate. The tank is aerated by a vertical pipe with an overhead wind powered fan. The organic solids that collect are degraded, decomposed and liquefied by worms and bacteria. When water in the worm farm reaches a preset level a solenoid switch activates a pump which transfers the water to the wetland.

The 30m² wetland is constructed of a plastic and a clay liner, with a stabilised sand (5% cement) top layer. These multiple construction layers prevent the wastewater from polluting groundwater. The bed consists of coarse gravel, sand and sandy loam soils.

The system has provided a long term alternative to traditional urban wastewater servicing with a low energy use.

To disperse the water through the wetland a perforated plastic channel wrapped in geofabric is used. The plants in the wetland are self

selecting, with a variety of species planted during commissioning including Baloskion tetraphyllum (Tassel Cord-rush), Bolboschoenus caldwellii, Ficinia nodosa (Knobby Club-rush), Persicaria decipiens (Slender Knotweed), Myriophyllum simulans (Water Milfoil), Marselia drummondii (Nardoo), Ranunculus inundatus (River Buttercup), Selliera radicans (Swampweed), Triglochin procera (Water Ribbons) and Villarsia reniformis (Running Marshflower). Around half of these species died within the first two years with survivors including Knobby Club-rush, Persicaria decipiens, Ranunculus inundatus, Selliera radicans and Triglochin procera.

The lower growing species (Ranunculus and Selliera) were eventually overwhelmed by the sprawling Persicaria which was clearly the best suited to the conditions. Slender Knotweed has dominated the reedbed for the past 6 years and demonstrated its resilience in recovering from a week of high summer heat when the EcoCentre was unoccupied and no wastewater was discharged to the system.

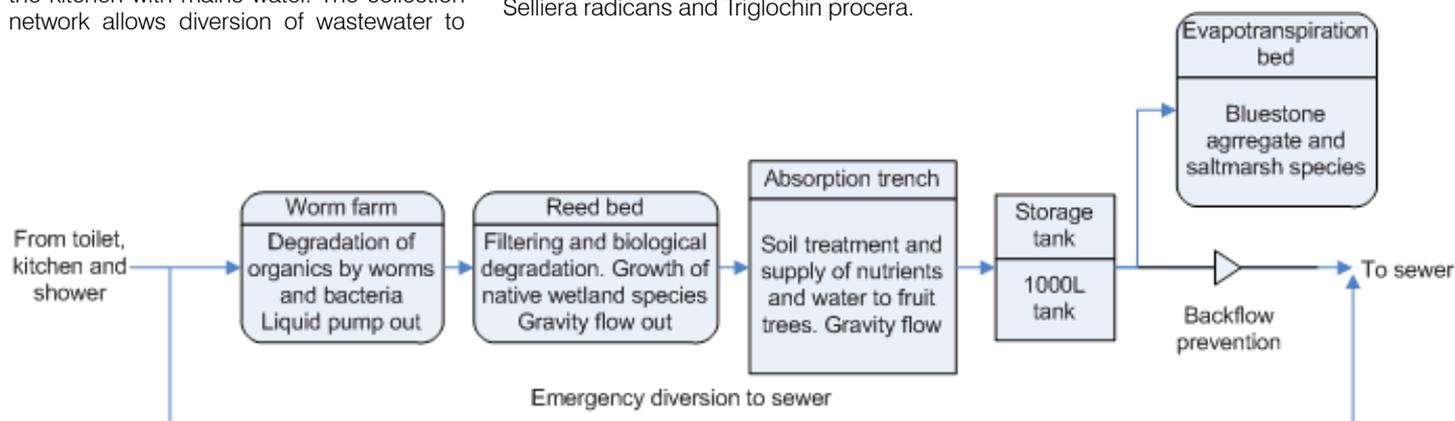
After treatment in the wetland the water flows to an absorption trench which provides water to four citrus trees on the site. All overflow from the wastewater system is directed a 1000L storage tank which feeds an evapotranspiration bed of fine bluestone aggregate planted with saltmarsh species (Atriplex paludosa, Stipa stipoides and Ficinia nodosa). Overflow from the storage tank is directed to sewer.

Monitoring and maintenance of the system is undertaken by EcoCentre staff and volunteers. The absorption trench has been relayed in the ten years since initial installation. There has been no requirement for sludge removal from the worm farm.

Some monitoring of the system has been undertaken. Logging of worm farm pump running times has allowed estimation of flows to the treatment system, with weekly average flows of around 2500 L/week

The system has provided the EcoCentre with a long term alternative to traditional urban wastewater servicing with a low energy use... and the jams and preserves from the fruit trees taste great too! •

Contact: Phillip EcoCentre coord@ecocentre.com or Dr Clare Diaper clarediaper@hotmail.com



Schematic of the Port Phillip EcoCentre wastewater treatment system

Water reuse and conservation in coal mining

Preserving water supplies and sources as well as managing increased demand for water resources.

As the Hunter Valley in NSW continues to be one of the central coal districts for the nation, it is facing a number of dilemmas. The employment that the mines bring has increased the population numbers of the region, which in turn has led to a greater demand for resources and land.

As more people move into the area, greater scrutiny is being paid to how new mines are constructed in regards to achieving maximum output and maximum care for both the community and environment. Added to this is the introduction of more stringent government legislations regarding environmental management.

With this in mind, the thermal coal company Wallarah Coal has undertaken a unique and 'environmentally sustainable' venture for its coal project in the very lower fringes of the Hunter Region. The Wallarah 2 Coal Project has taken a very distinct approach to long-wall coal mining in the region.

Speaking to Australian Mining, Wallarah Coal director Peter Smith said that being a Greenfield mine site has allowed for some innovative and environmentally friendly approaches to mining that would typically be very costly for a currently operating mine.

While it is still in the last planning stages, Smith expects the mine to be a leader in green and low impact mining approaches. Located on the Central Coast, the proposed mine is near residential areas as well as a large body of water. One of the major problems that the mine faced was how to extract its JORC resource of 1.2 billion tonnes of thermal coal without contaminating or adversely affecting the local water tables and ground water.

As it is mining under Tuggerah Lake, the Jilliby State forest as well as the Dooralong Valley, Wallarah chose to mine only a fraction of its resource. What made this situation all the more difficult is the depth of the coal – the shallowest at 350 metres and the deepest at 650 metres. In comparison, Centennial Coal's nearby Mandalong coal mine has its deepest coal at around 350 metres. To tackle the problem of the local water table and subsidence, Smith told Australian Mining the Wallarah Coal project was "designed for the water in the area".

It approached this in a number of ways, firstly by narrowing the long wall and excavating only three metres on what has the potential for being a six metres seam. The company decided to mine only 200 million tonnes at five million tonnes per annum from the long-wall instead of its full resource. Wallarah Coal



This subsidence is unlikely to compromise in any significant way the water supply

"sacrificed quantity for stream and water protection", Smith said.

"The narrowing of the longwall also helped us to comply with the problem of subsidence in what is known as a serious mine subsidence area," Smith said. However, it was the fact that the mine itself will be so deep underground that lessened the effect on ground water and subsidence.

According to a recent Government inquiry into the mine "while longwall mining is likely to cause subsidence-related impacts, because of the depth of the coal seams, this subsidence is unlikely to compromise in any significant way the water supply." However, Wallarah did not just approach these concerns from an underground perspective, it also took a number of unusual approaches to water conservation above ground.

Walarah aimed to have a negligible impact by having a dedicated water treatment process for water brought up during mining, which it could then provide back to the community. A major defining factor in this approach was the decision to not include a coal washery or tailings dam on site. Instead the company will only crush the coal. "While the company faces a penalty due to the fact that the ash

will not be reduced, the project contains thermal coal which is already fairly low in ash and has only one third of the sulphur so it obviates the need for a coal washery while reducing water consumption," Smith told Australian Mining.

The project is also looking into the option of water recycling facilities onsite. Any water generated by the mine will be used in the crushing and stock piling process and for controlling dust, with the surplus water being recycled into the community.

This reuse and recycling of water is a major factor in the Wyong region which recently saw water restrictions reach level four. Wallarah is aiming to "have serious environmental credentials after responding to the stakeholder and community concerns." ●

Source: Extract reproduced with permission from Mining Australia 14/4/2010
www.miningaustralia.com.au



Project manager Mark Goodlet, director of infrastructure services Wayne Prangnell and Augusta-Margaret River Shire CEO Gary Evershed celebrate the opening of the town's water recycling project.

Margaret River celebrates water project opening

Enhancing their natural environment and protecting it for future generations

Margaret River residents can rest easy knowing the water they use in their homes isn't going down the drain anymore. Instead it is being recycled and used to deliver treated water to parks, sporting facilities, Margaret River Primary School, Margaret River High School and ultimately the Margaret River Golf Club.

It has taken several years of negotiation and planning to get the scheme in place, but Margaret River Water Recycling is now up and running.

The Augusta-Margaret River Shire celebrated this achievement with the community at the official opening of the project on Friday, 16 April. Shire President Ray Colyer said Margaret River Water Recycling was an outstanding investment in enhancing our natural environment and protecting it for future generations.

"After over two years of planning, negotiations, approvals and design work, it is very rewarding to see the vision for a long-term sustainable water source for our parks and ovals come to fruition," Cr Colyer said.

"It will reduce extraction of water from the natural environment, protecting the Margaret

River and providing for the recovery of local groundwater aquifers, recycling in excess of 750 ML of water in the first five years of operation."

The golf course is yet to be connected to the recycled water but is expected to benefit from it next year.

"The community really got behind this and gave it huge support," he said.

"The community really got behind this and gave it huge support," he said.

According to Mr Prangnell, Margaret River Water Recycling provides a long-term, sustainable water solution that has the capacity to grow with the population. The \$2.6 million dollar project was made possible with support from AMRSC, Lester Group, Community Water Grants, Water Corporation, South West Development Commission, Regional Headworks Program, Department of Education and Margaret River Golf Club. •

Source: Margaret River Mail 14/4/2010. www.margaretrivermail.com.au

Director of infrastructure services Wayne Prangnell said community support of the project had been pivotal to it gaining approval.

Innovative 'Green Planet' car wash recycles water using bacteria

The recycled water at Green Planet Car Wash in Lakeville, Minnesota (US), is more than clean enough for the SUVs, station wagons and sedans that pour into the busy car wash each day. It's even clean enough for the drivers of these vehicles to drink.

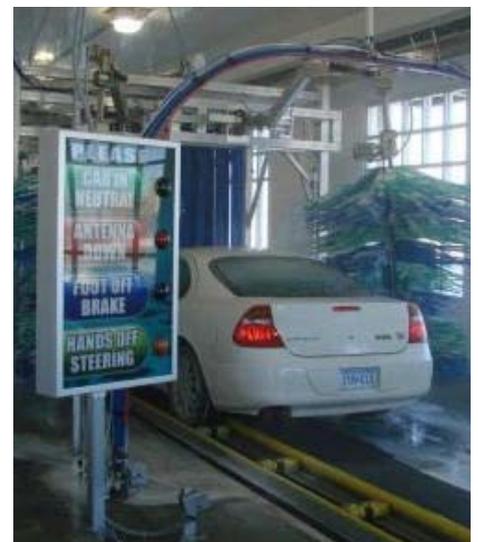
Green Planet is one of a growing number of "green" car washes, those that recycle the water used to clean their cars, filter it and then re-use the water in future washes. It's a way to significantly reduce the amount of water wasted at these water-intensive businesses.

Green Planet relies on both its underground tanks and a honeycomb-like device made from recycled PVC pipe to filter its used water. The PVC pipe honeycomb device allows bacteria to grow not just on the walls of the underground tanks but throughout the entire tank. This bacteria then cleans the used water, which is then pumped back to clean the cars of new customers.

Thanks to this technology, Green Planet reduces the wasted water from every car wash to less than five gallons. This is a big improvement from the 100 gallons of water that is typically wasted in traditional car washes.

Jackson said that the idea for Green Planet's bacteria-based recycling system came from Europe, where the same technology is used to clean oil spills. In the Green Planet system, the bacteria eat all the solvents, pollutants, soaps and oils out of the used wash water. •

Source: ReJournal www.rejournals.com



Green Planet Carwash in Lakeville, Minnesota, (USA)



GOOD READS and website links

Wastewater and irrigation

S. Bakopoulou and A. Kungolos, 2010.

Reuse of treated wastewater for irrigation purposes in Greece: Investigation of economic, social and environmental factors. Water Asset Management International, IWA Publishing, 6(1), 19-22.

For full details IWA Publishing Online www.iwaponline.com

Urban and Highway Stormwater Pollution

Thorkild Hvitved-Jacobsen, Jes Vollertsen, Asbjorn Haaning Nielsen. March 2010

Focusing on pollutant reduction, abatement, and control, this book provides the necessary tools and methodologies to solve urban stormwater problems.

The authors present theories and funda-

mental concepts of wet weather pollution as a basis for solving engineering problems in practice. The book contains mathematical formulations for modeling the prediction of pollutant transport into both surface waters and soil systems. The entire urban wastewater system - including the drainage catchment and networks, treatment systems and local receiving waters - are examined in this context. The authors also address key points in the analysis, design, and management of urban drainage systems.

www.fishpond.com.au

Nutrient Management in On-Site Wastewater Treatment

Ayanangshu Dey, Dennis D. February 2010

Groundwater and surface water contamination has been linked in the past to inadequate or failing on-site wastewater treatment and disposal systems. The on-site wastewater systems installed in coastal areas have more potential for inflicting this kind of environmental damage. This work studied the regulatory compliance and environmental protection of the four types of on-site wastewater disposal systems found on the Mississippi Gulf Coast; i.e., vegetative rock filter, subsurface drip irrigation, sprinkler irrigation, sand mound, by statistical techniques.

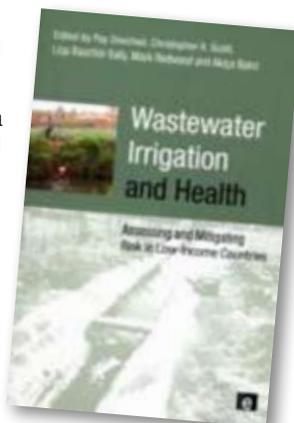
www.fishpond.com.au

Wastewater Irrigation and Health

Editors: Akica Bahri, Redwood Mark, Raschid-Sally Liqa. December 2009

This book represents the best, modern innovative thinking on the topic and symbolizes an important turning point in the history of wastewater reuse in irrigation as a major contributor to water and nutrient conservation, public health and welfare.

Booktopia.com
www.booktopia.com.au



Wastewater Microbiology 3rd edition

The Third Edition of this classic reference provides readers with concise, up-to-the-moment coverage of the role of microorganisms in water and wastewater treatment. By providing a solid foundation in microbiology, microbial growth, metabolism, and nutrient cycling, the text gives readers the tools they need to make critical decisions that affect public health, as well as the practical aspects of treatment, disinfection, water distribution, bioremediation, and water and wastewater reuse.

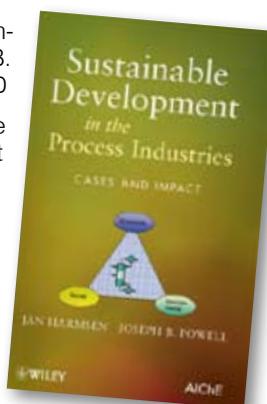
AWA Online bookshop
www.awa.asn.au

Sustainable Development in the Process Industries: Cases and Impact

Edited by J. Harnsen and Joseph B. Powell. March 2010

Because of the growing interest among petroleum, recycling, and other industries, sustainability is central to chemical engineers and students. Rather than presenting theories, the text provides examples and cases studies ranging from the petroleum industry to the water processing industry.

<http://au.wiley.com>



WSUD: Basic Procedures for Source Control of Stormwater

The Handbook draws on experience gained by staff of Urban Water Resources Centre, University of South Australia, through investigation, design, construction supervision and maintenance of over 30 projects ranging from research and individual site (house) installations to sub-division-scale facilities in SA and interstate, some operating for more than 10 years. The Handbook is endorsed by AWA and SIA and is being used by most councils in eastern Australia as a guidance manual for their staff.

AWA Online Bookshop
www.awa.asn.au

Adapting Agriculture to Climate Change: Preparing Australian Agriculture, Forestry and Fisheries for the Future use in next edition

Edited by Chris Stokes and Mark Howden. February 2010

More than 30 authors have contributed to this book, which moves beyond describing the causes and consequences of climate change to providing options for people to work towards adaptation action. Climate change implications and adaptation options are given for the key Australian primary industries of horticulture, forestry, grains, rice, sugarcane, cotton, viticulture, broadacre grazing, intensive livestock industries, marine fisheries, and aquaculture and water resources. Case studies demonstrate the options for each industry.

Adapting Agriculture to Climate Change summarises updated climate change scenarios for Australia with the latest climate science. It includes chapters on socio-economic and institutional considerations for adapting to climate change, greenhouse gas emissions sources and sinks, as well as risks and priorities for the future.

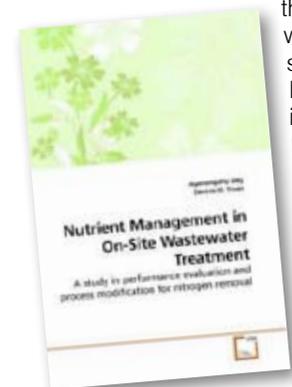
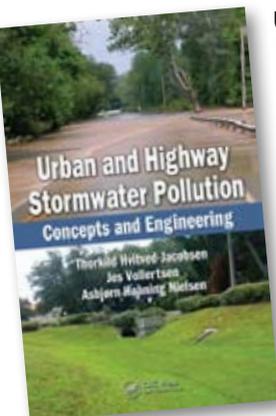
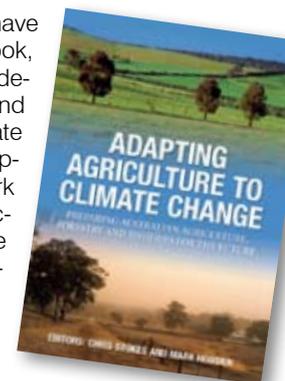
www.publish.csiro.au

Sports Fields: Design, Construction, and Maintenance, 2nd Edition use in next edition

Jim Puhalla, Jeffrey V. Krans, Michael Goatley

This expanded Second Edition includes new coverage on green initiatives, resource conservation, natural organic field maintenance, and artificial turf. Updated information on grasses, pesticides, fertilizers, equipment maintenance, and new technologies including irrigation with recycled water is also included.

<http://au.wiley.com>





Water savings harvest real growth

How does a business that relies on water reduce its consumption and yet grow its production at the same time?

Through research and delivery of initiatives that provide the greatest benefits, family owned and run Faceys nursery did just that and managed to crop its water use by over 45 per cent in the past year, even with production growing by 20 per cent in the same period.

The nursery took a step in the right direction more than 10 years ago when a recycling plant was installed. Having gone through a recent upgrade with the installation of a new pump and updated chlorine injection unit, the plant now recycles up to a massive 7,500 litres of water runoff per hour.

Owner Raelene Trimble comments, "Faceys understands Melbourne's water challenge and has taken steps to ensure that we use water efficiently. We will continue to investigate all possible measures across the site."

Faceys employs 20 full time staff who are trained in effective water use to maximise water recycling. Employee participation in water conservation techniques is important to the nursery, which recently celebrated 50 years of growing Australian native and exotic plants.

While Faceys produces up to 650,000 pots per year consisting of 1,500 varieties, approximately 80 per cent of the plants grown are produced in-house at their propagation facility, allowing Facey's greater management of water use and quality control.

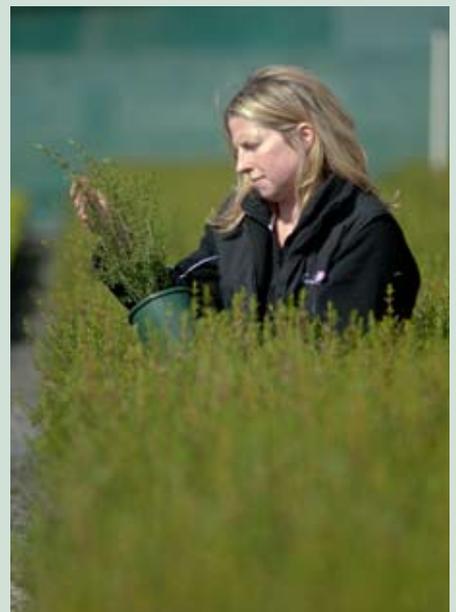
Faceys received funding assistance through a South East Water Business Rebate program, which assisted in the purchase of two irrigation collection tanks in September 2008. This allows Faceys to capture 100 per cent of its irrigation runoff from the main five acre block and has boosted its water storage capacity by 354,000 litres.

Since the installation of the rainwater tanks, savings have been in excess of five million litres per year and continue to rise.

Since the installation of the rainwater tanks, savings have been in excess of five million litres per year and continue to rise.

Faceys are currently retrofitting their irrigation system to improve efficiency, while also consolidating the plant stock varieties. Growing Australian natives, which are typically less water dependent, not only assists Faceys in reducing their water consumption, but also benefits those customers buying these varieties to conserve water in their homes.

Another initiative is the installation of a drip irrigation system in the stock pot area. Plans are currently underway to capture runoff from the south west corner of the nursery, which holds 130,000 pots.



With a variety of initiatives in place, employees supportive of the water conservation techniques and forward looking plans, Faceys is in control of its future. And with its primary business in plants, there's no denying that Faceys is a growing business. ●

Source: Reproduced from the March 2010 edition of South East Water's Aquabiz magazine for commercial customers. Visit southeastwater.com.au for more examples of innovative water conservation programs.

New tools to encourage the uptake of water recycling

The CEO of the National Water Commission, Mr Ken Matthews, and the Executive Director of the Water Services Association of Australia (WSAA), Mr Ross Young, recently released three new software tools to assist Australia's water managers to safely implement water recycling schemes.

Mr Matthews said, 'Water recycling is an important option in building a more reliable and diversified water supply portfolio for Australian cities and to meet the pressures of drought, climate variability and population growth.

'These new software tools will support the National Water Initiative's commitment to encourage re-use and recycling, by enabling practitioners to safely manage water recycling schemes.

'Uptake of the tools will help improve certainty in planning recycled water systems, provide clarity on the scientific evidence used to support recycling decisions and promote national consistency for both industry and regulators in managing critical water quality issues', said Mr Matthews.

Mr Young said, 'Australia is one of the world leaders in managing water quality for drinking and recycled water uses and these tools will assist planners, operators and regulators in improving and robustly managing potential water quality risks.

'There has been rapid increase in the volume of recycled water produced across Australia and each state and territory is now implementing recycling as an important component of their water supply portfolio.

'These tools will provide additional support to recycled water supply organisations ranging from smaller scale systems such as golf courses and council operated systems watering parks and ovals through to large utility-managed dual reticulation schemes', said Mr Young.

The tools have been developed to assist implementation of the Australian Guidelines for Water Recycling (AGWR) and comprise three software components:

- Requality– a self assessment, continuous improvement tool for urban water recyclers
- AquaSafe – an exposure and treatment technology performance database, and
- Web based user friendly guide – explains how to use the software tools to help implement the Australian Guidelines for Water Recycling.

The development of the tools was funded under the National Water Commission's Raising National Water Standards Program. •

Source: National Water Commission Media Release 18/5/2010. Further information can be found at www.nwc.gov.au or at www.wsaa.asn.au

Puyallup in Washington State leading US stormwater research

Last year Puyallup received \$1 million from the state Department of Ecology to create a Stormwater Technical Resource Centre, a testing and training centre for the latest in low-impact development.

"We get so much rain, this a logical place to study polluted runoff," said Sandy Howard, communications manager at the Ecology Department's Water Quality & Environmental Assessment programs. Eventually, the research will be located at the extension centre and at the UW Centre for Urban Waters, just completed on Tacoma's Thea Foss Waterway.

The Puyallup centre already has several full-scale working models of various low-impact development techniques, including permeable paving materials, rainwater collection cisterns and 16 rain gardens. The rain gardens are set up with monitoring instruments so, by using "synthetic rainfall," researchers will be

able to assess the effectiveness of various plants and soils in capturing and filtering stormwater containing different pollutants.

"We are increasingly finding that it's more difficult for industry and businesses like boat yards to meet pollution standards," Moore said. "We'd like to provide those folks with a technical resource centre they could call and say, 'I have a zinc problem. Where might it be coming from?' or 'I have a copper problem. What can I do?'" •

Read the full story at: The News Tribune 2/5/2010
www.thenewstribune.com



Water Minister Phil Costa and Kristina Keneally with one of the plant's hand-installed reverse osmosis filters

Sydney's biggest recycled water scheme on track

One of the largest recycled water schemes in Australia is on schedule to begin operations at St Marys in September. The \$250 million Replacement Flows Project is 90 per cent complete, according to government.

It is expected to produce 18 billion litres of recycled water a year (equivalent to 72,000 households).

This recycled water will be released to the Hawkesbury-Nepean River and replace current releases from Warragamba Dam.

This plant will provide a massive boost to Sydney's recycled water supply

Premier Kristina Keneally and Water Minister Phil Costa inspected the final stage of construction earlier this month. "This plant will provide a massive boost to Sydney's recycled water supply," Ms Keneally said.

"Recycled water is an important part of our future plans for Sydney's water network, along with desalination and more efficient water use."

She said that by 2015 recycled water is expected to meet roughly 12 per cent of Sydney's water needs.

"Although it will be treated for an extremely high quality, it will not be used for drinking water," she said.

Mr Costa said the aim is to improve the sustainability and reliability of water supplies. "Treated wastewater ... will be purified at St Marys before being piped to Penrith and released into the Hawkesbury-Nepean River below Penrith weir," he said. •

Read the full story at: Mt Druid St Mary's Standard 2/5/2010
<http://mt-druid-standard.whereilive.com.au>



EVENTS diary dates

Australia

Irrigation Australia Expo and Conference

8-10 June 2010, Darling Harbour, Sydney

The only conference event that involves the entire value chain of the irrigation industry, it is a unique opportunity for all sectors of the industry to interact, exchange information and hear about the latest developments in the industry. From irrigators to water supply authorities, from system designers to suppliers, from manufacturers to researchers, they will all be there. There is a full program with concurrent streams to ensure all interests are fully covered. If you are involved in the irrigation industry, you should be there.

For more information:

www.irrigationaustralia.com.au



IWA Study Tour 2010 – integrated water supply solutions

Hosted by Atura, the IWA (Institute of Water Administration) will be conducting a study tour on Integrated Water Supply Solutions in June 2010. The study tour will investigate the integration of a diversity of water sources when managing regional and urban water supplies into the future; Greywater, stormwater, aquifer water, desalinated water, recycled water, reservoir water and rainwater. The tour will begin in Melbourne and travel to Adelaide, Perth and Darwin before finishing up in Singapore for International Water Week.

For more information:

www.recycledwater.com.au

Water Recycling: Design, Assessment and Optimisation

21-23 July 2010

This course will provide a comprehensive introduction to the key issues associated with water recycling. You will learn the underlying principles and logic behind the Australian Guidelines for Water Recycling (AGWR), how the AGWR can be applied to a range of recycled water schemes, how to identify opportunities to improve the efficiency of water recycling operations, how to rationalise sampling and water quality analyses, how to assess chemical and microbial risks, and the state-of-the-art in water recycling technology and practice in Australia and overseas.

For more information:

www.irrigationaustralia.com.au



Odours Speciality Conference

24-25 August 2010, Sydney

It is a long time since AWA convened a specialist Conference on Odours but the subject gets more difficult to ignore by the day. "It smells" is the most frequent complaint that water industry professionals hear from the public and even their own colleagues.

This Conference will be of special interest to Wastewater treatment engineers, olfactory specialists and scientists, chemical and industrial engineers, food, feed lot and petrochemical industry managers.

For more information or download flyer here: www.awa.asn.au

Water Reuse and Desalination: Water Scarcity Solutions for the 21st Century

15-17 November 2010, Sydney NSW

Call for abstracts for this conference are now open. This specialty conference will focus on practical aspects of water reuse and desalination as well as relevant research being conducted in the U.S. and Australia. The conference theme is Water Reuse and Desalination: Water Scarcity Solutions for the 21st Century. The conference will feature a blue ribbon assemblage of world class experts on these two vital components of the water supply equation.

For more information:

www.watereuse.org

International



International Water Association

IWA Specialist Conference Water and Wastewater Treatment Plants in Towns and Communities of the

XXI Century: Technologies, Design and Operation

2-4 June 2010, International Exhibition Centre "Crocus Expo", Moscow, Russia

The conference programme will bring together water researchers and offer a wide range of multidisciplinary presentations on drinking water and wastewater. Participants will have ample opportunities to network with other professionals and exchange knowledge.

For more information:

<http://2010.sibico.com>



Singapore International Water Week

28 June – 2 July 2010, Singapore

Themed Sustainable Cities: Clean and Affordable Water, the Singapore International Water Week 2010 will focus on the need for efficiency and cost effective solutions to address water problems amidst a constantly changing environment. More than half of the earth's population already live in cities, and the trend towards urbanisation is accelerating. As urbanisation continues to gain momentum, there is an urgency to address the water shortage issues before the situation deteriorates further and hampers economic growth.

For more information:

www.siww.com.sg



The International Water Conference

24-28 October 2010, San Antonio Texas USA

The Engineer's Society of Western Pennsylvania presents The International Water Conference®. The IWC has always been a strong educational conference. Attendees come to learn about the latest applications available in the industrial water treatment industry, educate themselves in current technology and applications through attendance in IWC workshops, and network heavily with their peers active in water treatment.

For more information:

<http://www.eswp.com>

IWA World Water Congress and Exhibition: Water - the lifeblood of the world

19-24 September 2010, Montreal Canada

The IWA World Water Congress & Exhibition, the Association's main biennial event, is a valuable and unique opportunity for the community of world-leading water professionals to meet, exchange ideas, explore the state of the art and debate the key issues underlying the science and practice of water. It is also where the entire water community congregates and in particular IWA specialist groups showcase their work and plan for future activities.

For more information see:

www.iwa2010montreal.org/

National

Water shortage threatens big Australia

Federal Population Minister Tony Burke says recent water shortages in parts of Australia are a key reason why the country needs a national population policy. Mr Burke, the first minister to hold the newly created portfolio, has been given 12 months to develop a policy to make sure Australia's infrastructure can cope with an expanding population.

Mr Burke says he will consider how much water Australia would need should the population increase and will look at desalination plants, new dams and recycled water.

Via ABC News Online 6/4/2010
www.abc.net.au

South Australia

Waste water scheme raises community ire

A multi-million dollar scheme to overcome Cowell's antiquated water waste systems is raising concerns for residents. The District Council of Franklin Harbour plans to introduce district-wide waste water management infrastructure in early 2011. Council CEO Bruce Francis says local septic tanks aren't well maintained and don't operate as well as they should. However, some residents say individual domestic water reuse systems are more beneficial than a community-wide scheme.

Source: Eyre Peninsula Tribune 28/4/2010
www.eyretribune.com.au

Victoria

Geelong casting plant upgrade for more recycling

Ford President Marin Burela says it is embarking on a \$20 million upgrade to its casting factory and will hire 50 new workers.

The plant will make around 1 million brake components a year under a new agreement with Bosch Chassis systems. The plant will also make engine blocks for the new FG Falcon and the new Territory diesel.

Ford will save money by cutting down-time for its furnaces and increasing the use of recycled stormwater to around 20 per cent of all the water used at the plant. The plant will also increase the use of recycled materials and will sell surplus sand, reducing landfill requirements.

Via ABC News 15/4/2010
www.abc.net.au

Water boost for showgrounds

A recycled water project to rejuvenate the Prince of Wales Showgrounds has been launched by Federal Member for Bendigo Steve Gibbons. The project forms part of the federal government's push to improve water use on public facilities and improve protection against drought and would give the showgrounds a grassed arena all year round using recycled water.

The society has built a pipeline from the Parmalat milk processing plant, bringing surplus water to the showgrounds as needed. Large storage tanks that are connected to the Exhibition Centre building also catch rainwater, boosting the supply. The society has also invested in a mobile irrigator for more even watering.

The upgraded supply will not only save on annual water costs, but also improve the facilities for events including the annual agricultural show in October, which has suffered from dry conditions for several years.

Source: Bendigo Advertiser 23/4/2010
www.bendigoadvertiser.com.au



Water from toilet waste could be piped to Murray River

Making better use of water that is flushed down your toilet or dumped by a factory is the aim of a new plan unveiled by North East Water in Victoria yesterday. "The wastewater strategy is all about capturing the value of the water we receive," North East Water senior engineer strategic planning Charlie Bird said.

The strategy suggests reclaimed water can be returned to streams, used for irrigation, for industrial use and third-pipe schemes in residential developments.

Mr Bird said the position of the Wodonga plant on the western edge of the city allowed some of its reclaimed water to be returned to the nearby Murray River and increase the volume of water for downstream communities.

North East Water has identified Wodonga's wastewater as being best reused for industrial and urban park irrigation.

Source: Border Mail News 28/4/2010
www.bordermail.com.au

New South Wales

Old building becomes new green skyscraper for Sydney

Sustainable buildings are becoming a priority for investors and tenants, according to a new survey by Colliers International. In the coming years, all new buildings will comply with all sustainable regulations but currently many owners of older properties face huge bills in updating the sites.

The co-owners of the 1 Bligh Street building, Dexus, and its wholesale office fund, DWPF and Cbus Property, say the site will be the next green skyscraper to open in Sydney. Construction is under way on a recycled treatment plant to treat waste water for use in the building's toilets and cooling towers.

Via SMH News Online 17/4/10
www.smh.com.au

Changing Illawarra's image from industrial to innovative

Striking a balance between development and protecting the city's natural assets and heritage could be the key to giving Wollongong an identity that sets it apart from other major cities.

"Illawarra Coal is looking at water recycling and BlueScope Steel has its cogeneration plant project," Ms Bird said.

"It is not only about new industries but also being a shining light for better and more environmentally friendly technologies in old industries."

Source: The Illawarra Mercury 19 April 2010

www.illawarramercury.com.au

Tweed Shire looks to diversify water portfolio, considers reuse

Tweed Shire Council (TSC) is facing new calls to investigate future water supply options including harvesting run-off in stormwater pipes and recycling. The push comes from the majority of members appointed to the council's own community working group, who felt three of the four options they were asked to look at were not viable.

"We would like to see the proposed independent review of the demand management strategy evaluate the potential for additional water saving measures such as mandatory rainwater tanks, stormwater harvesting and recycled water before committing to the raising of Clarrie Hall Dam.

Source: Tweed News
www.tweednews.com.au

Plant turns sewage to electricity

A hydro-electric plant at North Head Sewage Treatment Plant, using sewage rather than water to make electricity, is almost complete. The hydro project is the first in Australia to generate power from treated sewage which is dropped down a shaft from a height of 60m to turn electricity turbines.

A spokeswoman for Sydney Water said the hydro-electric plant will produce enough electricity to power almost 1000 homes for a year. The system is expected to be complete next month. The projects are part of a \$150 million upgrade to increase the use of recycled water on site to 95 per cent.

Source: Manly Daily 13/4/10
<http://manly-daily.wherelive.com.au>

Queensland

Grant helps Sunshine Coast lead way in recycling education

A Federal Government grant of \$180,000 under the Regional and Local Community Infrastructure Program is helping the Sunshine Coast region lead the way in organic waste and water recycling.

The grant will boost facilities at council's Environmental Education Centre in Nambour by helping to construct a purpose-built Organic Recycling Education Pod.

"The Organic Recycling Education Pod will use sustainable designs and strategies to demonstrate best practice to the community. Design features will include a rainwater collection system, sustainable building materials wherever possible, and an onsite wastewater treatment and irrigation system."

Source: My Sunshine Coast
www.mysunshinecoast.com.au

Rainwater harvesting schemes 'add to water security'

A report by water expert Dr Peter Coombes has found a plan to harvest rainwater from the roofs of homes in a new estate on Queensland's Sunshine Coast will contribute up to 100 million litres to the state's water grid each year.

Councillor Debbie Blumel says if the innovative water recycling scheme was mandatory in all new housing estates, there would be no need to build desalination plants or dams in the future.

"If a similar scheme to Coolum Ridges [is] rolled out across the coast, there is absolutely no need for dams or desalination plants to augment the water supply," she said. "In fact, we believe that these schemes add to the water security of the region because they produce more water than they can use."

Via ABC News Online 20/4/2010
www.abc.net.au



Parklands push Gold Coast's water sensitive sustainability cred

Broadwater Parklands at Southport on Queensland's Gold Coast is setting the standard for sustainable landscapes by implementing energy efficiency and water sensitive urban design initiatives.

Associate director of AECOM's Design + Planning team Josh Hinwood said the design embodies a commitment to ecosystem preservation that will propel the Gold Coast into the next evolution of environmentally sustainable design (ESD).

As part of the parklands' water sensitive urban design, run-off from a significant portion of the Southport CBD is treated in a number of vegetated stormwater treatment systems including a central urban wetland and bioretention systems before its discharge into the Broadwater.

Source: Architecture & Design 7/4/2010
www.architectureanddesign.com.au

Green is the new colour for Blackwater

Local Government Minister Desley Boyle said Blackwater residents would soon be enjoying greener parks and gardens following the completion of an upgrade to the Blackwater Wastewater Treatment Plant.

"Sporting clubs, parks and the local golf course will all be looking a little greener with the extra water. Ms Boyle said the upgrade would lift the quality of outflow from the Blackwater Wastewater Treatment Plant to Class A standard – meaning it can be used for irrigation purposes. "This is a win win for everyone. It keeps the town's sporting fields green and it reduces demand on the community's drinkable water supply," she said.

Source: Press release from The Honourable Desley Boyle 8/4/2010
<http://statements.cabinet.qld.gov.au>

International News

Waste or resource is a matter of perspective!

A future in which wastewater treatment plants were renamed 'resource recovery centres' was outlined recently by Dan Woltering, the director of research for the Water Environment Research Federation (WERF). Woltering was making a presentation to a committee

of the US National Resource Council (NRC) on water reuse earlier this year in which he pointed out that in the ideal future, no one would understand the word 'wastewater', since all water would be reused. In addition, energy would be harvested from water and waste, nutrients would be recycled and salts would be recovered.

Woltering emphasized several of those priorities including:

- The need for full-scale demonstrations of reuse technologies under actual use conditions;
- Increased emphasis on reuse of stormwater and greywater;
- Cost and energy efficient options that can be adapted to local situations; and
- An overall shift to perceive wastewater is a resource with reuse research directed toward how best to mine it for energy, nutrients, metals, as well as for the recycled water content.

Source: Desalination Biz 5/2/2010
www.desalination.biz

Kapiti Coast, NZ potable reduction strategy

The Kapiti Coast District Council proposes making interest-free loans available to rate-payers who install approved water conservation solutions which reduce the use of the Council's potable water supply.

"This scheme is part of the Council's strategy to reduce water consumption to 400 litres per person per day (lppd) over the next five years," Mayor Jenny Rowan said today.

Source: Wellington Scoop 1/4/2010
<http://wellington.scoop.co.nz>

Japan's Teijin to collaborate with Yixing, China in wastewater treatment

Teijin Ltd announced today that it has signed a business collaboration agreement with Yixing City Water Works & Construction Investment Co., Ltd., which manages water supply and sewage systems for the city of Yixing, Jiangsu Province, to co-develop wastewater treatment systems for rural communities.

A small pilot system will be tested in the village of Dagang this June, aiming at full-scale operation sometime during fiscal 2010 (ends March 31, 2011). The system incorporates Teijin's Multi-stage Activated Biological Process (MSABP) wastewater treatment technology and Membrane-Tec's membrane filtration technology. Moreover, the system helps to reduce CO2 emissions that otherwise would have been generated by transporting and incinerating the sludge.

As part of its Green Chemistry businesses for the creation of environmentally friendly technologies, Teijin is developing solutions for wastewater treatment and recycling.

Source: Market Watch 14/4/2010
www.marketwatch.com

Cutting the cost of recycled water in Hong Kong

To develop new water sources the department has also introduced facilities for the reuse of greywater and rainwater harvesting in some public works projects, such as the redevelopment of Lo Wu Correctional Institution and the open space on Po Kong Village Road, Wong Tai Sin. She said the Dongjiang water supply under the current arrangement together with local sources is sufficient to cope with the demand for potable water up to the year 2030.

Source: [Infrastructure and Logistics News Hong Kong 21/4/2010](#)
www.news.gov.hk

Where wastewater flows, food could grow.

Support was unanimous for the proposed North Valley Regional Recycled Water Project – which would pipe treated wastewater from the Cities of Turlock and Modesto in California to the water-starved farmers of Westside's Del Puerto Irrigation District

In recent years, the district has seen their water allocations become completely unreliable due to restrictions on pumping water through the Delta, dropping to as low as 5 percent of requested flows this year.

The regional effort would provide farmers in the Del Puerto Irrigation District with as much as 31,000 acre-feet of water each year and generate \$35 million in annual income for Del Puerto farmers. The estimated \$180 million project could potentially include federal funding for the City of Turlock's planned \$27 million Harding Drain Bypass pipeline, which has long been seen as a necessary improvement to the city's wastewater treatment system to discharge treated wastewater directly into the San Joaquin River. Turlock would also earn a nominal fee for selling the water to needy farmers.

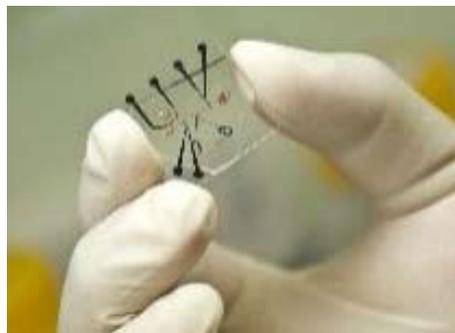
Source: [Turlock Journal 27/4/2010](#)
<http://www.turlockjournal.com>

Innovation: Micro-desalination device unveiled by scientists

Scientists have developed a small desalination device the size of a postage stamp which they claim can produce water with 99% purity. Each device would only process small amounts of water, but researchers believe that a large number of them - 1600 units - could produce around 15 litres of water per hour.

It is hoped that the portable desalination units would have many applications in disaster relief and emergency efforts as well as providing clean water in remote and small villages.

Source: [Water World 25/3/2010](#)
www.waterworld.com



Stadium eases the strain of the half-time flush

Foxborough, Massachusetts, a town of approximately 16,000 people could not support the water demands for a new stadium facility without using a wastewater recycling system.

The new water recycling facility treats an average of 90,000 gallons per day and saves an estimated 12 million gallons of water per year, easing the strain on the town's potable water supplies and infrastructure. The system returns treated wastewater to both facilities for flushing toilets, and consistently meets stringent limits for water use. Also, the system is designed to produce a lower volume of sludge than traditional wastewater treatment plants. All told, Gillette Stadium serves as a model for "green" building in the 21st century.

Source: [Water World](#)
www.waterworld.com



Using recycled water to protect against seawater intrusion

More than a decade in the works, the Salinas Valley Water Project made its public debut Monday, capping years of legal battles and setbacks for the plan designed to stop saltwater from seeping into the area's water basin due to groundwater pumping for farming.

The diversion facility, situated on the river about five miles upstream from the ocean, includes an inflatable rubber dam and pump station to withdraw river water as needed, a pipeline to an 80-acre recycled water storage pond, and filtration and chlorination facilities. The river water will be combined with recycled water for irrigation on about 12,000 acres of farmland surrounding Castroville, where property owners will pay about \$66 per 1 acre-foot (1.233ML) for the water. Recycled water already is being treated and used for farmland irrigation in the area as part of the Castroville Seawater Intrusion Program.

Source: [Monterey Herald 5/5/2010](#)
www.montereyherald.com

Water crisis sparks surge in desalination

The world's unquenchable thirst for clean water drove a record increase in the desalination of seawater and reuse of sewage last year, new figures reveal, as water-stressed countries around the world try to build their way out of trouble.

Read the full story online at the [Guardian UK](#)
www.guardian.co.uk