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Biosolids fertile ground for farmers

Western Water recently showcased biosolids research being conducted at its Melton Recycled Water Plant, giving farmers and landowners a first-hand look at canola and oat crops grown using the dried and treated solids resulting from the sewage treatment process.

Made possible by a Smart Water Fund grant, the joint Western Water and RMIT University research program aims to encourage biosolids use and find markets for biosolids products in Victoria.

Developing sustainable markets for water recycling by-products is key to their successful use. Regional agribusiness representatives, organic waste experts and industry regulators also toured the site.

"Treated liquid sludge generated at the plant is currently spread on the ground for disposal in a controlled process, but we've been examining alternative uses," explains William Rajendram, environmental engineer at Western Water.

"Although we already recycle and reuse 100 per cent of our water, we are building a plant to remove even more water from the sludge."

The new process, called dewatering, will further treat biosolids and result in a product that can be used as a fertiliser and soil improver.

RMIT postgraduate student Firew Beshah, under the guidance of supervisors Dr Nichola Porter, Associate Professor Barry Meehan and Associate Professor Roger Wrigely, is conducting trials to determine the best application rate for biosolids.

"The oats and canola fertilised using the dewatered biosolids alone are growing taller and more rapidly than the other crops," says Dr Porter. "The crops also benefit from high application rates – the more biosolids you use, the taller the plants grow."

The Melton Recycled Water Plant crops will be used as cattle fodder or to produce ethanol.



→ From left, PhD student Firew Beshah, Nichola Porter and William Rajendram inspect canola grown using biosolids.

Not down the drain

The Smart Water Fund and the Alternative Technology Association (ATA) have launched a water saving guide book with recommendations on how to reduce drinking water use in and around the home by 96 per cent.

The book "Water not down the drain: a guide to using rainwater and greywater at home", provides homeowners with a practical step by step guide to creating water smart homes.

The book was written by Stuart McQuire, who lives with his family in 'The West Brunswick Sustainable House', a family home that demonstrates the effectiveness of using rainwater and greywater as a substitution for drinking water.

Using the recommendations outlined in the book, the McQuire family has reduced the use of drinking water in their home by 96 per cent. They currently use less than 20 litres per day.

According to McQuire, using rainwater and greywater is an easy and effective method for homeowners to reduce their reliance on precious drinking water for non consumptive uses.

"The book shares what we as a family have learned and gives advice on water-saving options, so that readers can make the most of rainwater and greywater.

"In our home we have shown that sustainable water practices can be implemented successfully, even during periods of drought, without the need for costly renovation or rebuilding," Mr McQuire said.

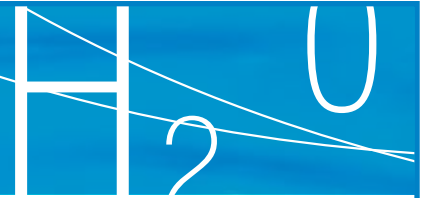
In launching the book, Smart Water Fund spokesperson and South East Water acting chief executive officer Kate Vinot congratulated Mr McQuire on his commitment to spreading the sustainability message.

"The Smart Water Fund is proud to have helped Mr McQuire share his knowledge of sustainable water use in an easy to read format," Ms Vinot said.

The production of the book was funded through a Smart Water Fund Round 4 grant and was designed, edited and published by the Alternative Technology Association.

Water not down the drain is available for purchase from www.notdownthedrain.org.au

Green public spaces to benefit from recycled water



A practical guide on how to use recycled water to irrigate Melbourne's parks, gardens and turf sporting clubs has been produced by agricultural communications and consulting company Arris.

Using a grant from the Smart Water Fund, Arris produced the guide to highlight Victorian guidelines for water recycling and address specific issues for the amenity horticulture industry. The industry covers turf industries such as golf, sports fields, racetracks, public parks, gardens and nurseries.

Dr Daryl Stevens, principal scientist at Arris, said the guide was based on a survey of recreation and open space managers to identify the information to be covered in the guidelines.

"We found managers needed a resource on occupational health and safety, public health and safety, managing salinity and sodicity, nutrient balances and budgets and monitoring horticultural and environmental performance," Dr Stevens said.

He said the guide had been drafted and reviewed by experts in the horticulture industry. It was recently road tested at a one-day Western Water workshop that trained managers on the practical aspects of using recycled water to irrigate public spaces.

Around eighty farmers and managers of recreation reserves and golf courses attended the workshop and provided input to the guide. Due to its popularity, the workshop will be repeated in 2008.

Dr Stevens said the guide was now being finalised for publication early next year and it would also be available Australia-wide through the website, www.recycledwater.com.au

For further information about the guidelines or to provide input, contact Dr Daryl Stevens at dstevens@arris.com.au

For those that would like to register for the workshops next year, please contact Arris on **03 9421 1701**.

→ Recycled water expert and managing director of Arris, Jim Kelly, demonstrates how easy and cost effective it is to measure how dispersive soils are.

photo by Anna May, Western Water

Water smart motels

The Hotel Motel Accommodation Association Victoria (HMAA Victoria) has named the eight regional motels participating in its water wise audit and retrofit program.

The \$83,000 Smart Water Fund project will demonstrate the benefits of implementing simple water saving technology in motels.

“The tourism industry recognises the importance of reducing water consumption in regional areas,” said HMAA Victoria Chair, Ricardo Krauskopf.

“The project will provide solid evidence to Victoria’s 500 regional accommodation operators that saving water can impact the bottom line, as well as the environment.”

Guests will be surveyed to assess the impact of water saving technology on their experience. The information will be combined with water and cost saving results to promote best practice water saving initiatives.

“We have completed water efficiency audits and found small changes can have a big impact on water bills. At Camperdown’s Manifold Motor Inn, installing 56 flow control valves, 15 showerheads and 14 new toilets should reduce annual water consumption by 29 per cent and save the operators more than \$1,200 a year.”

The installation of 18 new showerheads in Cowes’ Banfields Motel will save more than \$3,300 per year in water and energy costs and reduce water consumption by nearly a quarter.

The other participating properties are The Courtyard Motor Inn, Shepparton; Quest Geelong; Ambassador Motor Inn, Ballarat; Comfort Inn, Foster; Best Western Stagecoach Motel, Wodonga; and the Farnham Court Motel in Morwell.

Film students make a splash



Budding filmmakers from ten Victorian schools have put water conservation in the spotlight, creating a series of short films to promote being water wise.

Participating in the Department of Education’s Splash project, students produced three-minute films with water conservation and local water environment projects as their theme.

Jill Reading, project manager and e-learning consultant with the Department’s Western Metropolitan Region, said the short films were showcased at a film screening for 400 people in October.

“It was a real celebration of all the films that were created and the kids had some quite funny approaches to how they look at water conservation.

“They were really creative and some even produced soundtracks and animation to get their message across. It’s a positive way to encourage them to care about issues like the environment.”

Reading said the films would be promoted in other schools and a selection translated into four different languages.

The project, supported by a Smart Water Fund grant, builds on the successful Re@ct program teaching filmmaking skills to students in years five to 10 from Melbourne’s western suburbs.

Visit the Smart Water Fund website to download the DVD compilation. www.smartwater.com.au



Racing Victoria backs water saving winner

Racing Victoria has backed a winner in the water saving stakes, successfully trialling and installing a synthetic waterless training track at the Bendigo Racecourse.

The track, developed in-house by the organisation, requires no water and uses a mixture of sand, polymer fibre and wax binder to replicate conditions similar to training on wet beach sand.

Project Manager Hamish Scott says the previous sand track required daily watering to maintain its condition at a safe level for horse training and the volume of water needed was unsustainable given Bendigo’s severe water restrictions.

“We were using up to 33,000 litres of potable water each day to maintain the track, we’ve reduced that to zero with this project,” Scott said.

“The track uses no water at all and it’s been a huge success in terms of supporting the on-going viability of training at Bendigo.”

The training track is one of three surfaces at Bendigo that provides infrastructure for the training of thoroughbreds in the area. The other surfaces are a slow sand track and a grass track that cannot be maintained in optimum condition because of water restrictions.

“The racing industry supports the livelihood of a significant number of people and businesses across Victoria, and Bendigo isn’t the only racetrack whose training facilities have been impacted by the lack of water.

“We had to come up with a solution to keep training facilities operating and in good form and the Bendigo trial has been fantastic.”

Prepared at the local asphalt batching plant, the synthetic surface combines 90 per cent local sand with imported fibre and wax binder. A local paving contractor was used to lay the track.

Scott said maintenance of the synthetic track requires weekly rolling only, replacing the daily raking and rolling of the old track.

“As well as the maintenance and water saving benefits, the project came in under budget and trainers have told us it’s actually a better running surface for the horses, which means there are fewer training-related injuries, so we’re really delighted with the results.”

“We’re confident the project and its benefits can be replicated at most equine training centres across Australia.

“The fact that this has worked and been so well received by riders, trainers, owners and the Club means we can look at future conversions of water hungry tracks throughout Victoria and southern Australia,” Mr Scott said.

For more information, contact project manager Hamish Scott on **(03) 9258 4805**.

Tap into a wealth of information with the Smart Water Fund

The Smart Water Fund has supported over 120 projects. All of them will provide unique learnings on innovative water conservation, recycling and biosolid management solutions.

Newsletters, case studies and comprehensive project information on a wide range of innovative sustainable water use projects are available from the Smart Water Fund Knowledge Bank at

www.smartwater.com.au

Case studies are available for:

- Sporting Facilities
- Waste Water Treatment
- Building and Renovating
- Educational Programs
- Food and Beverage Manufacturing

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Engineering new uses for biosolids

Swinburne University of Technology's Centre for Sustainable Infrastructure (CSI) has been awarded a \$273,000 Smart Water Fund grant to conduct ground-breaking research into the sustainable use of biosolids as stabilised fill for road embankments.

The Round Four project has been examining the suitability of using biosolids - the products left over from the domestic wastewater treatment process - as an embankment fill for roads.

CSI senior lecturer and project leader Dr A. Arulrajah said his team was looking at whether mixing this waste material with other substances could make biosolids stable enough for use as embankment fill.

"There hasn't been much work done on the use of biosolids in this kind of engineering application," said Dr Arulrajah.

"EPA Victoria has identified that biosolids should be investigated as a beneficial, sustainable resource rather than being treated as a waste material that requires disposal, so we're conducting field testing on biosolids stockpiles at the Western Treatment Plant and laboratory testing into its suitability as stabilised fill."

The team has completed the field testing phase and, whilst there are a number of milestones to reach before the final report, they are excited by the potential applications of the waste product.

"There could be spin-off effects, for example, treatment plants sometimes require haulage roads to be built. The biosolids could be used for construction of these roads within the treatment plant.

"All these materials would alternatively end up in landfill or not be used in a sustainable manner. We're looking at optimising them and using them in engineering applications. We all have to broaden our horizons and go into unknown territories like this."

The project is scheduled for completion in November 2009.

For more information

contact Dr Arulrajah on **03 9214 5741** or

email arulrajah@swin.edu.au.



→ Testing of the biosolids stockpile area at the Western Treatment Plant.

"All these materials would alternatively end up in landfill or not be used in a sustainable manner. We're looking at optimising them and using them in engineering applications."

Dr Arulrajah
CSI senior lecturer & project leader



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Securing our water future together