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The Official Journal of Irrigation Australia

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CHAIRMAN'S MESSAGE

When the IAL had its first AGM in 2008, it held a forum with the CRC for Irrigation Futures (CRC-IF) and the National Program for Sustainable Irrigation (NPSI), to discuss priorities for research and development in irrigation. From this has come a wide reaching review which should be completed in the next couple of months. Through a sad twist of timing, both the CRC-IF and NPSI wind up this year, leaving the IAL the only member of the trio likely to see its results implemented. The 2008 forum concluded that success was being hampered by the current funding model and a failure to work collaboratively.

So why is R&D important to IAL? The answer is simple; the research completed today generates the practices and products that drive the industry forward in the future. Without R&D, companies (and nations) stagnate and lose their competitive advantage. Never has this been truer than it is for Australia today – with a growing local and world population, climate change and reduced water availability driving a need to continually improve the productivity of our irrigated land.

There are three main sources of irrigation R&D funding in Australia: primary production levies (administered through research and development corporations and the Commonwealth Government), government funding and private investment.

Although increasing private sector contribution was a key aim of the CRC structure, it has not been overly successful for irrigation. One factor is that most of our major suppliers are owned by international companies and there is little reason to fund R&D in Australia. There is also the question of competition. I can think of at least four recent R&D projects that developed products that compete against those already available, and others where the opportunity to develop a commercial product was cannibalised by the availability of a heavily subsidised product through the agencies that developed them.

The Productivity Commission is currently reviewing primary industries research. A key issue with irrigation research and funding has always been that few primary producers identify themselves as irrigators, rather they see themselves as growers of particular commodities. This lack of focus has been mirrored in the RDC structure, which locks research in to strict functional silos with little interaction and information sharing. Under the 2009 changes to the R&D structure, the government announced the creation of seven new cross-sectoral groups. One of these is for Water Use in Agriculture and it is this group which holds the key to the success of irrigation R&D. However, for it to succeed it must be able to tap into the funds preciously held by the fourteen industry sectors.

It is often said that for every dollar spent on product research, you need ten for development and one hundred for commercialisation. In practice, the multiplier is more like 1:2:10, but the lesson is none the less important because it provides some insight into why in irrigation (and agriculture in general) our success has been so limited. The parallel to commercialisation in the non-commercial sector is extension, our main tool for adoption. Although we have a flourishing R&D industry, the past 20 years have seen a progressive reduction in spending on extension. So is the 10- to 20-year lag cited between invention and adoption, any real surprise?

In an ideal marketplace, irrigators would embrace new products and services, happy in the knowledge that the money they spend will come back many times over through improved yields and profits. In practice, this is hampered by the reality



that maximum profit is not the main motivator, by markets where producers have no control over the price they gain for their product, and where the premium for quality produce is often lower than the incremental cost of production. If we accept that the role of government is to intervene to overcome market failures, this surely represents a key opportunity for action.

As a leader in the irrigation industry, it is vital that IAL has a say in future funding for RDEA (research, development, extension and adoption). But the best way to gain a legitimate voice is to go to the table with a meaningful industry contribution. We do this with our industry development program (which helps fund our IDOs) and need to now look at how we achieve the same with RDEA.

The sure fire way to increase industry contribution to R&D is to ensure that it is seen as providing real benefit to irrigators and to our members. That means not just a more rigorous approach to assessing R&D applications, it means reviewing them regularly during the project to ensure the promised gains are delivered. It means bringing in industry partners early in the process rather than at the end and giving businesses the chance to turn ideas into commercial products. It also means creating a new model for extension. This is the most critical step and the area where we can help the most.

In the short term, funding needs to be made available to build a network of local consultants, whose role it is to remove the barriers to adoption. These people need to be embedded in the local community and be funded for the long term. They must work closely with irrigators on scanning the R&D (and product) sector for worthwhile innovations and working them in with local practices. IAL is the organisation best placed to identify and train these consultants. In the short term they need to be externally funded, but in the long term, they will be self funded, with irrigators confident that the price paid for services, comes back many times over in increased productivity and improved environmental stewardship. We may even turn a market failure into a financial success.

Peter Toome
IAL Board Chairman

FROM THE EDITOR

I attended my first Irrigation Australia Conference and Exhibition in 1998. Twelve years later, the irrigation industry is a much more grown up and different entity. There will be many examples of how the industry has changed on show at the industry's huge biennial do – the variety of products, the influence of digital technology and more innovative manufacturing methods, the maturing of the theory and practice of irrigation, and the changes to policies and in community attitudes to water management and irrigation. Of course some things stay the same, like the feeling of camaraderie and the people, many of whom have been in the industry since before I attended my first conference.

This same growing up and maturing is also reflected in the journal. If we look at an issue from 1998 and compare it with what we are publishing today the change is impressive. I think it is a better read and it deals with the many technical and policy issues facing irrigation today in a more comprehensive way.

So, what is in the journal this issue?

The first thing you will notice is that it is a lot bigger than normal. The reason for this is that, as usual, we have included a catalogue to the Conference and Exhibition. Even if you can't get to the event, the catalogue is a handy reference to the industry's suppliers and service providers and the range of irrigation products available in Australia.

We haven't short changed our readers in terms of content in this edition either.

You will find all the regular columns. Anne-Maree Boland and Charles Thompson from the HAL Water Initiative have put together an article about management options for irrigators. While there are lots of options, Anne-Maree and Charles deal with three, which could be summarised as up size, upgrade or sell up. They tackle the options in a very systematic way.

Ben Wolfram from Storm Consulting has written an article for our urban technology column on a major project to capture storm water and use it to irrigate a park in metropolitan Melbourne. Ben makes the point that innovative solutions like this are necessary now as a result of prolonged drought and increasing competition for potable water.

We have a couple of articles from the National Program for Sustainable Irrigation describing recent research into drip irrigation and irrigation of citrus. One of the interesting findings is that it is our soils have a naturally poor structure at depth; drip irrigation could be made even more efficient



by addressing this naturally poor structure, which is made worse by compaction under tractor wheels.

In our Up Close article we talk to Terry O'Connor, CEO of Irrigear. Terry is one of the familiar faces we see at irrigation events around the country. But that isn't going to be for much longer as he has decided to call it quits and stop for a while and smell the roses. It's a well deserved break as he has spent over a decade guiding the growth of the Irrigear group.

Tim Gilbert from IAL has been pretty busy on the computer and has written three articles, all of which are very relevant to members. The first is the IAL response to the recently released Productivity Commission report on market mechanisms for recovering water in the Murray-Darling Basin. In other articles, Tim outlines IAL activities in training and in representing the interests of our urban members.

That's just a few of the articles in this bumper edition of the journal. Hope you enjoy the read.

Anne Currey
Editor-in-Chief

SOMETHING GETTING UP YOUR NOSE?

GOT AN OPINION ON AN IRRIGATION

Then tell us what you think - write a letter to the editor.

A number of readers have asked for a Letters to the Editor page and here at *Irrigation Australia* we'd love to hear what you think about an issue in the irrigation industry - any issue.

Send your letters to Anne at email anne@naturallyresourceful.com.au

IRRIGATION TECHNOLOGY: AGRICULTURE

MANAGEMENT OPTIONS FOR IRRIGATORS

Charles Thompson and Anne-Maree Boland, Horticulture Water Initiative Coordinators

Ten or twenty years ago it would have been difficult for many people to predict how irrigation in Australia might look at the end of 2010. Water reform, larger scale economic reform and drought in many parts of Australia all have meant huge changes - to the role of government, the expectations placed on the irrigation service industry and how irrigators manage water.

Irrigators now have much more responsibility and risk for managing their:

- access to water via water trade
- carryover accounts or dam capacity shares
- delivery/capacity shares of supply infrastructure
- water use and site use licenses with conditions.

Water reform has led to “unbundling of water rights”, which has separated ownership of water from the land and water supply infrastructure. It has also influenced how water charges are calculated and, in some instances, has led to irrigation system modernisation.

The need to protect the environment has resulted in initiatives to address over allocation of water, such as sustainable diversion limits, and caps on water extractions and government buybacks of water.

For some time, Horticulture Australia’s *Horticulture Water Initiative* has been talking to irrigators around Australia about the different strategies they are using to manage their water. This article describes three of these strategies using irrigator case studies:

- selling water to fund expansion
- upgrading the irrigation system
- getting out, e.g. through retirement.

The case studies are based on a compilation of information from conversations with growers. Details of specific cases have been changed. It must be noted that individual circumstances and rules differ and are subject to change. These examples should therefore not be considered as specific advice.

Selling water to fund expansion

Bill and June grow 100 ha of stonefruit in and use 600 ML/year. They hold 630 ML of entitlement which has a 95% reliability, although in recent years allocations have been as low as 50%.

They are considering selling 300 ML of water entitlements at \$2,000/ML to buy and re-develop a 25 ha block next door. This would generate \$600,000 of cash to fund the expansion and redevelopment. The new block also has 160 ML of water entitlement.

They checked with their water authority to make sure that there were no local rules, eg. caps on trade, limiting the ability to sell water permanently.

After checking with their tax advisors they found that the water entitlement was acquired before 1985 and was not subject to capital gains tax for their situation, but for some

growers this would have been a major consideration. This enabled Bill and June to expand to 75 ha, but they were now in a position of needing to buy water annually. This is shown in Table 1.

Table 1. Before and after situation for Bill and June.

	Before purchase of block	After purchase of block
Area	100 ha	125 ha
Average water use	6.0 ML/ha/yr	6.0 ML/ha/yr
Water needed when orchard matures	600 ML/yr	750 ML/yr
Water entitlement	630 ML	490 = 330 ML + 160 ML
Average water supplied by entitlement at 95% reliability	599 ML	466 ML
Shortfall needing to be purchased annually	1 ML	284 ML

Bill and June felt the cost of buying 284 ML annually was better than borrowing the whole \$600,000 needed to fund their expansion, based on this calculation

- borrowing \$600,000 at 7% interest = \$42,000/year versus

- 284 ML on average temporary water purchase at an average \$100/ML = \$28,400/year

Bill and June felt that \$2,000/ML was a good price as there was not likely to be any capital gain on holding on to the 300 ML of water. Other growers believe there is likely to be capital gain in water entitlement and have chosen to hold water entitlement rather than buy water annually. For example, if Bill and June believed that the value of water entitlement would shortly go up to \$2,500/ML then their calculation would need to consider this:

$$300 \text{ ML capital gain } (\$2,500 \text{ from } \$2,000 = \$500/\text{ML}) = \$150,000 \text{ valued at, say, } 5\% = \$7,500/\text{year.}$$

There is potentially another \$7,500/year advantage in holding onto the water asset and borrowing the \$600,000. This obviously depends on the capital gain to be realised, and the ability to borrow. This effectively offsets some of the \$42,000/year interest cost, but it is not cash that is immediately available and it is an issue to be discussed with their bank manager.

Other growers would prefer less exposure to the water market as the price paid on the temporary/allocation market varies enormously with availability. In some years of very low allocation it has risen to over \$1,000/ML. If the

average price of annual purchases goes to \$200/ML then the equation changes dramatically.

Because everyone's situation is different, there is no right answer to this dilemma. It is a question of comparing options and exposure to risk and making an informed choice.

Upgrading the irrigation system

Nick grows citrus in the Griffith district and is considering changing from furrow irrigation to drip irrigation. He believes he can save 1.5 ML/ha/year by doing this as well as improve crop yields. Rather than adopt drip irrigation across the whole of his 60 ha, Nick has decided to do a trial on a 5 ha block first.

Nick calculates the cost of conversion to be:

5 ha x \$9,000/ha = \$45,000

plus additional running costs of =

\$1,000/year for pumping and maintenance

The 1.5 ML saving over 5 ha is worth \$3,000/ML per value of entitlement, which he will sell to help finance the upgrade:

5 ha x 1.5 x \$3,000 = \$22,500

leaving a difference of

\$45,000 - \$22,500 = \$22,500

This means Nick will need to have a productivity improvement that will pay for the difference in costs.

The interest cost of \$22,500 at 8% interest is \$1,800/year so his trees need to earn an extra \$1,800 + \$1,000 = \$2,800/year. Nick compared the before and after situation before deciding to proceed.

Table 2. A comparison of cost and yield differences before and after switching to drip.

	Before	After 10% increase yield	After 5% increase yield
Yield	30 t/ha	33 t/ha	31.5 t/ha
Price	\$300/t	\$300/t	\$300/t
Area	5	5	5
Income	\$45,000	\$49,500	\$47,250
Additional income	-	\$4,500	\$2,250
Additional cost	-	\$2,800	\$2,800
Net gain	-	\$1,700	-\$550

Nick felt that a 5% increase in yield should be easily achievable and a 10% increase more likely, so he decided to go ahead. He also expects to save irrigation labour, which will enable him to think about expanding in the long term and perhaps redeveloping some older plantings.

He will closely monitor the progress of this 5 ha to see if 10% improvement over the rest of the orchard is possible. If it is, he will gradually convert the whole of his property.

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The decision as to whether to hold on and wait till land and grape prices improve or sell now was carefully analysed.

Getting out

Andrew and Sandra have been growing avocados, citrus, dried grapes and wine grapes for the last 30 years and have steadily built up their property by buying neighbouring blocks and redeveloping them.

Now they want to retire and devote more time to other interests.

The value of their developed land is very low, mostly due to an oversupply in the wine grape part of their business which is depressing property values everywhere. They have 20 ha of older planting and 20 ha of newer plantings.

Their dilemma is whether to hold on and hope that land prices improve or whether to sell now. In the last two years the business has been running at a loss of \$50,000/year, which is expected to continue until grape prices improve. The loss is associated with unwanted production and costs from older plantings.

They can sell their water entitlement separate from land but this means that their existing plantings will require the purchase of annual temporary water or they will need to be pulled out. The options as Andrew and Sandra see it are:

- sell everything now
- sell all water entitlement and remove all plantings and hold onto land hoping for better land prices in 3 years (doubling has been assumed)
- sell water entitlement and buy water annually for newer plantings, remove older loss making plantings and hold onto land hoping for better land prices in 3 years (doubling of prices) (farm loss/profit expected to be nil before water purchase cost with the removal of loss making grapes)



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- carry on “as is” hoping land prices improve in 3 years with expected cumulative losses of \$150,000 over the 3 years. They can only sell their water entitlement within the district because of annual caps on trade for water leaving the district. This may make it hard to sell and they may need to enter a ballot to sell it outside of the district.

Table 3. Comparison of four options for a couple retiring from their irrigation block.

	Sell everything now	Sell water/ remove plantings and hold onto land	Sell water entitlement and buy temporary for newer plantings	Carry on
Water value 360 ML at \$2,000/ML	\$720,000	Sold at \$720,000	Sold at \$720,000	\$720,000
Land value at \$2,500/ha older plantings 20 ha	\$50,000	\$100,000 (land value doubles)	\$100,000 (land value doubles)	\$100,000 (land value doubles)
Land value at \$5,000/ha newer plantings 20 ha	\$100,000	\$200,000 (land value doubles)	\$200,000 (land value doubles)	\$200,000 (land value doubles)
Farm assets	\$870,000	\$300,000	\$300,000	\$1,020,000
Debt	\$300,000	Debt cleared by water sale	Debt cleared by water sale	\$300,000 plus additional costs below
Additional costs with continuing	0	Losses associated with fixed costs of \$15,000 for 3 years = \$45,000.	No farm losses as older plantings removed. Cost of annual water newer plantings. 20 ha x 7 ML/ha x \$150/ML x 3 years = \$63,000. Profit assumed to be zero.	Losses associated with continuing \$50,000 for 3 years = \$150,000 plus additional interest associated= \$6,000
Net farm assets	+\$870,000 -\$300,000 = \$570,000	+\$720,000 +\$300,000 -\$300,000 -\$45,000 =\$675,000	+\$720,000 +\$300,000 -\$300,000 -\$63,000 =\$657,000	+\$720,000 +\$300,000 -\$300,000 -\$156,000 =\$564,000
Retirement income maintaining capital at interest rate of 5%	\$28,500	\$33,750	\$32,850	\$28,200

After analysing their options, what do they decide to do? They felt that they should sell everything now, mostly because they did not have much confidence in land values doubling in three years. If the business was profitable then clearly continuing on would make more sense, with a potential upside of \$150,000 in improved land values.

Note. Anne-Maree Boland is an IAL National Board director

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IRRIGATION TECHNOLOGY: URBAN

STORMWATER PROVIDES IRRIGATION OPTIONS FOR MELBOURNE PARK

Ben Wolfgramm, Storm Consulting, Pymble NSW

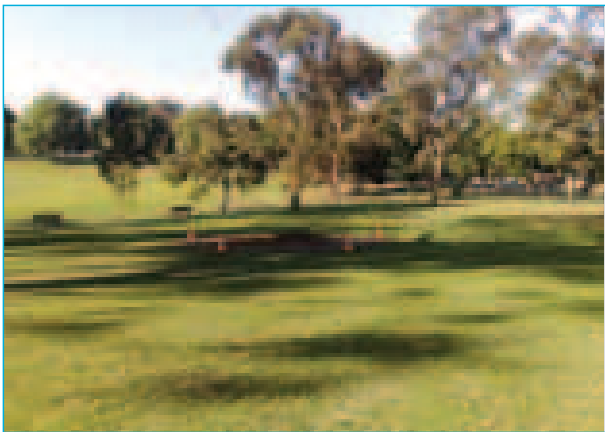
Como Park in the City of Stonnington is regarded as a premier sporting and recreational facility and is used for cricket in summer, football in winter and other social events. The City of Stonnington is located in the southeast of Melbourne, and Como Park is set against a backdrop of stunning established native and exotic trees on the banks of the Yarra. As a result of prolonged drought and uncertain potable water supply security, the park's future as a premier facility was under threat.

Deciding that it needed to act to protect this valuable asset, the City of Stonnington teamed up with Storm Consulting to design and oversee the construction of a stormwater harvesting and reuse system. This system now supplies Como Park a guaranteed source of fit-for-purpose water and independence from potable water supply.

The project

The Como Park Stormwater Harvesting Scheme is designed to harvest flows from two Melbourne Water stormwater drains that discharge into the Yarra River. Based on historic water consumption patterns, it has been estimated that the project will save between 15 and 20 ML of potable water annually and make future irrigation independent of the potable water supply.

The first stage of the project was to carry out a water balance based on rainfall, soils, turf, landscape and park uses and determine the irrigation demand required to sustain the main



The site at Como Park where the storage tank was installed



Concrete storage tank under construction using Humes precast components

oval at Como Park in good condition. The estimated irrigation area of the main oval was conservatively modelled at 2 ha.

Results of irrigation demand analysis estimate peak daily water demand of 55 kL (2.8 mm) required during January to keep the oval in top condition. During winter the daily demand is estimated to be only 10 kL or 70 kL/week. Overall, average weekly demand is about 170 kL.

Stormwater harvesting

The stormwater drains located in Como Park drain a catchment area of 365 ha and have some base flow. The volume of stormwater flowing in the two drains is enough to supply 100% of the irrigation requirements of Como Park.

The stormwater harvesting system is made up of:

- off-take connection to stormwater drain
- a filter for gross pollutants
- a pump station
- below ground concrete storage of 300,000 L capacity
- UV treatment system
- an irrigation pump.

An offtake structure is required to tap into baseflows and prevent gross pollutants from entering the system. A grated trench conveys the stormwater to a Humes Hydrofilter 1000 for further pollutant removal (<1 mm).

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After water has passed through the Hydrofilter it is transferred to an underground storage structure. The storage structure comprises an arrangement of culverts sealed with a self-healing clay liner.

When required for irrigation, water is extracted from the storage tank and passed through an automatic particulate filter, through UV disinfection and a meter before going out through the existing irrigation system, where the stormwater system has been directly connected to the existing ring main.

A number of controls are required to monitor the system including a turbidity sensor; electrical conductivity sensor; hi/low water level sensors for both the sump and main storage; controls that interface the UV system with the irrigation system and the pumps and advanced telemetry that enables users to view the system status remotely.

In developing the project design, Storm Consulting used its experience and skills in the following areas:

- catchment characteristics and behaviour – size; topography, soil types; vegetation; proneness to flooding; pollutant loading
- rainfall analysis – daily rainfall patterns; 6-minute pluvio data used to model individual rainfall events; rainfall patterns in different climactic circumstances
- water quality – nutrient loads and limitations for reuse; MUSIC modelling for passive treatment options
- water balance – know exactly how much water is being used and when and where, to ensure the system was appropriately sized
- construction cost estimators – used a database of actual costs from previous projects to ensure accurate and comprehensive costing for planning and prioritising purposes.

Irrigation system integration

The stormwater supply system functions as part of the irrigation system, where harvested stormwater is treated as a priority source. Pumping operates on a pressure drop signalling the UV disinfection to start recirculating water between the storage tank and the disinfection for 15 minutes. This 15-minute period is the time needed for the UV lamps to warm up to a point that they can achieve the log pathogen reductions required for spray irrigation of a free-access site. After 15 minutes the controller switches over to the main valve that allows harvested stormwater to be irrigated for the ovals.

The stormwater harvesting system has been designed to irrigate the main oval (1.6 ha) with 300 kL, or 18 mm, per week in peak summer demand. The current licence allows for an annual irrigation depth of 500 mm (@ 5 ML/ha) in addition to annual rainfall, with room for nearly double that amount available for future irrigation of nearby open space.

Costs

Using a 20-year life for the project, we see a significant improvement on a 'business as usual approach' in many different ways.

At the moment potable water to irrigate the park costs \$1.2206/kL; under mandated water prices increases this is set to rise to \$1.466/kL in 2010 - 11, \$1.761 in 2011 - 12, and up to \$2.114 in 2012 - 13. After this, water prices may assume an increase more closely aligned with CPI of 2.47% a year. This means that in twenty years the cost to irrigate 8 ML a year would be \$25,611.

If recycled water was to be carted to the site then the ongoing charges would be enormous - around \$22/kL

(SEWL, 2009) plus \$30 delivery which equates to \$594 + \$30 = \$624 per 27kL tanker delivered from the Lang Lang source. At that rate, 8 ML of irrigation water would cost \$185,000 a year at current rates, or \$297,000 assuming CPI in 20 years time.


Neither of the two above options come with the guarantee of availability or stable pricing, whereas stormwater does.

Benefits

The benefits of using stormwater include:

- a top class recreational sporting facility is maintained
- health improvements associated with having such a facility range from lower injury rates due to softer playing surface
- a green haven of healthy and vigorous vegetation in the parkland increases local biodiversity
- the system is designed with drought contingency in mind such that it can provide an emergency water
- maintaining significant vegetation, both within Como Park including historic gardens
- proving and applying the concept will effectively increase council's capacity to apply the concept elsewhere
- reducing the demand on our already stressed water storages
- reduced energy intensity associated with the supply and distribution of potable water from the proposed desalination plant.

The project also will decrease nitrogen, phosphates and suspended solids entering the Yarra River by:

- reducing erosion and preventing sediment laden runoff from entering the river
- increasing plant and turf health and growth. 

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TURF RESEARCH LOOKS FOR ANSWERS TO PERTH'S DRY ARGUMENT

Local government authorities, the major managers of turfgrass in suburban Perth, are under increasing pressure to reduce water use and improve water use efficiency while still providing and maintaining quality community recreational and sports facilities.

To help find practical and scientifically rigorous answers to what some Parks and Ovals Managers describe as a 'dry argument', The University of Western Australia (UWA) Institute of Agriculture and its Turf Research Program are assessing wetting agents, turf varieties and mowing heights at its Shenton Park Field Station.

A new project, funded by the WA turf industry and Horticulture Australia Limited (HAL), is addressing two priority topics:

- renovation techniques for thatch removal on a diverse set of soft-leaf buffalograss cultivars
- the influence of mowing height on water use by four species (soft-leaf buffalo, couch, kikuyu and zoysia).

The UWA Shenton Park Field Station experiments will run until mid 2011, enabling two summers of research.

Six complete blocks, each with twelve field plots, contain 12 buffalograss cultivars: Sapphire (B12), Kings Pride (GP22), Matilda, Palmetto, Sir James, Sir Walter, ST26, ST91, Shademaster, TF01, Velvet and WA Common.

According to Professor Tim Colmer of UWA's School of Plant Biology, results are not yet available but a recent field day in February at Shenton Park enabled 75 turf professionals and others, mostly from local government, to inspect the new plots and treatments being applied.

"The influence of mowing height on water use and drought tolerance is still being debated, so we also have an experiment assessing how water use changes in four warm season turf species under three mowing heights," he said.

According to Associate Professor Louise Barton of UWA's School of Earth and Environment, turf managers are under relentless pressure to decrease the amount of water applied to parks and gardens and the result was an increasing incidence of soil water-repellency in these areas.



At an open day in February 2010 UWA's Shenton Park Field Station results of research so far into renovation techniques and the effect of mowing height on water use were discussed. Here, Sharyn Burgess and Timothy Higgott from The University of Western Australia are measuring the water use of turf grass.

"Soil water repellency decreases water use efficiency by causing irrigation water to unevenly infiltrate the soil surface, bypassing a proportion of the turfgrass roots, causing localised death of turfgrass," she said.

Applying wetting agents is one remedial approach being investigated by the UWA team.

UWA research at Shenton Park has already demonstrated that applying a wetting agent in spring can decrease water repellency in summer and consequently improve the overall appearance of the turfgrass. However, not all wetting agents are equally effective and consumers should be aware that the amount of active ingredient in wetting agents varies between brands.

Maximising the amount of active ingredient applied appears to decrease the incidence and severity of water repellency.

Louise said that turfgrass renovation techniques that prevent thatch and mat accumulation may also help minimise the severity of water repellency.

"This is because soils high in organic matter can show a degree of water repellency," she said.

Acknowledgment. This article was supplied by the University of Western Australia. 



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BUILDING A BETTER WORLD

PLANNING, TECHNOLOGY AND GOOD MANAGEMENT VITAL TO SUSTAINABLE URBAN GREEN SPACES

While there have been marked reductions in water use in the last decade, the good rains and improved supply are now putting pressure on maintaining and further improving efficiencies of water use in public and open spaces across Australia.

That was one of the key messages to come from a stakeholder workshop just conducted by Rain Bird Australia in Melbourne in March, which brought together experts to discuss the issues now and into the future for sustainable urban green space.

“With most states relaxing water restrictions, our commentators made it clear that the commitment remains to promote efficient use of water and importantly, to use best practice when it comes to design and installation of irrigation systems, storm water management and other initiatives,” said Workshop Convenor and Rainbird Service Sales Manager, Simon Beazleigh.

Speakers at the event included: Geoff Connellan, consultant and Honorary Fellow at the University of

Melbourne; Ray Beaton, Manager Water Resources Strategy for Yarra Valley Water; CEO for the Smart Approved WaterMark, Julian Gray; Richard Dilena from Geelong City Council and Rod Weise, Principal Engineer with Storm Consulting Pty Ltd.

Value of green space

Geoff Connellan told the workshop that urban green spaces and trees were valuable in terms economic, social and economic benefits.

“For example the Australian turf industry is worth \$3 billion a year and employs 80,000 people, but the benefits go far beyond just good playing surfaces.”

“Urban Green spaces provide improvements in microclimates, a positive effect on the hydrological cycle, improved air quality as well as benefits to physical and mental health,” Geoff said.

The table shows the benefits of urban green spaces:

Table. Key environmental, social and economic benefits of urban green spaces

Environmental	Social	Economic
Temperature moderation	Physical health	Low capital cost
Erosion control and dust prevention	Mental health	Revenue from sports events
Pollution entrapment	Community pride	Businesses involved in servicing sports activities
Hydrology – infiltration and reduced runoff	Safe surface	Reduced health costs
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Geoff’s key messages for the workshop were that:

- sustainable sites require sound planning and appropriate horticulture
- water sources should be sustainable in quantity and quality
- irrigation should be performance-based both in terms of design and ongoing management.

Maximising irrigation efficiency the key

Simon Beazleigh said all speakers supported the concepts of technology, management and good planning were elements to preserving green urban spaces.

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Irrigation is fundamental to sustaining our urban green spaces and trees, which provide significant social, economic and environmental benefits.

"It is pleasing to hear the experts support this direction; at Rainbird we realised sometime ago that our business needed to extend beyond product supply to providing design and planning, project management, technical support and ongoing maintenance," he said.

Ray Beaton from Yarra Valley Water said among the solutions to maintain green open spaces were maximising efficiencies including irrigation systems operating at 70% +, the use of warm season grasses/drought tolerant plants, improved soil profiles and improved monitoring of soil moisture.

"While we have seen an average 40% decrease in inflow since 1997, all sectors have done their bit by reducing consumption - total water use since 1997-98 has reduced by 42%, with home use down by 33%, business water use reduced by 47% and system water loss reduced by more than 35%," Ray said.

Other water sources important

Apart from efficient irrigation, the use of alternative sources of water, such as stormwater and recycled water, was vital to the preservation of recreational and open space.

The use of stormwater was raised by several speakers, with Rod Weise from Storm Consulting and vice president of the Storm Water Association of Victoria highlighting that large volumes of urban water were available for green spaces.

"The benefits include reduced urbanisation impacts downstream, easing of water restrictions and its cost-effectiveness compared with de-sal and treated effluent, as well as areas which irrigate passively."

Rod cited several case studies, including the award winning Ashgrove Estate development in Melbourne where storm water harvesting systems had resulted in 40% less potable water being used for irrigating public spaces and had reduced flood frequency from 5 years to more than 100 years.

The Rain Bird Workshop followed on from last year's international "Intelligent use of Water" Summit held in Australia.



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CITRUS IRRIGATORS SEEK EFFICIENCY IMPROVEMENTS

Water and nutrients are the subjects of research aimed at higher levels of production efficiency in Australia's citrus industry.

While these are the two key inputs for quality fruit they are also significant costs and growers are keen to reduce wastage for economic as well as environmental reasons.

The National Program for Sustainable Irrigation is contributing to the effort by funding a project aimed at developing knowledge and tools needed to enhance fertigation techniques. Other aspects are supported by Horticulture Australia Ltd and the NSW Department of Primary Industries.

Project leader Michael Treeby, a research horticulturist at the NSW Department of Primary Industries Research Centre at Dareton, said the work was essentially about fine-tuning management based on evidence from research.

"A big step in citrus management came with the arrival of drip irrigation and the use of this efficient delivery system to allocate water and nutrients to the trees," he said. "The next significant step may now come from adding efficient management to efficient delivery."

More finely-tuned management, he said, would come from a better understanding of when water and nutrients were required, and how much. This could lead to more frequent but smaller applications at specific stages of production, as

opposed to prescription allocations or such practices as twice-yearly applications of fertiliser based largely on customary practice.

The research spans many aspects including: quantification of nutrient capture by roots of commercially relevant citrus rootstock genotypes in relation to supply; establishment of commercial-size demonstration sites; quantification of water and nutrient escape below the rootzone; identification of phenological stages when leaching is most likely to occur; use of demonstration sites to

demonstrate short and long term supply regimes; assessment of the effects of common practices of high intensity fertigation regimes on salt, water and nutrient movement within and below the rootzone; and use of technologies for tracking water and nutrient movement through the soil.

Expected outcomes are more judicious use of water and mineral fertilisers, reduced loss of water and nutrients using refined scheduling of irrigation and fertigation according to needs, and better tracking and reduction of off-site movement of water and nutrients which could be detrimental to the environment.

Different rootstocks and nutrients, different results under same conditions

An early part of the work, involving six rootstocks and seven nutrient treatments, replicated in a glasshouse to put 480 plants under a controlled environment, has already delivered the message that different genetic material can mean different responses under the same conditions. Some have grown strongly while others have indicated their requirements are greater. All are commonly used in citrus production. The next query is whether the ability to use nutrients is something that is passed on to the scion and to test this, another controlled environment is growing out hundreds of grafted citrus trees. If different requirements can be quantified this will lead to management adjustments to reduce losses.



Commonly used rootstocks are being tested for their nutrient requirements for adequate growth.



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Local citrus grower Michael Keenan, left, discusses research with Steven Falivene of the NSW Department of Primary Industries.

Citrus industry development officer with the NSW Department of Primary Industries, Steven Falivene, has been undertaking field work at Dareton to test delivery systems and timing and frequency of application. Other activities have been measurement of all inputs and outputs, ranging from fertiliser and water applications to losses of nutrient in the form of dropped flowers and fruit, plus the harvest. The results of this work are discussed with growers at seminars and field days.

Citrus grower, Michael Keenan, said the information services, demonstrations and seminars had been extremely useful.

It's about the things we can control

"A good way to look at it is that there are some things out of our control which affect production and profitability, like bad weather and the value of the Australian dollar and new competition when it comes to our exports to the United States," he said.

"There are some things in our control, however, like choice of rootstocks and varieties and the critical inputs of water and fertilisers. So research which helps get the best from these inputs is valuable. It can reduce risks and waste and therefore contribute to the business.

"Although the project will confirm a few principles we already apply, it will validate what many growers are now doing and it will also generate new data to help us refine management."

Tony Filippi, grower services representative for the Mildura Fruit Company, said that although the company's export and domestic

customers viewed Australian citrus as equal to the best in the world they generally had little interest in problems facing growers.

"Unfortunately there is no sympathy if size, colour and taste of citrus is affected when growers try to get too much production out of limited water supplies," he said.

"Although it has been tough for growers, switching off parts of the orchard and balancing the fruit load has made it possible to get into the premium quality and price range to satisfy customers. While everyone wants more water, growers are resilient and want to stay in the industry and in many cases have sharpened skills and changed their orchard management.

"For this reason I believe it is very important that irrigation research is continuing. After all, water is the pipeline for everything in citrus fruit, conveying nutrients and allowing sugars to build up. More precise management of water and nutrients will be a welcome outcome."

Acknowledgment. This article was provided by the National Program for Sustainable Irrigation. 

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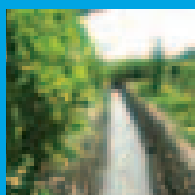


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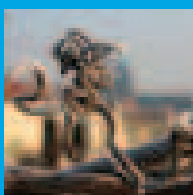
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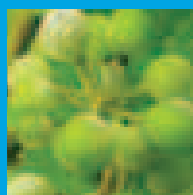
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EFFICIENT IRRIGATION: THE LARGEST WATER SAVINGS AT THE LOWEST COST

Anna Manero, MWH Global

With water resources being affected by climate variability, semi-arid regions are facing dramatic challenges to meet their increasing water demands. Despite being the driest inhabited continent, Australia has the second largest gross freshwater abstraction rate per capita worldwide — exceeded only by the United States.

California is one state in the US that has recognised that current water use is unsustainable leading it to implement aggressive water conservation plans targeting both agricultural and urban water uses. Experiences there show that improving rural and urban irrigation efficiencies are two of the most cost-effective options and have larger savings potential compared to other widely-applied practices like managed land retirement, indoor water conservation, desalination and recycling.

Improving agricultural water use efficiency

Agriculture is by far the largest water user in California and Australia, accounting for 76% and 65% of total water consumption, respectively. Although surface irrigation is the most inefficient of all methods, it is also the most commonly used, with over half of both region's irrigation areas using gravity irrigation systems.

Both California and Australia are world leaders in the production of dry climate crops such as high quality wines, olives and citrus fruits. Nevertheless, the largest portion of their agricultural land and water resources are still dedicated to low value, high-water-demanding produce, including rice, cotton, grains and pasture.

In 2004 - 05, combined irrigation demand of these crops in Australia accounted for 56% of total agricultural water use; less than 10% was used to irrigate higher value fruits and vegetables. With around two-thirds of total Australian agricultural production being exported, beef and wheat account for over 30% of food exports, despite their low return per unit of water consumed. Fruits and vegetables only account for 4% of agricultural exports, yet they generate up to forty-six times more income per megalitre of water consumed than livestock pasture and grains.



The relative sizes of California and the Murray Darling Basin (photo courtesy CALFED Science Program http://science.calwater.ca.gov/publications/sci_news_1009_basins.html)

Similar to the Australian Government's 'Water for the Future' plan, the California Department of Water Resources (DWR) provides millions of dollars in grants and loans to improve irrigation efficiency. Examples of these programs include modernising outdated irrigation systems, switching to growing crops that use less water, channel lining to control water seepage and losses, and tailwater recovery and reuse.

In 2005, DWR estimated that, with a continuous 25-year investment plan, California could reduce its irrigation demand by 10%, equivalent to the amount of residential water used by 12 million Californians. The estimated costs of agricultural water efficiency programs largely depend on whether they target delivery systems, on-farm irrigation or both. On average, the costs range from A\$120 to A\$565/ML, although certain projects (like the Coachella Branch Canal lining) can cost over A\$3000/ML. Generally speaking, the cost per ML of irrigation efficiency programs decreases with the level of total investment and the total volume of water savings.



Standing water, a sign of inefficient irrigation, in California. Reducing use of inefficient furrow irrigation systems is one way of reducing water use on California farms' (photo courtesy of the Pacific Institute.)



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In Australia, buying water entitlements is a current practice, where public authorities buy water from other users (generally irrigators) and then return the flows to the environment. When comparing water prices (between A\$1000 to A\$2000/ML in the Murray-Darling Basin) to the cost of irrigation modernisation plans, investing in efficient irrigation brings much higher returns - up to ten times larger volumes of water savings per dollar spent. As well, unlike land retirement, efficient irrigation continues to support local communities by maintaining their main economic activity.

Crop scheduling an important tool

One of California's outstanding irrigation efficiency measures is the California Irrigation Management Information System (CIMIS), a country-wide network of 120 automated weather stations managed by the DWR's Office of Water Use Efficiency. The system provides daily updated weather information, including evapotranspiration, temperature, wind speed, humidity, which growers from across the State can obtain online and free of charge to estimate crop water use for irrigation scheduling.

A similar system with 30 stations exists in the SA portion of the Murray-Darling Basin. Expanding the existing weather station network to the rest of the Murray-Darling Basin, and potentially to other agricultural regions of Australia, would certainly contribute to more efficient management of agricultural resources and, hence, considerable water, energy and cost savings.


Reducing urban water use

Outdoor use is the largest demand driver, accounting for 70% of residential demand in California and 44% in Australia. While dual-flush toilets and other water smart appliances are popular as conservation measures, efficiency plans in California show that landscaping is the most cost-effective water saving practice.

Between 1995 and 2006, the Metropolitan Water District of Southern California invested \$200 million in urban water efficiency through three different programs: large landscaping, commercial and residential. The cost of residential and commercial water schemes was \$0.173/m³ (\$173/ML) and \$0.246/m³ (\$246/ML), respectively. In contrast, costs of large landscaping water-saving programs were around

three times lower, as little as \$0.066/m³ (\$66/ML). These figures indicate that landscape irrigation is not only the largest single urban user, but also efficiency measures in this sector are by far more cost-effective than indoor water conservation plans.

Similarities between the US and Australia suggest that the lessons learned from efforts in California could also be applicable in Australia's environment. Efficient rural and urban irrigation could contribute to water savings of thousands of giga litres, at a lower cost and smaller environmental footprint than other widely implemented supply options.

About the author: Ana Manero is a planning engineer based in MWH's Sydney office since November 2008. She has three years' experience in water sustainability and water supply and sewer networks modelling, with particular expertise in water management and water resources planning. Before coming to Australia, she was a Visiting Scholar at the University of California, Berkeley. Her experience also includes working in Italy for a global water consultant after finishing her Bachelor of Engineering at the Civil Engineering School of Barcelona and her Masters of Environmental Engineering in Paris. 



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MARKET MECHANISMS FOR RECOVERING WATER IN THE MDB

PRODUCTIVITY COMMISSION REPORTS

Tim Gilbert, IAL Industry Development Manager

One of the big news items for the water industry this year has been the release of the Productivity Commission's report on market mechanisms for recovering water in the Murray-Darling Basin. It's an important report. In this article, Tim Gilbert provides the IAL's position on some of the issues raised in it.

The Commonwealth Government has assumed a greater role in managing the water resources of the Murray-Darling Basin and has started two concurrent strategic actions, which are:

- Preparation of a Basin Plan that will set environmentally sustainable diversion limits on surface and groundwater extraction, and develop an environmental watering plan. The Basin Plan must be completed by the Murray Darling Basin Authority by 2011.
- Recovering water for the environment through two separate programs administered by the Commonwealth Department of Environment, Water, Heritage and the Arts (DEWHA). These programs are:
 - a \$3.1 billion Restoring the Balance program, which buys water entitlements from irrigators

- a \$5.8 billion Sustainable Rural Water Use and Infrastructure (SRWUI) program, which seeks to make water use efficiencies with a portion of those savings then being returned to the environment. This funding assistance is also designed to contribute to longer term sustainability of these regional irrigation communities.

Importantly, IAL has been working closely with DEWHA to explore potential quality assurance measures to deliver accountable and effective irrigation efficiency outcomes for both government and participating irrigators from the Commonwealth's On-Farm Irrigation Efficiency Program in the Lower Basin, which forms part of the SRWUI program.

Key findings and recommendations

The Productivity Commission's report examines, among many other things, the relationship between, and timing of, the Basin Plan and mechanisms being used to recover water for the environment, the economic efficiency of water recovery programs, and impediments to new water purchase mechanisms. Some key findings and recommendations in the Commission's report of relevance for the irrigation industry are:

- the Commonwealth *Water Act* 2007 requires the Murray-Darling Basin Authority to determine environmental water needs based on scientific information and, in the Productivity Commission's interpretation, may preclude considering economic and social costs of setting sustainable diversion limits as a consequence
- basin jurisdictions should clarify as soon as possible how risk assignment provisions will be applied when reducing the amount of water available for consumption that is likely to result from the Basin Plan and setting of sustainable diversion limits
- buying water entitlements is the most effective and efficient means of acquiring water, where the government is liable under risk apportionment arrangements
- funding of infrastructure upgrades is not generally a cost-effective means compared to buy-back for governments to recover water
- funding under the SRWUI should therefore only be approved where cost-benefit analysis shows there is net benefit, and that the funding is commensurate with the public benefits of the proposal (i.e. excludes private benefit to irrigators).



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IAL response

IAL welcomes the Productivity Commission's report on market mechanisms for recovering water in the Murray-Darling Basin. The irrigation industry has a once-in-a-lifetime opportunity to ensure a sustainable future for both irrigators in the basin and the basin's rivers and environment. Any thorough and objective scrutiny of policy positions should be seen as a healthy contribution to this outcome.

In particular, IAL agrees with the commission that how risk in water availability changes resulting from the Basin Plan will be apportioned between irrigators and the Commonwealth and State governments should be clarified urgently, so that all participants can operate with greater certainty in the water market.

IAL also agrees that, ideally, the Basin Plan should have been completed before the RTB and the SRWUI programs started. In reality, however, governments are often operating within a difficult context of competing advice and community expectations that are not always driven by objective economic analysis alone, especially in the midst of such a severe and prolonged

drought across the basin. There are other important objectives being met by the Commonwealth's investment in irrigation infrastructure. For this reason IAL supports the Commonwealth Government in starting basin planning, entitlement buyback and infrastructure funding programs at the same time.

Notwithstanding this support, IAL does encourage the Government to refine individual programs where there are sensible suggested improvements. For example, IAL agrees with the commission's recommendation that infrastructure proposals should be subject to cost-benefit analysis to show that they provide net community benefit.

Quality assurance important

Like the Productivity Commission on cost efficiency aspects, IAL is also making recommendations to Government, through DEWHA, seeking to incorporate technical rigour in the development and implementation of funded irrigation infrastructure projects. In particular, these projects should be underpinned by quality assurance processes that ensure all irrigation assessment, design and

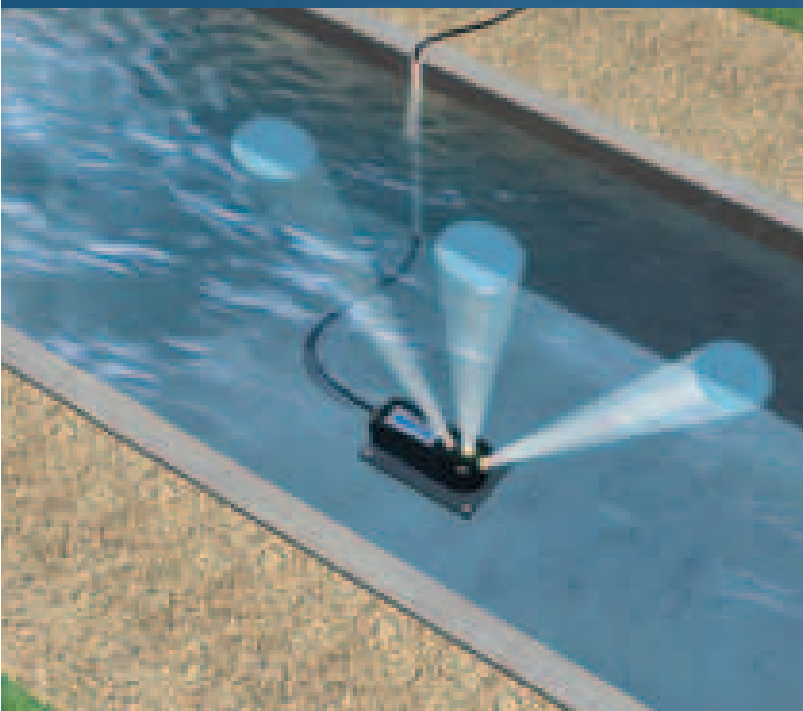
installation work is done by recognised, competent irrigation professionals. Such quality assurance processes are necessary for government as they will:

- help with equity and consistency of funding decisions for irrigation infrastructure and systems
- provide greater confidence in the effectiveness of policy outcomes such as the size of water savings and efficiencies to be made from these public investments
- harness the professional water efficiency expertise that exists within the irrigation industry.

The IAL's Certification Program also provides great benefit to irrigators who can then make business decisions to participate in these funding programs with greater confidence about the technical information and services provided by certified irrigation professionals. And from an industry perspective, including IAL certification as a quality assurance measure will also instil commercial value in Certification, therefore encouraging a market for truly professional and competent irrigation services. 

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Urban authorities investing in infrastructure

The *Urban National Performance Report 2008-09* shows the unprecedented investment being made by Australia's major metropolitan water utilities to diversify and secure water sources.

In 2008-09 investment was \$8.1 billion, up from \$4.5 billion in 2007-08. This approximately 90% increase reflects the timing of major capital works programs - mainly by the major utilities - to deliver new sources of bulk supply through desalination plants, recycling projects and new pipelines.

At the same time, overall water use remains very low compared with historical levels. Household consumption patterns reflect the impacts of demand initiatives such as water restrictions, as well as the enduring legacy of water conservation measures.

Drought affects rural companies

The third *Rural National Performance Report 2008-09* presents data for about 90% of the rural network water supply across Australia.

It showed that drought continued to affect the operations of many rural water service providers, with irrigation supply providers being the most affected. Highlights included:

- The reporting by the rural water sector across Australia is extremely diverse. Differences include the number of services provided, the sizes of the service providers, the reported performance against performance indicators, and the infrastructure characteristics and capability. The rural water sector provides twelve services compared to only three in the urban sector (bulk, potable and recycled water). However, services vary across jurisdictions, as some are provided by government departments rather than rural

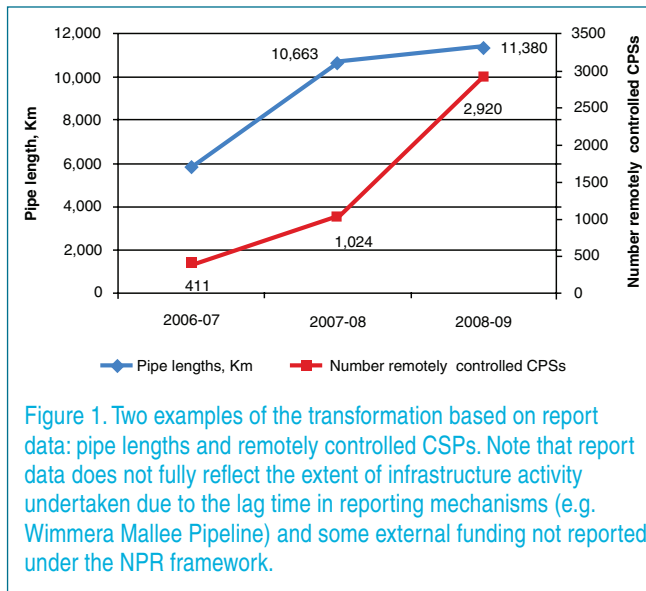


Figure 1. Two examples of the transformation based on report data: pipe lengths and remotely controlled CSPs. Note that report data does not fully reflect the extent of infrastructure activity undertaken due to the lag time in reporting mechanisms (e.g. Wimmera Mallee Pipeline) and some external funding not reported under the NPR framework.

water service providers and therefore are not covered by the national performance reporting framework.

- Rural infrastructure has entered an era of transformation. This is driven by a range of factors including drought and low water availability, coupled with the need to improve efficiency and provide environmental flows. This transformation includes the replacement of open channels with pipelines, the replacement of detritus wheels with remotely controlled customer service points (CSPs), the lining of channels and/or pipelines, and the rationalisation and modernisation of networks (see Figure 1).
- Drier and hotter climatic conditions in the three-year period to June 2009 resulted in reduced runoff and storage. Southeast Australia and southwest Western Australia were the worst affected areas. In these areas, rainfall over the same period was below average and large areas experienced the lowest three-year rainfall on record.



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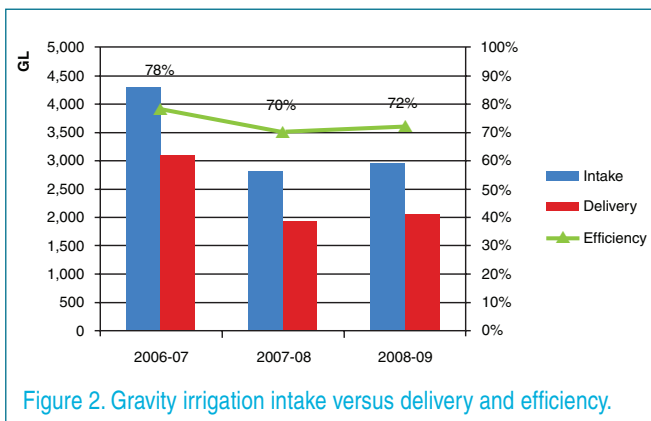


Figure 2. Gravity irrigation intake versus delivery and efficiency.

- Water availability was lower for 2007-08 and 2008-09 than the first year of reporting. Record low levels of surface runoff in 2006-07 did not translate into equally low levels of water availability because storages held carryover flows from previous years. At the end of 2006-07 many storages were drawn down to very low levels and this, coupled with low inflows in 2007-08 and 2008-09, led to overall low water availability during those years. Grampians Wimmera Mallee in northern Victoria experienced the third year in a row of zero gravity irrigation deliveries. One notable exception to this trend was Southern Rural Water in Victoria, which reported irrigation deliveries of 93.7, 186.9 and 169.3 GL in 2006-07, 2007-08 and 2008-09 respectively.
- Overall irrigation network efficiency continues to decline, despite ongoing investment in infrastructure modernisation. When water availability is low, losses from evaporation and seepage are exacerbated. This partially

masks overall efficiency improvements in other parts of the network. Figure 2 shows overall gravity irrigation delivery efficiency compared to total intake and delivery volumes. Three service providers—Grampians Wimmera Mallee Water, Lower Murray Water and Goulburn-Murray Water — have undertaken significant conversion from open channel to pressurised pipelines in the three years of reporting. Grampians Wimmera Mallee Water reported an efficiency improvement from 28% in 2006-07 to 67% in 2008-09.

- Revenue has been fluctuating and increasingly a larger percentage of the total revenue comes from fixed charges (customer service fees, customer service point fees, area service charges, water entitlement charges and infrastructure access charges) rather than variable charges (consumption charges). For example, across all service providers, consumptive charges currently account for 17% of the tariff; down from 19% in 2006-07 and 2007-08.
- Reported capital expenditure was \$119.8 million in 2008-09 compared to \$353.6 million the previous year. Capital grants declined from \$344.0m to \$123.7m in 2008-09. The data does not represent the total infrastructure effort in the sector. Not all State Government and Australian Government funding is reported here. In the future funding will be rolled out under the \$5.8 billion Rural Water Use and Infrastructure program. These measures will save water by reducing evaporation and seepage, delivering real efficiency benefits for farmers and water benefits for the environment and other users.

Acknowledgment. This article was compiled from material supplied by National Water Commission, www.nwc.gov.au

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TOWARDS THE DRAFT BASIN PLAN

The Murray–Darling Basin Authority (MDBA) is preparing a Basin Plan — a strategic plan for the integrated and sustainable management of water resources across the whole basin. An essential component of the planning process is to consult with stakeholders across the basin. Some of the comments we heard from farmers at a recent forum included:

Irrigators have a true understanding of their farms and rivers and need to be considered. Irrigators are feeling so battled and bruised by the drought. This is another elephant coming over the hill.

The authority needs to get involved with the stakeholders and together come up

with a solution. This is a good start but only a start.

We have to work out good methods to address the pain and the people, who through no fault of their own, are going to have to wear some of the changes.

New sustainable diversion limits (SDLs), which are limits on the quantities of surface water and groundwater that can be taken from the basin’s water resources, will be at the heart of the Basin Plan.

To support the planning process which will determine these limits, the Murray–Darling Basin Authority is assessing the social and economic impacts at basin and regional scale, as well as for several smaller irrigation areas where the

potential impacts to changes in water availability may be most significant.

Economic modelling will provide information on the direct impacts on farmers, identifying changes in the value of irrigated agricultural production, land use and water use and the flow-on economic impacts at a regional, basin, state and national level. The work will also identify regions and towns that may be particularly vulnerable to reduced irrigation activity.

At the recent stakeholders’ forum we released a report, *Assessing environmental water needs for the Basin*, which is discussed in more detail below. More than 200 people from across the basin attended for an update on the planning process.



Danny O'Brien (National Irrigators' Council), Roger Hoare (High Security Irrigators Murrumbidgee) and Jenny McLeod (Murray Irrigation Ltd) at the recent MDBA forum for stakeholders, photo Tanja Funnell (MDBA).

Have your say

It is important to note the preliminary nature of the information which has been released. It will be refined further as a result of consultation with stakeholders. The draft Basin Plan is scheduled for release in mid 2010, with a 16-week formal public consultation process to follow. During this consultation process people will have the opportunity to provide input to the whole Basin Plan.

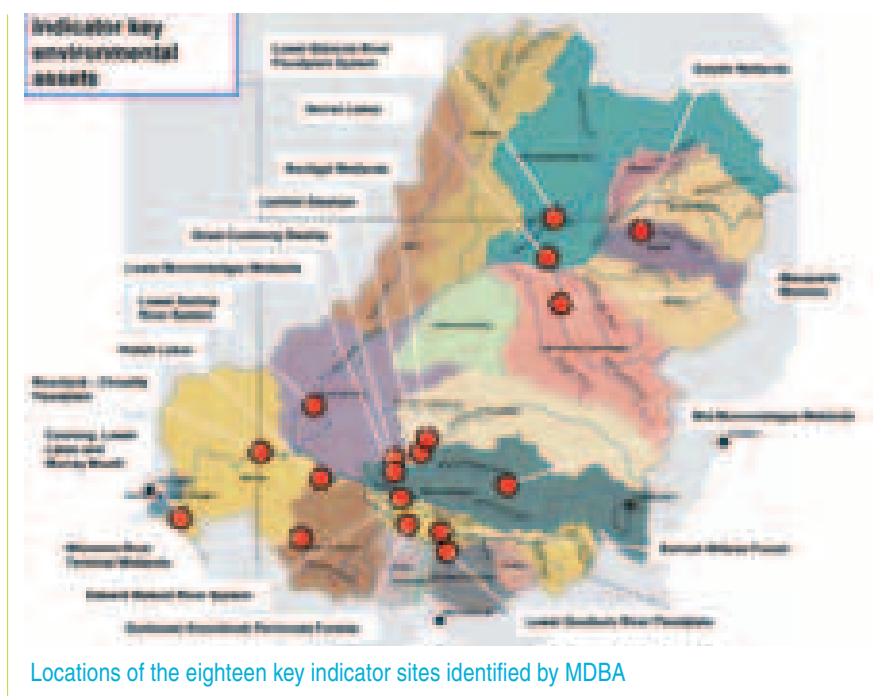
In the first few weeks of the consultation period authority members and Murray–Darling Basin Authority staff will travel throughout the basin to listen to the views of people who will be affected by the plan. We are also asking stakeholders how they would like to be engaged, whether there are regional meetings that they think we should attend or where information



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about the proposed Basin Plan could be provided.

To ensure a smooth transition for water users the Basin Plan will honour existing water plans for the life of those plans. Plans expire in SA, NSW, ACT and Queensland in 2014 and Victoria in 2019.

The states and the ACT will continue to determine how water is allocated and used in their own jurisdictions through the development of water resource plans, but these must be consistent with the Basin Plan.

Identifying key environmental assets in the basin

To ensure future levels of water use are sustainable, the Murray–Darling Basin Authority is also identifying and assessing the environmental water needs of the Basin’s key environmental assets (rivers, lakes, wetlands, marshes, swamps and floodplains) and key ecosystem functions.

The environmental assets have never before been identified and in many cases their water needs have never been assessed. Similarly, the water needs of ecosystem functions that shape the basin’s unique ecosystems have not previously been considered at a basin scale, although they are increasingly recognised locally.

Assessing the environmental water requirements of the Murray–Darling Basin involves:

- identifying the key environmental assets and ecosystem functions
- determining their water requirements
- inputting these to the modelling

platform to generate possible sustainable diversion limit scenarios at both Basin and regional scale

- assessing the socio-economic impact (using the SDL scenarios), which may influence judgements on the scale and origin of environmental water requirements and can be used to generate alternate SDL scenarios.

To determine the key environmental assets, and ecosystem functions, five criteria have been used. One or more of the criteria must be met for the environmental asset to be considered ‘key’. The criteria are:

- has recognised significance (e.g. international agreements)
- is natural, near-natural, rare or unique
- provides vital habitat (e.g. drought refuges, breeding sites)
- supports threatened species
- contains sites of high biodiversity.

Using these criteria a list of environmental assets, across the basin, has been generated.

In determining the water requirements for all the environmental assets in the basin, it is apparent that many overlap, and so are hydrologically related — the flows required for one key environmental asset will provide water for other assets, both upstream and downstream. There is also little or no information to determine water requirements for a significant number of the basin’s environmental assets.

The solution is to determine the environmental water requirements for a representative set of indicator assets.

Using this knowledge the Murray–Darling Basin Authority has identified 18 ‘indicator’ assets (see map). Most of the assets are large, have a broad range of habitat types and are located low within their corresponding catchments.

Objectives and targets are being developed for the indicator assets. For Ramsar listed sites the proposed target is to restore the condition of the asset to the condition at the time of Ramsar listing. For non-Ramsar sites the proposed target is to maintain the current extent of the asset, and restore its long term condition to a sustainable level. A Ramsar listing means that the wetland has been included on the List of International Importance, which was agreed to in Ramsar, Iran in 1971.

The flows required to achieve these objectives will be determined using the best available scientific knowledge. This includes vegetation mapping, flood mapping and ecological response modelling.

More information

For more information or to find out how to comment on the proposed Basin Plan, contact engagement@mdba.gov.au or phone free number 1800 230 067. To subscribe to the MDBA email distribution list and/or e-Letter go to www.mdba.gov.au/media_centre/subscribe

Publications that you might find useful are:


Assessing environmental water needs for the Basin www.mdba.gov.au/services/publications/more-information?publicationid=56.

Murray–Darling Basin Authority factsheets www.mdba.gov.au/services/publications

Securing our water future — an introduction to the roles of Commonwealth departments involved in water reform www.environment.gov.au/water/publications/action/securing-water-future.html.

Socio-economic context for the Murray–Darling Basin (ABS, ABARE and BRS) www.mdba.gov.au/services/publications/more-information?publicationid=37.

Sustainable diversion limits issues paper www.mdba.gov.au/services/publications/more-information?publicationid=36.

Acknowledgment. This article was provided by the Murray–Darling Basin Authority. 

RYEGRASS CONSOLIDATES ITS PLACE AS A SOIL IMPROVER

Ryegrass is an established part of soil improvement strategies for high yields in several Goulburn Valley orchards which began testing a theory presented by a local soil scientist in the 1990s.

Bruce Cockroft began soil studies more than 50 years ago and, from his own research and reviews of work by others, concluded that such practices as mulching and ripping to improve soil structure and root penetration were not enough to make a significant difference.

The part he suggested ryegrass could play was to add organic matter and increase porosity through the soil profile via its vigorous and fibrous root system. Sheaths of soil particles develop around these roots (called rhizosheaths) consisting of fine particles glued by root exudates, fine fungi and root hairs. These break up when ryegrass roots die but can leave soil in a more penetrable state.

Testing on farm

It was an idea the Turnbull Brothers at Ardmona thought was worth trying and since first using ryegrass as a tool nine years ago they have been refining management and applying the principle to old and new blocks.

Chris and Al Turnbull grow peaches, nectarines, pears, apples, plums and cherries, and their irrigation methods range from flooding and mini-jet sprinklers to conventional and sub-surface drip. Water is monitored using gypsum block moisture sensors at depths of 30, 60 and 90 cm, and measurements show water infiltrates much better now and is taken up by the trees more efficiently. This improvement is particularly welcome with the advent of cuts to water allocations.

They say there has been a steady building of organic matter over the years and soil structure has improved deeply under the tree lines and across the width of the large banks on which trees are planted.

“Before the ryegrass treatment you could try to push your hand into soil on the bank on which trees were planted and it was like concrete,” Al Turnbull said. “Now a hand will go in easily and pull out a clump of crumbly soil.”

He believes the capacity of fruit trees to grow and produce well has been assisted by deeper taproots and healthy, active lateral roots able to explore a greater volume of soil.



Bruce Cockroft has found that ryegrass will lead to structural improvements to soil, resulting in improved water use.



For growers like Al Turnbull (pictured) ryegrass has become a regular tool for soil improvement.




Water infiltration and the soil volume able to be used by the roots of fruit trees has improved by use of ryegrass.

The Turnbolls, like others who have taken up the idea in the district in the last 10 years, say soil management is evolving. Challenges have included finding ways of getting strong establishment of ryegrass each year and maximising growth across the banks where it is most needed before it has to be sprayed off in spring to prevent competition with the developing fruit.

An important message from Bruce is to recognise that while some parts of the world have what he calls “super soils” with good levels of organic matter and other properties which sustain production, Australian soils are older and lack the attributes of the very productive soils. Our soils are characterised by structurally fragile shallow topsoils, and subsoils that are difficult for the roots of agricultural crops to penetrate.

“Such is the nature of our soil that most organic matter applied to the surface is gone in a matter of months and while earthworms churn it up little is done to increase organic carbon levels and improve structure at a reasonable depth,” Bruce said.

“However, within rhizosheaths organic matter is produced and protected and growers are seeing the results of sowing ryegrass as part of their soil management.”

Acknowledgment. This article was provided by the National Program for Sustainable Irrigation. 



CRCIF

Irrigation looks beyond the latest equipment

Current commercial irrigation technologies may not be enough to help irrigated agriculture perform to its potential, particularly in times of water scarcity.

Research being undertaken by Richard Stirzaker at CSIRO is combining different lines of information in an attempt to get a clearer picture of how well irrigation is being managed. These include knowledge of the irrigator based on experience, actual irrigation as a fraction of maximum potential crop water use, soil water potential monitoring, depth of wetting front penetration and electrical conductivity at the wetting front

The Cooperative Research Centre for Irrigation Futures project, undertaken in conjunction with the National Program for Sustainable Irrigation, is called *Adaptive Learning Through Five Strands of Root-zone Knowledge*. As the title suggests, the aim is to combine grower experience with simple monitoring in a “learning by doing” approach.

A new way of learning about irrigation

Value of the multi-strand approach has been shown in field trials where one line of information indicating a crop is under-irrigated can be contradicted by another line of information, prompting managers to reframe questions and deepen their understanding. Management can be further refined by strands of knowledge which show when loss of water beyond the root-zone is likely to occur or when nitrate leaching should be monitored.

In essence, a new way to learn about what matters in irrigation is being built.

An example Richard Stirzaker offers is the overwhelming focus on water in measurement systems, when including solutes in the pool of knowledge gives a greater insight into irrigation performance while being a tracer that provides a bigger picture view of the effects of irrigation.

“There are also sustainability reasons for an interest in salt because this is a bigger threat to agricultural production than lack of water,” he said. “Similarly,



CSIRO scientist Richard Stirzaker (pictured in his laboratory with a Full Stop water front detector) is seeking ways of directing irrigation management with the aid of simple tools and the guidance of different strands of knowledge which include irrigator experience of local conditions.

nitrogen, being the biggest greenhouse contribution from agriculture, deserves much more attention.”

This illustration highlights the need for ecology to be considered alongside engineering in the design and management of irrigation systems. The human factor comes into the picture more strongly too, with producers able to combine their practical experiences with monitored data.

A development in progress arising from work to date is a data collection and delivery system that can accommodate the five strands of knowledge. It is being developed and tested in laboratory and field conditions and includes automatic salt measurement by a new sensor fitted inside the reservoir at the base of a Full Stop wetting front detector.

Joining forces to commercialise product


Measurement Engineering Australia (MEA) took on the task of manufacturing, programming and testing sensor prototypes. A contribution to the costs of developing the tooling for manufacture was made by the Cooperative Research Centre for Irrigation Futures. The final product, yet to be commercialised, includes a four-electrode temperature compensating conductivity sensor.

By monitoring salinity at the wetting front, the “additional knowledge” picture described by Richard Stirzaker appears. The measurement of salts by

electrical conductivity (EC) showed low levels at the end of winter at a Riverland vineyard field site, with levels rising during the irrigation season and spiking with each irrigation event. There was a clear correlation of rising EC levels with canopy development and in increase in transpiration. Effects of rainfall were also clear. The first two falls of rain in the irrigation season made little difference to EC levels but a third front of rain caused a significant lowering of levels.

Engineering director and co-founder of MEA, Andrew Skinner, believes accuracy and simplicity of the device will be welcomed by researchers as well as growers seeking data. Options until this time have included complex and expensive devices mainly used for research purposes, and sampling methods where applied vacuums and evaporation could cause errors. All tools for measuring solutes, however, are currently under examination by CSIRO.

“The technology acts as a window below ground to see something that is important to the crop as well as the environment, namely the movement and concentrations of salt fluxes,” Andrew Skinner said. “This is the first practical soil salinity monitoring tool to be developed for producers of irrigated crops.”

With parties like MEA and a number of scientists and producers involved across several experimental sites in different regions, new approaches to irrigation management are emerging. 

ICID INSIGHTS



Willem Vlotman, Vice President ICID

SPECIAL WORKING GROUP ON IRRIGATION AND DRAINAGE FOR IAL

As many IAL members are undoubtedly aware, especially those in the rural water organisations, it has been a major challenge to combine activities from both the former ANCID and IAA into the new IAL organisation. Since the merger, IAL has suffered from the typical post merger syndrome, where details were all worked out satisfactorily at National Board level but not in sufficient detail at the work floor. To encourage a successful merger at all levels, the IAL board has approved the establishment of a permanent Special Working Group with a representative from that group having a seat on the IAL Board.

Terms of Reference developed

To put the group on firm foundations from the start, it was recommended that a Terms of Reference be drafted and a call for Expression of Interest to join the group circulated to the IAL membership. This will then be followed by the official formation of the Special Working Group during a meeting with those that have indicated their interest.

Ian Moorhouse, Chris Bennett and Willem Vlotman, who were asked to facilitate the process and form this Special Working Group in IAL, have prepared a draft Terms of Reference for the group. This document has been uploaded onto the IAL website under the ICID section.

ANCID to become AUSCID

As a result of the merger of ANCID and IAL, it is being proposed that ANCID be re-invigorated as AUSCID, the Australian Committee on Irrigation and Drainage. A special meeting will be held during the *Irrigation Australia 2010 Conference and Exhibition* in Sydney Wednesday 9 June to advance the establishment of AUSCID officially.

Exciting role for AUSCID

It is proposed that AUSCID will focus firstly on water matters of national interest and then on international matters. This does not preclude the need to continue with traditional

ICID activities, which have a more permanent nature than some of the former ANCID projects, e.g. benchmarking, Know the Flow and metering. However, ICID affairs should not be the main focus of AUSCID, rather national water matters of interest should.

We would like to see that AUSCID continue facilitate rural water authorities in matters of technical, scientific and social interest. In other words, facilitate networking among our target membership. Through AUSCID, IAL is to be seen not only as representing the irrigation equipment industry, but also the broader rural water industry and natural water resource management organisations, including research and private industry.

Your chance to be involved

Make your voice heard and play a role in this challenge. Express your interest to IAL to become part of AUSCID. You can participate as an officer, a member of special sub-committees, become a project member, or become an ICID Work Body representative.

To register your interest, send an email to Chris Bennett, chris.bennett@irrigation.org.au

For more information phone Chris Bennett 02 9476 1042, Ian Moorhouse, 03 5833 5515 or Willem Vlotman, 02 6279 0175.

VALE HENRI TARDIEU, VICE PRESIDENT HONORAIRE, ICID

Willem Vlotman, Vice President ICID, on behalf of the Australian National Committee on Irrigation and Drainage

It is with great sadness that we had to say farewell to much respected ICID Vice President, Henri Tardieu. Henri passed away on 2 April 2010 after a short illness.

I remember him for his enormous enthusiasm and stubbornness in meetings to achieve values and objectives he firmly believed in, and for being a major force in keeping the French language alive in the ICID. He will be missed thoroughly during our IEC meetings and in the various taskforces and work bodies where he was a major contributor to ICID's mission and representing French interests.

The Australian National Committee of ICID wishes to express their sincere condolences to his family, friends and colleagues. 🇫🇷

IMPORTANT DATES FOR YOUR DIARY

Date	Place and Country	Details
10-16 October 2010	Yogyakarta, Indonesia	6th Asian Regional Conference, 10-16 October 2010, Yogyakarta, Indonesia. Theme: Improvement of irrigation and Drainage efficiency under the small land holding condition. Contact: The Indonesian National Committee of ICID (INACID), Phone +62-021-723-0318, Fax : +62-021-723-0317, Email secretariat@icid2010.org ; inacid_indonesia@yahoo.co.id Website http://www.icid2010.org
First announcement 2012	Adelaide, Australia	7th Asian Regional Conference, 2012, Adelaide, Australia. Contact Chris Bennett, CEO, Irrigation Australia Limited (IAL) Phone +61 2 9476 0142, Fax +61 2 9476 0792, Mobile +61 439 997 491 Email chris.bennett@irrigation.org.au Website www.irrigation.org.au

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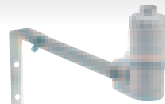
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A TASTE OF IRRIGATION AUSTRALIA 2010 CONFERENCE

The 2010 Conference certainly has something for everybody. The variety of streams and of presentations within the streams reflects the diversity of interests within the irrigation industry. Here are just some examples.

Water trading

Irrigators and policy makers concerned with water trading will have a special interest in the presentation that will open the Environmental, Social, Economic Assessment stream on Thursday morning.

Laurie Arthur, Commissioner, National Water Commission, and Chair of the National Farmers' Federation Water Task Force, is well positioned to talk about *The impacts of water trading in the southern Murray-Darling Basin: an economic, social and environmental assessment*'.

Laurie will be presenting the results of the commission's study of the economic, social and environmental impacts of water trading in the southern-connected Murray Darling Basin (sMDB) over the last two decades. The final results of the study will be released at the conference and reports will be made available. The report fulfils the commission's commitment under the National Water Initiative (NWI)

to monitor and report on the impacts of interstate water entitlement trade in the sMDB and provides baseline data and a repeatable approach for a second assessment in 2012.

Urban irrigation

Urban irrigation is an important part of the irrigation industry in Australia, employing thousands of people and contributing significantly to amenity and economic values.

If you have an interest in urban irrigation issues, then Thursday morning's urban stream is not to be missed. It's all there - presentations on maximising the benefit of sportsfield irrigation upgrades, and irrigation management and technology, including soil moisture sensing and central control.

Andrew Porter from the consultancy firm URS Australia will present a case study on *IrrigationSmart*, and outline a trial to improve residential irrigation systems across the ACT. The recent prolonged drought in Canberra and tightening water restrictions regimes were the impetus for research on domestic garden water use and the *IrrigationSmart* pilot program across 200 households. The aim of this program is to improve automatic, programmable irrigation systems through re-programming to account for seasonality, direct improvements such as fixing leaks and supporting behaviour change initiatives. Andrew will be presenting many lessons that can be taken on board by urban irrigators and policy makers.

Metering stream

Metering is a hot topic at the moment for irrigators, irrigation water supply companies and support services, who all will be affected by the new National Metering Standards for on-farm metering installations that are being implemented to provide a framework for improving water resource use accounting.

Tuesday afternoon features a conference stream devoted to metering. Included in the presentations is a paper by Geoff Mann, a Goulburn-Murray water metering project officer, who will present information on how G-MW is meeting the challenge of the national metering policy.

Mann has a background in irrigation design with a focus on farm irrigation efficiency and he has been instrumental in developing new metering designs and adapting G-MW practices to reflect the intent of the national metering standards. He will cover aspects of the national standards from a water service provider's perspective and expand on some of the implications for managing a metering fleet within the context of the national framework in order to contain operational cost.

Mann says in his presentation abstract: "Whilst there is little doubt of the merit in applying standard procedures to non urban metering, there remains a degree of interpretation, questions and knowledge gaps within the irrigation industry in relation to the application of the standards which require further understanding. These issues need to be fully explored and comprehended, prior to an effective and efficient Quality Assured system for non urban customer metering being developed that will not overburden the irrigation industry."

This is a must attend session for many.

Conference to finish with a bang

The draft program calls it a Q & A session hosted by Ticky Fullerton, with a panel to be announced. But don't be fooled that this conference finale will be a sedate affair. You won't want to leave the conference early on the last day because you won't want to miss this session.

The theme of the Q & A session will be: *What should irrigation policy and practice look like in 2020 when we have spent \$30 billion dollars of public and private money?* There's a lively topic for starters. Add to the pot a panel of six and have them stirred up by the host, and you might just get a volatile brew.

Confirmed panellists include conference keynote speaker, Sandra Postel, director the independent Global Water Policy Project, based in New Mexico, USA, and a leading authority on international water issues, who will be providing an environmental perspective; and Richard Stirzaker, scientist and author of *From the Scientists Garden*, a new CSIRO publication that looks

at how food and water interact and the conundrums of modern food production in settings ranging from the domestic vegetable garden to subsistence plots or crops on vast irrigated plains. Also on the panel are Senator Bill Heffernan, Matthew Stott, a young irrigator from Griffith in the NSW Riverina district, and Murray Smith, an expert on catchment water supply.

But, as they say, wait there's more. Panel host will be Ticky Fullerton. Anyone familiar with Ticky Fullerton's background will know that she will be no meek host. She is a longstanding ABC journalist with roles that included presenter for *Lateline* and investigative reporter for *Four Corners*. Ticky, a director of the CRC for Irrigation Futures, also won the Australian Government Peter Hunt Eureka Prize for Environmental Journalism and is the author of *Watershed*, one of the first comprehensive books on the future challenges facing Australia in water and the tensions between the many

stakeholders in our water future. Ticky is never meek or quiet, so we might just get a few fireworks in this finale.

A Q & A session will provide the finale to Irrigation Australia 2010 Conference. Don't miss the fireworks as our six panellists discuss what irrigation practice and policy in Australia should look like after we have spent \$30 billion. 



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EXHIBITION FOR ALL INTERESTS AND TASTES

With around 100 companies and organisations taking stands at the Irrigation Australia 2010 Exhibition, there will be products and technology on display to suit all tastes and interests.

Over 20 companies will be exhibiting for the first time. One of these, Geo9, is a new company launched last year to provide an alternative to divining and exploratory drilling. It offers “accurate and cost effective groundwater location help” to farmers anywhere in Australia looking for bore water.

Maya Sydney, Principal of the company says “Geo9 has a 9 step approach to finding groundwater that combines aerial and satellite data analysis with on-site geophysical surveying. Geo9 can’t eliminate all risk associated with drilling, but we can maximise your probability of success.”

By way of contrast, Nelson Australia is one of the many regular exhibitors at IAL’s biannual Exhibition. Nelson now stocks the full range of Hunter golf irrigation equipment, which will be on display at the Nelson Australia stand. Although Nelson already had exposure to the golf course industry, through Hunter’s commercial range of products, the introduction of the complete Hunter Golf range will take their commitment to this industry to a new level.

In a vote of confidence in its value, two national business groups – Irrigear and Think Water - will be returning to the exhibition this year.

Irrigear Stores is a national group of 54 independently owned irrigation stores that this year will celebrate a 20-year anniversary, welcome two new Victorian member stores, launch a Community Marketing Program and undergo a change of leadership. Irrigear’s national Community Marketing Program formalises the work many of the stores are already doing in their communities and takes it to the next step, with a complete kit designed to make the task of supporting communities easier. Under the program, community groups can approach their local Irrigear store for support packages designed to provide funding and facilities for special events or even regular activities.

Think Water, formerly the Independent Water Group, is another network of independently owned irrigation



Irrigation installation by Berri Native Plants, Berri, South Australia, using the TRENCH'N edge Trencher. Photo supplied by Andrew Walladge, Berri Native Plants

and general water service businesses that is growing rapidly across Australia, and has recently expanded into New Zealand. Founded less than three years ago with 33 foundation members, Think Water now has 42 member businesses across Australia and two in New Zealand offering water efficient irrigation and general water solutions to all market sectors; from agriculture and industrial sectors to domestic and local government.

Fancy a holiday in Italy? Be sure to visit the IB International stand. Not only will you be able to see the new technology on display but you can enter their competition for a trip to Italy. IB International imports and distributes Ocmis Hardhose irrigators and carries the largest range of Dallai couplings, including stainless steel, poly and more for serious applications. IB International will welcome Mr Mirco Dallai, who is attending this year from Italy. He will be on the stand to answer any questions.

Another international perspective will be bought by TRENCH'N edge Trencher from the USA that has developed an affordable and versatile irrigation trencher designed specifically for the installation of subsurface drip irrigation systems. Patrick Dean, President of the TRENCH'N edge Trencher says that the method of discharging the trenched material directly into the previously dug trench dramatically reduces the handling of trench spoils, thus decreasing installation and clean-up labour costs. The new trencher can also be used to install water reclamation systems from newer technology septic systems.

The exhibition has also become an important venue for launching new products that demonstrate the industry’s commitment to water efficiency and innovation. This year there will be hot competition for the Best New Product Award, with over 40 entries submitted by the end of April.



OCMIS Hard Hose Irrigator VIR Range sold in Australia by IB International Irrigation

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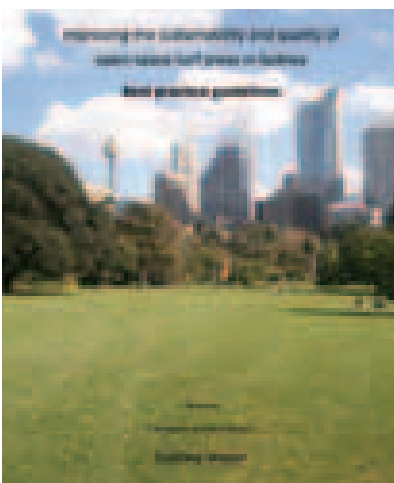


Thumbs up for irrigation efficiency training

IAL's Irrigation Efficiency Training Course has been approved by the Smart WaterMark independent Technical Expert Panel.

The two-day course trains participants in irrigation system evaluation techniques, including: locating, analysing and correction faults; measuring system application efficiency; preparing efficient irrigation schedules; and correct operating and maintenance procedures.

The Irrigation Efficiency course is one of a growing number of irrigation services approved the Expert Panel. These range from industry guidelines such as Sydney Water's *Irrigation Best Practice Guidelines* and QWC's *Efficient Irrigation for Water Conservation Guideline* through to consultancies including One Stop Sprinklers, Knowledge Tree, Irrigation Management and TIMPAK.



The IEC course and Sydney Water's *Irrigation Best Practice Guidelines* are just two of the services that recently have received Smart Approved WaterMark approval.

The NGIA's *Ecohort* and NIASA training and accreditation programs were also approved in this application round.

IAL's Irrigation Efficiency Course is a practical course that gets participants out in the field to practise what they have learnt.

Irrigation leading the way in water saving

Australia continues to applaud the latest technology and innovation in the irrigation arena helping commercial organisations and consumers save water.

The latest round of approvals from Smart WaterMark are showing a trend in irrigation products applying and being approved for their water saving capabilities.

Among the approvals is Deep Drip, from Underhill International. Deep Drip tree watering stakes help in the watering, fertilisation and aeration of root systems. This product reduces water use by targeting the roots, decreasing evaporation. Deep Drip can be used in conjunction with automatic landscape drip systems.

Maccaferri's Eco Rain is a sub-surface geotextile irrigation mat. Pressure compensated dripping tubes supply water to the irrigation mat to provide even watering to the root system. Eco Rain has been successful in saving water in semi-arid climates, golf courses, football stadiums, sloped areas and other landscaped facilities.

Rain Bird Australia have two irrigation products approved in this round, bringing the total of Rain Bird products with Smart WaterMark certification to nine. The WR2 Series Wireless Rain/Freeze Sensors and SMRT-Y Soil Moisture Sensor are both irrigation controllers, with the ability to interrupt the irrigation system based on soil moisture, precipitation or low temperature.

The WR2 Series Wireless Rain/Freeze Sensors allows irrigation systems to be interrupted if rain or low temperature is sensed. Specifically designed for 24VAC residential and commercial irrigation systems.

SMRT-Y Soil Moisture Sensor is a soil moisture sensor that adds closed-loop feedback to irrigations systems, conserving water by controlling the on-off function of the system after taking soil moisture readings every 10 minutes.

Keep an eye out for more exciting products and services to be approved by Smart WaterMark.

Smart WaterMark will have a display banner at the Irrigation Australia stand at the *One Water Many Futures* conference at Sydney Exhibition Centre on 8 to 10 June; come and say hello!

Smart WaterMark Joins the Global Water Footprint Network

Smart Approved WaterMark, has joined the Global Water Footprint Network - a global network of private and public sector organisations, as well as academic institutions, which aims to promote the sustainable, fair and efficient use of the world's fresh water resources.

CEO of Smart WaterMark, Julian Gray, believes this relationship will ensure we are informed about the most current research on embedded water, and water use around the world. CSIRO and Smart WaterMark are the only Australian organisations registered with the network.

"Australia is at the cutting edge of water conservation activity and research. It is important to be part of these global networks to help promote the sustainable use of water," said Julian.



The Water Footprint Network seeks to advance the concept of 'water footprinting' as a means of understanding and addressing the negative impacts of the production and consumption of goods and services.

For more information:
www.waterfootprint.org

THE BIG ISSUE

COMMONWEALTH INFRASTRUCTURE FUNDING AGREEMENTS: ISSUES FOR IRRIGATION INFRASTRUCTURE OPERATORS

Jenni Mattila Lawyers, Sydney

Irrigation infrastructure operators around Australia have recently been offered or are currently considering the opportunity presented by the Commonwealth funding programs in the next round to upgrade irrigation infrastructure. The aim of the funding is usually to generate water savings that can be transferred to the Environmental Water Holder or to upgrade and improve efficiencies in existing schemes or, in some cases, to jointly fund new extensions to existing irrigation schemes. Most Commonwealth Government funding comes from the Water for the Future Program; others are separate joint Commonwealth/State initiatives.

At present there is no allowance within the funding agreement to cover the taxation, other than GST on the components not associated with the transfer of water entitlements. Funding will trigger the usual CGT consequences for irrigators or infrastructure operators transferring water entitlements, and income tax on the component associated with the infrastructure changes. While there is accelerated depreciation for some irrigation infrastructure, the time lag between the payment and the period over which the infrastructure is depreciated should be taken into account and the capacity to pay the taxation costs considered.

Consideration will also need to be given to establishing an Asset Maintenance and Renewal Fund for the whole-of-asset life (sinking fund) if the irrigation infrastructure operator does not already have one. This will be particularly important where significant scheme works are being undertaken as it is unlikely that government funding will be made available again in the future. Asset maintenance and renewal funds are also necessary because the banks do not consider irrigation infrastructure to be adequate security for major funding as they say “we do not lend on holes in the ground”.

The basis for the transfer of entitlements in the MDB

The Water for the Future Commonwealth Funding Agreement (Funding Agreement) provides in general for individual farms or irrigation infrastructure operators:

1. to transfer permanent water access entitlements to the Commonwealth to form part of the Commonwealth Environmental Water Holdings on the basis that infrastructure upgrades and changes to farm practices will be undertaken in accordance with the Agreement
2. to be paid an integrated funding amount for the permanent water access entitlements and to undertake the obligations and responsibilities required by the agreed integrated package of works.

Structure of the Funding Agreement: on-farm works and scheme infrastructure upgrades

The Funding Agreement provides that where there are both on-farm improvements by individual irrigators (on-farm) and scheme upgrades by an irrigation infrastructure operator (irrigation corporation) the main responsibility to meet the obligations under the Funding Agreement rests with the irrigation infrastructure operator. The irrigation infrastructure operators are in a similar situation to a “head contractor” over the entire area where both scheme works and on-farm works are being undertaken. Irrigation Infrastructure operators are liable for compliance with the Funding Agreement in relation to all on-farm works, scheme upgrades and contractors.

Managing and supervising on-farm works, scheme upgrades and contractors are ultimately the responsibility of the irrigation infrastructure operator. It is absolutely critical that strong processes, systems and compliance programs are in place to ensure that individual farm owners undertaking on-farm works comply with the relevant statutory regulations and contract with the irrigation infrastructure operator.

Obligations to meet before the Funding Agreement is signed

The Funding Agreement sets out the standard obligations in a Government contract of this type that must be met by the irrigation infrastructure operator including:

- Warranting that the irrigation infrastructure operator is legally entitled to assign the relevant water access entitlements to the Commonwealth.
- Set of systems and procedures in place for compliance with the National Code of Practice for the Construction Industry for projects over \$5 million.
- Set of systems and procedures in place for compliance with the Building and Construction Occupational Health and Safety Accreditation Scheme for projects over \$5 million.
- Compliance with the Water Market, Charge and Trading Rules.
- Compliance with any environmental law and native title obligations, both State and Commonwealth, as well as any other applicable law.
- Insurance requirements: workers’ compensation, public liability, asset insurance, professional indemnity.
- Provision for security – usually a bank guarantee or bond.
- Environmental assessment.
- Archaeological assessment.
- Approval of sub-contractors – if necessary Commonwealth approval of a lead contractor, lead design/construction team and project manager.
- In relation to on-farm works, a compliance system to determine whether all contractors have the necessary licences, technical skills (as required by the National Code), insurance required for all on-site work, proven capacity to meet deadlines under workplans and milestones and, once approved, they have signed the relevant contracts before doing any work.
- Setting of whole-of-project milestones and the provision of annual workplans.

- Funds to be held in a separate bank account or accounts (on-farm funds could be held separately to scheme specific funds).
- Audit program.

Irrigation infrastructure operator ongoing obligations

1. Ongoing compliance obligations as established as a condition of entering the Funding Agreement.
2. Indemnity - the irrigation infrastructure operator indemnifies the Commonwealth against loss or damage and in particular against legal claims against the Commonwealth (which may be up to 100% contract value).
3. Records – on the progress of the work undertaken, particularly meeting milestones; receipt and use of funds, acquisition of assets; creation of intellectual property and records relating to the agreed water savings.
4. Reporting – regular reports certified by the irrigation infrastructure operator’s CEO that the funding was received and spent based on the workplan and milestones and in compliance with that agreement.
5. Access to premises – in particular the Auditor General may require access

to premises and records to undertake an audit. Various other persons may also be required to be given access if required by the Commonwealth.

6. Any unspent funds are to be returned to the Commonwealth.

Individual irrigator obligations in relation to on-farm works

Individual irrigators have a separate agreement with the irrigation infrastructure operator which may in part mirror the agreement the irrigation infrastructure operator has with the Commonwealth. All on-farm agreements must be executed in time to coincide with the execution of the irrigation infrastructure operator Funding Agreement with the Commonwealth.

The Individual irrigator on-farm agreement with the irrigation infrastructure operator will require that:

- The irrigator holds a water access entitlement and has entered into a water access entitlement assignment contract in accordance with the Commonwealth Agreement and is listed in the Schedule to that Agreement.
- All on-farm works must be carried out in accordance with the

Commonwealth Agreement and must meet the milestones and workplans relevant to those on-farm works.

- Funding is provided to the irrigation infrastructure operator and the irrigation infrastructure operator must ensure on-farm funding is spent in accordance with the contracted on-farm project.
- Conforming financial records are kept of each on-farm project and any asset acquisition or sale.
- The individual irrigator must have the relevant insurance, including public liability insurance and asset insurance.
- The irrigation infrastructure operator must insure that any person undertaking work in relation to an on-farm project meets the necessary irrigation infrastructure operator approval criteria including: having all necessary insurance, meeting the relevant requirements under the National Code of Practice for the Construction Industry, meeting OHS requirements and obligations, and having been approved by the irrigation infrastructure operator to undertake the work and has executed the relevant contract for the provision of on-farm works.



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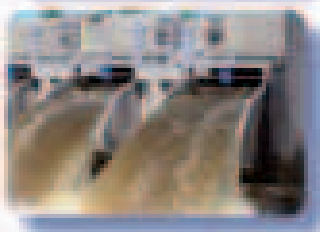


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THE BIG ISSUE

- The irrigation infrastructure operator must manage and monitor on-farm projects and is responsible for enforcing the agreement with the individual irrigator and protecting the rights of the Commonwealth.
- Any unspent funds in relation to the on-farm projects are to be returned to the Commonwealth.

Initial project expenses and project set up

The Commonwealth Funding Agreement requires the following pre-conditions:


- insurance specified in the agreement as well as construction works insurance which falls under the National Code of Practice for the Construction Industry
- security by way of bank guarantee or bond.
- comply with the National Code of Practice for the Construction Industry together with the relevant Guidelines Building and Construction Occupational Health and Safety Accreditation Scheme.

All of this imposes significant obligations. In particular, it will be necessary for either the irrigation infrastructure operator or its approved subcontractor to have a balance sheet capable of supporting the financial obligations incurred under the construction project and to meet the National Code of Practice requirements in relation to security of payment.

Compliance systems will need to be in place to cover:

1. Site management
2. Environmental obligations
3. OHS obligations
4. Commonwealth Funding Agreement Compliance with emphasis on the risks and financial consequences for the infrastructure operator in the termination clauses for non-compliance with the Funding Agreement for non-compliance by either the infrastructure operator or the irrigator
5. Project management systems to meet Milestones and workplans
6. Contract management for scheme upgrade or decommissioning
7. Contract management for on-farm works and compliance program for all "on-farm" contractors
8. Reporting systems to meet Commonwealth Funding Agreement requirements
9. Financial reporting systems to the Commonwealth Funding Agreement requirements
10. Separate bank account/s and internal financial reporting systems from the irrigation infrastructure operator.

Conclusion

While the compliance requirements associated with the Funding Agreement are onerous for small irrigation infrastructure operators, they are no more than would be necessary if the project was self funded. This is a once-in-a-lifetime opportunity to upgrade scheme infrastructure and on-farm works and to set up the internal systems to ensure that the scheme infrastructure is maintained into the future. It is, however, important to understand that there are significant obligations involved in entering the Commonwealth Funding Agreements, and these obligations should be carefully considered and well understood before proceeding. It should also be noted that there is a hair trigger termination clause in the agreement and the irrigation infrastructure operators as well as the individual irrigators should bear this in mind. 



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WATER USE STATISTICS RELEASED

In April the Australian Bureau of Statistics released *Water Use on Australian Farms, 2008-09*.

Key findings were:

- agriculture remained a major consumer of water in the Australian economy in 2008-09
- the volume of water used for irrigation, and application rates, rose slightly in 2008-09, the first increase since 2005-06
- Australia's total agricultural water use in 2008-09 rose 4% to 7,286 GL, driven by increased water use in NSW (up 14%) and Queensland (up 13%).

However, compared to 2005-06, total agricultural water use in 2008-09 was down in almost every state, particularly NSW (down 56%) and Victoria (down 49%).

Irrigation water use

Of the 409.0 million ha of agricultural land in Australia in 2008-09, less than 1% were irrigated. However, 29% of all agricultural businesses undertook irrigation during 2008-09.

The amount of irrigation water used by Australia's 40,000 irrigating agricultural businesses increased three per cent to 6,501 GL in 2008-09. Water use increased 14% in NSW and 12% in Queensland, with these increases partly offset by a decline in Victoria, down 10%, WA, down 21%, and SA, down 6%.

Queensland continued to be the largest irrigating state, using 2,058 GL of water for irrigation in 2008-09. WA had the highest application rate at 4.7 ML/ha of irrigated land.

Nationally, the application rate increased to 3.7 ML/ha from 3.4 ML/ha in 2007-08. The application rate had



The ABS released its latest *Water Use on Australian Farms* report for 2008-09. The volume of water used for irrigation, and application rates, rose slightly in 2008-09, the first increase since 2005-06. Photo: Merv Jessen, IAL.

been declining since 2002-03, with the exception of 2005-06 where the rate remained steady at 4.2 ML/ha.

Of the states and territories, Victoria and NSW had the greatest number of irrigating agricultural businesses in 2008-09, accounting for 51% of all of Australia's irrigating businesses. Tasmania had the highest proportion of irrigated agricultural land (5%) and the highest proportion of irrigators (49%).

The area of irrigated agricultural land decreased in most states/territories with the exception of Queensland (up 7%) and the Northern Territory (up 25%). The largest decrease in the area irrigated was in Victoria, down 13% to 371,000 ha.

In 2008-09 the Murray-Darling Basin (MDB) accounted for 38% of

Australia's irrigating agricultural businesses, 53% of all irrigated agricultural land and 54% of irrigation water applied.

Increases in volumes of irrigation water applied in 2008-09 were recorded by the northern reaches of the MDB, with Queensland MDB up 64% and NSW MDB up 17%. The southern parts of the MDB, however, recorded decreases in volumes of irrigation water applied in 2008-09, with Victoria MDB down 15%, and SA MDB down 6%.

Information

To read the report, go to website <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4618.02008-09?OpenDocument>

SOMETHING GETTING UP YOUR NOSE? GOT AN OPINION ON AN IRRIGATION

Then tell us what you think - write a letter to the editor.

A number of readers have asked for a Letters to the Editor page and here at *Irrigation Australia* we'd love to hear what you think about an issue in the irrigation industry - any issue.

Send your letters to Anne at email anne@naturallyresourceful.com.au

CEO'S MESSAGE

I have a date in mind, an important date for IAL and its members. A date which, if everything goes according to plan, will see a transformation in the way IAL works and provides services to its members and stakeholders. If we are successful in our funding applications, it will see IAL take on 11 new projects which are specifically aimed at delivering new and more benefits to members, to leverage IAL's activities and to truly make a difference.

The more I talk to members, the more I see a group of incredibly passionate and enthusiastic people, people who are very knowledgeable and skilled in what they do and very keen to keep up with new technology and ideas. If we take this passion and knowledge and add it to the 11 new projects, we will see an enormous increase in IAL's activities, influence and (most importantly) delivery of benefits to members and the industry as a whole.

As you are aware, IAL has undergone a number of important internal changes with some significant restructuring. This preparation was done to ensure IAL had both the capability and capacity to deliver the new business plan we have developed for 2010-2013. This business plan is the most significant and comprehensive IAL has yet executed. More and better training opportunities; more certified professionals; greater recognition and opportunities for those professionals; more contact and services delivered into more regions; a higher profile and influence for the organisation and its members; better resourced and more active regions; more technical information provided; more business opportunities for members; a greater engagement with ICID; the support for specialist groups including AUSCID (Australian Committee for Irrigation and Drainage); a closer relationship with regions and SIGS; and the list goes on. This is all on the agenda and planned for 2010 – 2013.

Oh, that's right, the date. Put it in your diary, it's 1 July 2010.

Chris Bennett
CEO

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INCREASING CERTAINTY FOR THE URBAN IRRIGATION INDUSTRY

Tim Gilbert, Industry Development Manager, IAL

The urban irrigation industry has suffered under various water restriction regimes across most of Australia throughout the last 5 to 10 years. To their credit, governments have responded to supply shortfalls in most Australian capital cities with significant investment programs for new water sources, with around \$30 billion to be spent in the next five to ten years to restore urban supply reliability. The commissioning of this infrastructure, combined with improved rainfall in many urban centres, is enabling governments to shift away from water restrictions.

IAL and industry challenge

The ongoing challenge for the urban irrigation industry is, irrespective of the investment in supply side, to ensure a continued focus on permanent demand side measures, especially outdoor demand management.

Why is this? For the urban irrigation industry there are business certainties that can be achieved through a more structured, ongoing approach to outdoor demand management, while for governments there are obvious public policy benefits such as:

- maximising the economic efficiency of past and new investment in

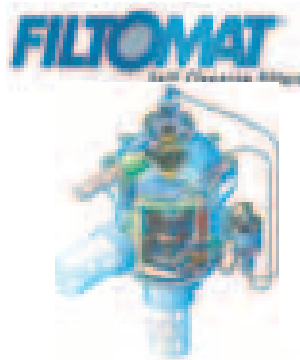
supply infrastructure, especially in the face of population growth and uncertainties of climate change; thereby minimising the likelihood that short term restrictions will need to be re-introduced

- low cost water savings can be made as an alternative to large scale infrastructure, especially where governments are willing to harness industry expertise in the framework for outdoor water conservation
- continued demand management preserves water savings and reduces elasticity of water use, and therefore reduces outdoor water use as an easy target for future short term restrictions.

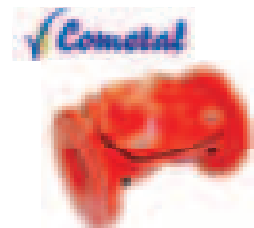
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While it is impossible to entirely remove the threat of future restrictions or to control or predict how governments will choose to apply them, the aim of IAL is to promote credible alternatives to governments that reduce the exposure of urban irrigation industries as primary targets when future water restrictions are being considered. IAL is working hard on behalf of the urban irrigation industry to develop and promote these policy alternatives and to help governments shift to sensible permanent, outdoor demand management measures.

Ken Woods, Chair of the IAL's Industry Supplier Group, says "policy results don't come quickly or easily, however, the IAL's direction and approach to urban water policy is clearly correct and necessary for achieving greater certainty for the urban irrigation industry in the medium to longer term".

The key elements IAL is seeking to include in permanent demand management measures is irrigation performance benchmarks and the involvement of Certified Irrigation Professionals to link irrigation operators with the water efficiency expertise that is available in our urban irrigation industry.

IAL work on urban demand management policy

Some examples where IAL has worked hard to get good outcomes for the urban irrigation industry include:

SE Queensland domestic irrigation. Efficient irrigation systems are now able to be used in southeast Queensland. An efficient irrigation system includes prescribed combinations of equipment OR the system can be certified by an IAL Certified Irrigation Professional. This is the first jurisdiction in Australia to formally recognise IAL's certification program through regulation, and creates a potential certification market for the services of competent people in the urban irrigation industry. According to Ken Woods, "After long periods of restrictions, the southeast Queensland policy framework will enable considerable pick up in commercial opportunities with the right climate conditions in this region".

SE Queensland open space irrigation. Managers of some categories of open space irrigation are now required to prepare irrigation Water Efficiency Management Plans (iWEMPs) and have the plan certified by an IAL Certified Irrigation Professional.

Sydney domestic irrigation. The NSW Government lifted Sydney's water restrictions in June 2009. Ken is pleased by the lifting of restrictions but also said "this decision by the NSW Government was a surprise to all in the urban irrigation industry in Sydney and confirms why we need IAL to be vigilant about policy, and continue to be involved with governments to increase certainty for our businesses. However, the lifting of restrictions does give a boost to the industry in Sydney after years of negativity."

IAL is working with Sydney Water seeking to pilot an Irrigation Systemcheck program that could be used in lieu of future low level restrictions.

Sydney open space irrigation. Sydney Water is preparing best practice turf management guidelines, including chapters on irrigation scheduling and performance. IAL, and some local IAL members, have been helping them with drafting relevant chapters, and we have had preliminary discussions with Sydney Water about training that may support implementation of these guidelines.

SA Advisory Committee. IAL is a member of SA Water's Project Advisory Committee, which is examining alternative schemes to the current water restrictions. This committee is expected to have a preferred alternative domestic irrigation policy framework later this year.

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WA temporary winter irrigation

ban. In WA the winter 2009 ban on sprinkler irrigation has become a permanent measure on the basis that it had saved 2.2 GL of water over the two-month trial in 2009, and that the measure was supported by 93% of the community based on an independent survey. The local IAL Region has been working with WA Water Corporation to minimise any impacts of this decision on the industry seeking by-laws for the temporary restrictions that would enable irrigation systems to still be installed, commissioned, tested and maintained during the ban. Despite the winter bans, Ken remains confident about the market in WA saying “the WA market remains sound, resulting from a combination of WA being a relatively mature section of the industry, and the local IAL work to ensure we meet the challenge of the winter bans”.

Victoria open space irrigation. IAL has recently had discussions with the Institute of Public Works and Engineers Australia (IPWEA) and several Melbourne-based local councils about developing an open space irrigation improvement program. The idea would be to set voluntary irrigation performance benchmarks and management principles, have participants sign a Memorandum of Understanding with IAL and IPWEA committing to prepare open space irrigation plans to meet performance benchmarks over a specified timeframe, to implement management principles, prepare and implement an irrigation schedule, and to audit and report irrigation performance.

This work will, in many cases, generate new commercial opportunities for the urban irrigation industry, as well as provide greater long term business certainty through reduced potential for water restrictions. Ken said that “the IAL’s Industry Supplier Group is excited about the policy frameworks that are emerging around the country, and is pleased that IAL is now an increasingly respected and influential government stakeholder at Commonwealth and State levels”.

Support your association

IAL is working hard on behalf of its members to develop these approaches with governments and to help the government and industry (including you) to implement these programs. We are looking to our members to support these activities and to become involved to make them work well. 

Young irrigators find their voice in Canberra

In April this year four young farmers, chosen to take part in the Voices of the Future Irrigated Industries Mentoring Program for 2010, headed to Canberra to participate in discussions on the future of Murray-Darling Basin.

Two of these young farmers were Jerilderie dairy farmer, Troy Mauger, and Deniliquin rice grower Lachlan Bull. Troy and Lachlan are being mentored by Adam Kay, Cotton Australia CEO. While in Canberra they visited policy makers, industry leaders, the NFF and Government officials.

Troy is a partner/operator of a dairy farm in Jerilderie, NSW. The farm produces 2.5 million L of milk annually from 340 milking cows (half Holstein, half Jersey). Lachlan grew up on a rice farm, working with both surface water and bore water irrigation. He is a rice grower and is involved in all aspects of production.

The Irrigated Industries Mentoring Program is the third stage of the Voices of the Future initiative which saw young irrigators from across the cotton, rice, dairy and grape and wine industries come together to build leadership skills and discuss ideas regarding the future of the Murray-Darling Basin from their own industry’s perspective.

Key irrigation issues for the dairy industry

According to Troy, that the program was a great opportunity for him to present to key decision makers about the issues affecting the future of the dairy industry, as well as the Murray-Darling Basin.

He said that key issues for the dairy industry are the need for security and certainty about the percentage of water being delivered against entitlements each year.

“Perhaps there’s room to trade part of our total allocations for certainty of entitlement allocations on a rolling average basis. Research has shown

certainty creates confidence and confidence leads to increased and better informed investments.

“We need to be looking at different ways as to how the dairy industry can be considered as part of a broader plan for the Murray Darling Basin, particularly with the knowledge that 52% of Australia’s milk production comes from irrigated farms located within the Murray-Darling Basin,” Troy said.

He added that the future of the dairy industry depends on reliable and secure access to irrigation water and certainty in Commonwealth and state water policies.

Other issues included transparency of the science, third party impacts and the tight time frame of preparing the draft basin plan.


Security a big issue for ricegrowers

Deniliquin rice grower, Lachlan Bull, was as enthusiastic as Troy about his visit to Canberra.

As with the dairy industry, Lachlan said that one of the key issues for the rice industry has been the lack of security of water entitlements and therefore an inability to plan ahead and invest accordingly.

“It’s possible that we may need to trade part of our overall entitlement in exchange for greater water security. We need to be looking at different ways the rice industry can be considered as part of a broader plan for the Murray-Darling Basin,” Lachlan said.

He was also looking to how he could influence the Murray-Darling Basin Plan.

“While the Plan is obviously in the pipe line, I believe there will come plenty of opportunities over the next five years to be able to influence its future direction and how the rice industry can be best represented, and I look forward to being able to make a real contribution on behalf of the rice industry,” he said. 

Keep up to date with irrigation news and IAL activities... visit www.irrigation.org.au

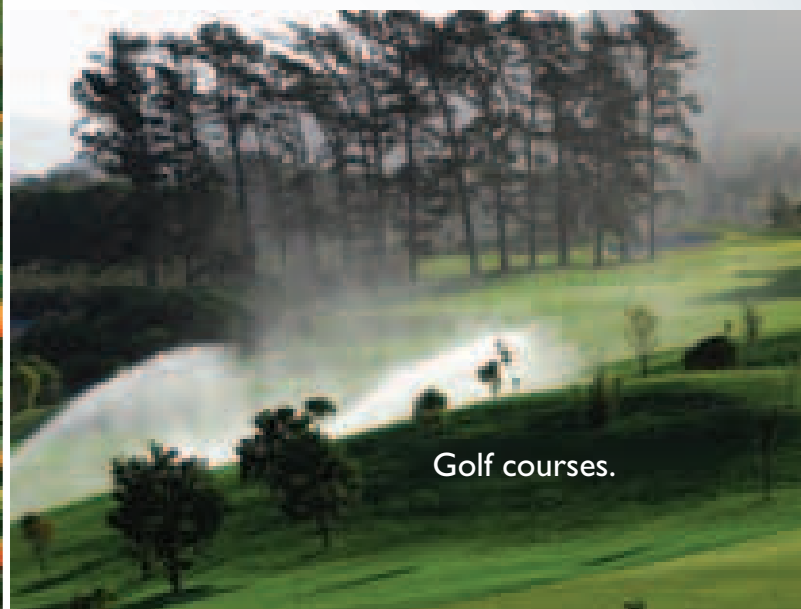


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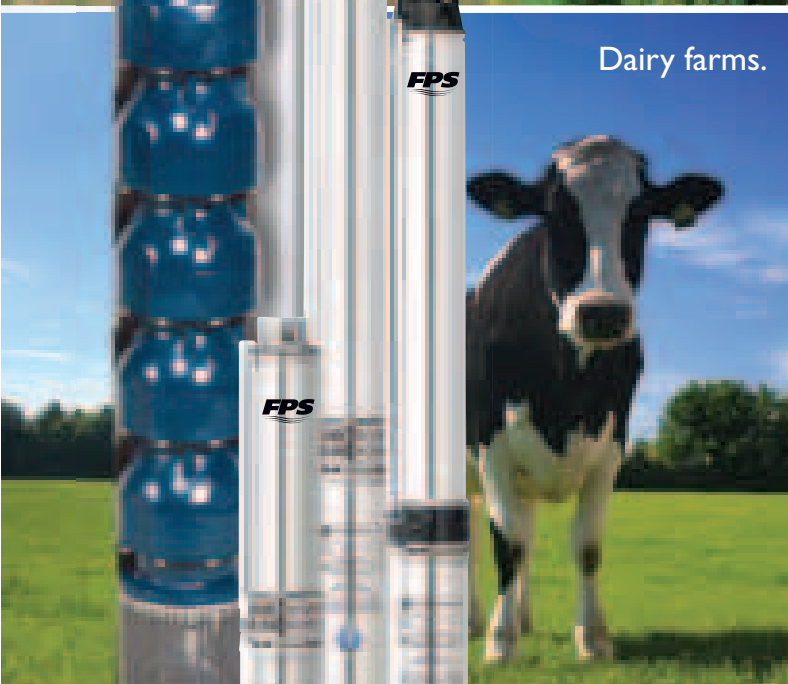
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BRIGHT FUTURE AHEAD FOR QUEENSLAND'S IRRIGATION INDUSTRY

Irrigation Australia spoke with Mark Quayle and Merv Jessen, IAL industry development officers, to find out the latest about what's happening in Queensland. The bottom line is that improving water use efficiency remains a key issue for both rural and urban irrigation.

If we had been writing this article at the beginning of last year we certainly wouldn't have been able to begin by saying the outlook for irrigation in Queensland is extremely bright. Fortunately, after widespread rains this summer, the outlook has improved.

Recent figures (April 2010) indicate that the total combined capacity of fifty-nine of Queensland's irrigation water storages is 88%, with around two thirds of the state's storages at 100% capacity; only six smaller storages are below 50% of full storage capacity. This means that in most of the state, the next few years for look very positive for people involved in irrigation. This is not to forget that, even with the luxury of an abundant supply of water, improving water use efficiency is a high priority throughout rural and regional areas.

Challenges for irrigated agriculture

With many irrigated industries facing decreasing terms of trade caused by low commodity prices and higher input costs, irrigators will need to focus heavily on water, energy and labour efficiency to remain competitive. Over the 10-year life of the Queensland Government's Rural Water Use Efficiency program, across the major irrigated industries throughout the state, considerable gains have been made in improving water use efficiency levels across the major industries.

The program has also highlighted the need for well trained irrigation professionals who are well equipped to meet these challenges. The development and delivery of quality training programs to all irrigation industry participants is a major requirement if the industry's needs for highly skilled professionals are to be met.

North Gulf Catchment trials new approach to improving agricultural WUE

One concept that is proving to be highly successful in achieving better irrigation and productivity is the implementation of a specialist team approach where irrigators have access to a range of professional services to improve irrigation efficiency levels.

Merv Jessen has been involved in a pilot program has been initiated by the Northern Gulf Catchments Region of North Queensland. This program brings together a range of services to growers throughout the region, including specialised mapping and surveying services, irrigation system evaluation services, professional irrigation system advice as well as crop nutrition, agronomy and irrigation scheduling services.

"This approach has the benefit of not only identifying the problems and issues associated with the irrigated enterprise, but it also provides real solutions and provides follow up assistance in making the required changes.

"The coordinated team approach has already provided some real benefits to local growers, and I'm keen to implement this throughout other regions across the state," explained Merv.

Southeast Queensland looks to maintaining efficiency gains

With on and off rain in coastal Queensland since the beginning of the year, the urban irrigation industry is feeling very positive about the future. Mark Quayle says that the outlook for his patch, southeast Queensland, fortunately is as bright as for the rest of the state.


"With dam levels now at 97.7%, and the forecast of rain is no longer a novelty celebrated with joyous expectation, some contractors are saying that they have had problems getting onto to waterlogged sites!" said Mark

As a result of the rain, the average daily consumption for the area has not been above 158 L a person per day for March.

Mark explains that this is in part because The Permanent Water Conservation Measures (PWCMS) that were introduced in southeast Queensland in December last year are here to stay. Home owners know that they have a window when they can water which equates to 18 hours per day for six days of the week.

"The challenge for the future is to ensure that the opportunity that has been given to us for urban watering is not abused by returning to inefficient irrigation practices.

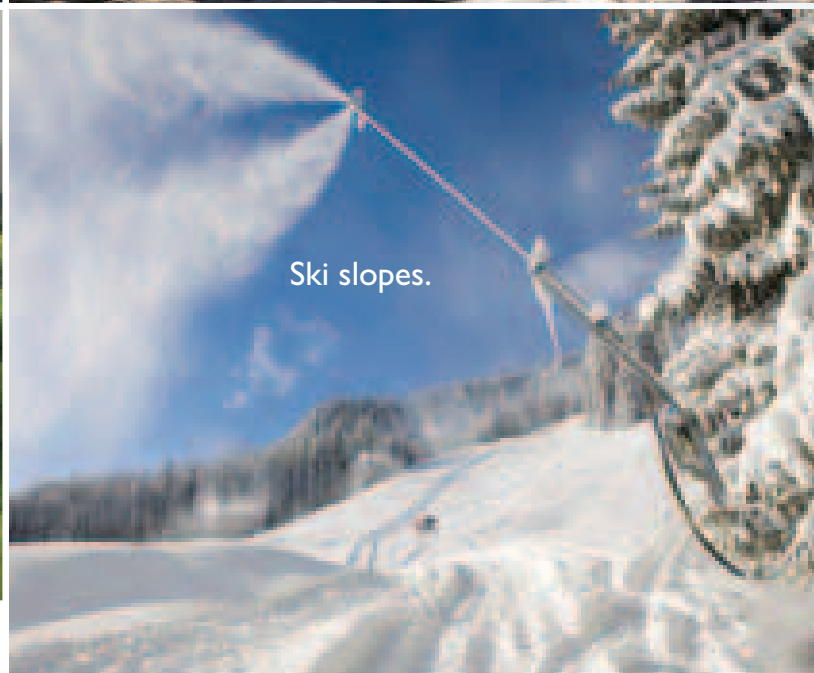
"We need to stay focused on water use efficiency as an on-going issue, to ensure that all garden watering is done in the most water efficient manner possible, whether it is with potable or non-potable water," said Mark.

To underline the importance of water use efficiency, Mark is putting a lot of effort into education, with home gardeners (two recent presentations were to more than 400 end user residential urban irrigators), open space managers and irrigation contractors. 



Southeast Queensland IDO, Mark Quayle, has been taking opportunities to promote the water use efficiency message to home gardeners and members of the irrigation industry.

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UP CLOSE

In *Up Close* we talk with Terry O'Connor. Terry's is a familiar face in the irrigation industry. Since November 1994 he has been CEO at Irrigear, but at the end of August he is calling it quits. Before then Terry was a qualified greenkeeper so he knows a fair bit about the practical side of managing turf and irrigation. He also spent 6 years in the Australian Army, so no doubt this gave him a great grounding in the skills needed to manage a network like the Irrigear one.

Terry summed his education and experience up as "by the school of hard knocks", where he got where he is today by hard work, long hours and devotion to his work and passion for the industry.

IA. *What is your role as CEO?*

Terry. Basically I oversee all that is happening at Irrigear Head Office. We have grown considerably in the last few years. Some three years ago, Irrigear had a turnover of \$300,000. Now, thanks to the Centralised Payment System I introduced with the help of Business Finance Manager, we are now turning over \$12m. When I established the Irrigear Head Office I had no employees; I had to lick all the stamps and do the mundane work as well as the exciting jobs. Now, as well as a CEO, we have a Financial Business Manager and three other staff.

IA. *What's the thing you have most enjoyed about your job with Irrigear?*

Terry. One of the things I have really enjoyed is the versatility of the job. Among other things, what I have enjoyed most of all is the camaraderie of the members and suppliers, and friendships I have made with the people I work for and with. The members of Irrigear and some suppliers have come not only to be business associates, rather they also have become close friends and family.



Terry O'Connor gives his perspectives on the irrigation industry today.

IA. *What's the thing that upsets you most in your job?*

Terry. While nothing upsets me about the job, there can be frustrations with managing such versatile people as the Irrigear members. These people also have businesses of their own to run, and having them understand that we are actually helping them can be frustrating at times. Of course, most do understand that but struggle to make the time due to their own commitments.

IA. *What have been your most valuable sources of technical information to do with irrigation?*

Terry. The most valuable sources of information would definitely be people in the retail sector, not just the Irrigear members but all in the sector. This source is grossly underestimated as all the experience is here. A lot of people do not understand that the members of the retail sector are the ones that recommend what goes in the ground and how. Just how important the retail sector is was identified in a survey of the market place that was done by Australian Irrigation Technology Centre

in 1993. This survey should be done again or at least the results republished.

The IAL is another valuable source, of course.

IA. *What about the irrigation industry – do you think it has a bright future?*

Terry. The industry does have a bright future. We have many opportunities to prove itself to the government that we actually know what we are doing, and they need to listen to a crucial industry to help the sustainability of the country's land. We also need to be recognised as an industry in a stronger forum.

I am not being negative in any way - we just need to stand together as an industry. I do feel this industry is still far too fragmented.

On the positive side, the amount of technology that has come to the market of late is fantastic. We have some very innovative manufacturers here, and we need to support them.

IA. *What's the biggest improvement the industry has made?*

Terry. Training! But it has certainly got a lot further to go. It has also adapted well to dry and wet conditions throughout the country. Product innovation is also high on the list.

IA. *Terry's garden – automatic irrigation or handwater?*

Terry. Low maintenance, Santa Anna couch on lawn with pop up automatic system from rainwater tank, garden heavily mulched.

IA. *Next holiday?*

Terry. Bali, a place called Ubud, in the hills. There's a lot of culture there, different people, it's not on the Tourist track, and it's certainly not Kuta.

IA. *Next Job?*

Terry. Who knows? Looking for offers, haven't got any thing in mind just yet. 🇺🇸

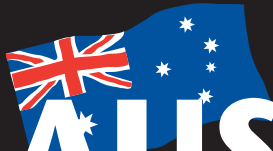
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PROFESSIONAL DEVELOPMENT AND TRAINING

FORGING A PROFESSIONAL IRRIGATION INDUSTRY

Tim Gilbert, IAL Industry Development Manager

The numbers that can be attributed to irrigation in Australia are significant in terms of economic value, amenity, production and people employed. In this article, Tim Gilbert unearths some of the numbers and outlines why forging a professional irrigation industry based on the IAL certification process is crucial.

There are about 40,000 irrigators across Australia, and the value of their agricultural production is between \$9 and \$11 billion a year. This is equal to about 30% of all agricultural production value on 5% of tilled agricultural land in Australia.

Irrigators aren't the only ones to make up the agricultural irrigation sector. They are supported by professional irrigation services such as engineers at rural water providers, and irrigation agronomy consultancies, and irrigation design, installation and training services. It can't be denied that irrigated agriculture and the broader professional irrigation service providers are an extremely important industry for Australia.

The industry also is facing challenges; but there are opportunities in these challenges.

Challenges

The irrigation sector faces significant challenge over the next several decades, with predictions of less water availability and reliability resulting from climate change, and increased demands and competition for rural water such as Government purchase of entitlements for environmental flows and urban water suppliers entering traditional rural water markets.

In addition, as pointed out eloquently by Julian Cribb in a keynote address at the Irrigation Australia Limited (IAL) conference in Swan Hill in 2009, these challenges are compounded by a likely need to double global food production over the next forty years to meet increasing population and nutritional expectations. And this is happening at the same time as water reform processes and uncertainty generated by brittle international financial markets.

Opportunities

As is commonly the case with challenges of this magnitude, there are also exciting opportunities presented by the challenges. The opportunities for the irrigation industry will come from both funding opportunities available at Commonwealth and State levels, such as the Commonwealth's \$5.8 billion Sustainable Rural Water Use and Infrastructure program, as well as through the potential to influence government policy frameworks through the water reform process.

The irrigation industry needs to use these immediate opportunities to build a longer term legacy of a professional irrigation industry that genuinely and demonstrably operates at best practice standards and that is valued and admired by the broader community for the efficiency of both its water use and productivity.

IAL – working to support opportunities

IAL has been working hard to encourage Commonwealth and State governments to embed its Certification Program as a fundamental component of quality assurance processes in funding and policy programs. Such a quality assurance process should be of fundamental importance to governments in rolling out these funding and policy programs as it will:

- provide accountability, equity and consistency for decisions about public expenditure
 - enable governments to have greater confidence in the effectiveness of policy outcomes such as the size of water savings and efficiencies to be made from its investments, and the capacity of programs to help irrigators and irrigation communities to adapt to a future with less water availability
 - harness the professional water efficiency expertise that exists within the irrigation industry.
- IAL certification also provides great



IAL is playing a major role in providing training opportunities for people in the irrigation industry to improve their skills.

benefit and comfort to irrigators to make business decisions based on the best available information, advice and services provided by certified irrigation professionals.

Including IAL certification as a quality assurance mechanism in policy and funding programs will also instil value in certification, encouraging a market for truly professional and competent irrigation services. This market will itself encourage professional development and recognition by people working in the irrigation industry, leaving the enduring legacy of a more professional irrigation industry.

IAL is also working hard to ensure training and skills assessment services are of high quality and accessible to all. IAL works with Agrifoods at a national level to ensure the irrigation training qualifications stay relevant to the current industry needs, and also works with registered training organisations (RTO) to ensure training content is up to date and useful in meeting the real issues facing the irrigation industry. IAL, as an RTO itself, will be filling training gaps

where other RTOs are not able to provide irrigation training services.

IAL also recognises that the integrity of IAL certification needs to be protected and has put in place structures to ensure this. We have established establishing an independent Certification Board, which will, among other things, operate a disputes resolution process, implement a disciplinary and a peer review audit program to uphold the professionalism of IAL certification holders, and will audit IAL's administration of the Certification program. Governments, customers and certification holders can then be assured of the robustness of the certification program, and be comfortable about the quality and professionalism of the irrigation services being provided by certification holders.

IAL is encouraging all governments to adopt our Certification Program as a base quality assurance measure in policy and funding initiatives and encourages irrigators to use certification holders for professional irrigation services. The improved

certainty provided by the professional irrigation services recognised through IAL's Certification Program is necessary in what will be a challenging environment for irrigators over the coming decades. ■■



To reach the decision-makers in the irrigation field, you should consider advertising in Irrigation Australia Journal, the official journal of Irrigation Australia.

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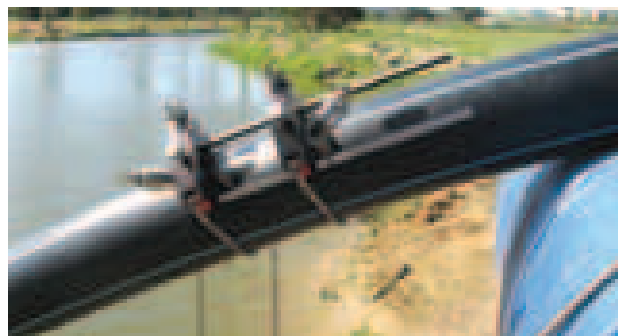
A goal of the National Water Initiative is to have accurate water accounting records. The key to accurate water accounting records is having a sound framework for determining when and where water is going to be metered, and having an appropriate, reliable and accurate meter at the point of measurement. One of the critical points of measurement is the delivery point from the water supply authority to the irrigator, regardless of whether the irrigator receives water directly from a stream or from a channel supply. There are two important sets of documents that have been developed to ensure that delivery meters meet the required accuracy standards. This article is an update on the status of these documents.

The documents have been prepared by the National Measurement Institute (NMI), www.measurement.gov.au, and Standards Australia, www.standards.gov.au

Standards Australia has the legal responsibility and obligation to maintain and develop standards. Under the auspices of Standards Australia a committee, chaired by Kev Devlin from Sunwater in Queensland, developed an Australian Technical Standard (ATS4747) for water meters for non urban supplies. There are five published documents in this standard, which are available for purchase from SAI Global (www.saiglobal.com).

The NMI has developed six documents in a parallel series. All of these documents, which detail non urban metering standards and protocols, are detailed in the table.

An additional part of the Australian Technical Standard – Part 8 – is being drafted. It will cover the installation and maintenance of meters.



The introduction of standards for non urban water meters is an important development with implications for irrigators, water authorities and other agencies responsible for buying, installing and maintaining meters, and manufacturers and distributors of meters.

Photo: Merv Jessen, IAL

Why are there two series of documents?

Under Commonwealth legislation the NMI has responsibility for specifying the standards and testing procedures that apply to instruments that are used for trade measurement. Any device such as a weighing scale, petrol pump meter, electricity meter or urban water meter used to measure the supply of a commodity that is charged for is covered by documents prepared by the National Measurement Institute.

The two series of documents were prepared together with the objective of ensuring that the documents were “harmonised” and consistent with one another. Representatives from the NMI sat on the Standards Australia subcommittee which drafted the technical standards. The effort put into harmonising the documents is indicated in the preface to the ATS (see next page).

Table. Documents produced by Standards Australia and the National Measurement Institute for water meters for non urban supplies.

NMI documents	Standards Australia documents
NMI M 10-1 Meters intended for the metering of water in full flowing pipes. Part 1: Metrological and technical requirements	ATS 4747.1-2008 Meters for non-urban water supply - Glossary of terms
NMI M 10-2 Meters intended for the metering of water in full flowing pipes. Part 2: Test methods	ATS 4747.2-2008 Meters for non-urban water supply - Specification for closed conduit meters fully charged
NMI M 10-3 Meters intended for the metering of water in full flowing pipes. Part 3: Test report format	ATS 4747.3-2008 Meters for non-urban water supply - Specifications for open channel meters
NMI M 11-1 Meters intended for the metering of water in open channels and partially filled pipes. Part 1: Metrological and technical requirements	ATS 4747.5-2008 Meters for non-urban water supply - Installation and commissioning of closed conduit meters fully charged
NMI M 11-2 Meters intended for the metering of water in open channels and partially filled pipes. Part 2: Test methods	ATS 4747.6-2008 Meters for non-urban water supply - Installation and commissioning of open channel meters
NMI M 11-2 Meters intended for the metering of water in open channels and partially filled pipes. Part 3: Test report and format	

"It should be noted that NMI M 10-1 Metrological and technical requirements specifies the metrological and technical requirements for pattern approval and verification of water meters to comply with the National Measurement Regulation.

Where appropriate, the requirements of this Australian Technical Specification are sourced from NMI M 10-1, Metrological and technical requirements, and NMI M 10-2, Test methods, both of which take precedence over the metrological requirements of this Australian Technical Specification.

This Australian Technical Specification includes essential requirements to maintain progress with technology in the water meter industry."

What are the differences between the documents?

NMI documents. The NMI documents are mainly written to specify the conditions under which meters should be tested to show that they can measure as accurately as specified by legislation. The National Water Initiative has determined that, nationally, the industry should aim for metering accuracy of + or - 5%. Each state is preparing implementation plans that detail how they will achieve this level of accuracy for all non urban water supplies. It is expected it will take several years to accomplish this.

The main purpose of the NMI documents is to detail the testing regime a meter should be subjected to and specifies the accuracy performance of the meter.

From July 1 all new meters must have been "type tested", i.e. a representative meter of the type to be installed should have been tested in an approved laboratory, according to the protocols specified in the NMI documents. They should also show the required accuracy during and after the testing program.

Australian Technical Standard. The ATS has a wider scope than the NMI documents. It includes a whole range of topics related to non urban meters, as follows:

4747.1 Part 1: Glossary of terms

4747.2 Part 2: Specification for closed conduit meters fully charged

4747.3 Part 3: Specification for open channel meters

4747.5 Part 5: Installation and commissioning of closed conduit meters fully charged

4747.6 Part 6: Installation and commissioning of open channel meters

4747.8 Part 8: In-service compliance for closed conduit meters fully charged

4747.9 Part 9: In-service compliance for open channel meters.

The ATS specifies that after a period of trial and review of no more than 2 years it is intended to republish it as an Australian Standard.

What do these standards mean for the industry?

There are three main groups of people in the industry who should take a close interest in these standards:

- irrigators, who will be paying bills for water measured by meters that should comply with these standards
- water authorities and other agencies responsible for buying, installing and maintaining meters
- manufacturers and distributors of meters.

To support the implementation of this part of the National Water Initiative, the National Water Commission appointed a Metering Expert Group (MEG). One of the tasks of the MEG was to develop a quality assurance framework for the supply, installation and maintenance of meters.

While it is a national framework the implementation of it varies from jurisdiction to jurisdiction. Under the COAG agreement all states are developing state implementation plans which are scheduled for completion by 30 June 2010. The best way to find out how the metering framework is being implemented in your region is to contact the body responsible for the state implementation plan for meters.

Information

The NMI documents and ATS are available online at:

NMI documents; www.measurement.gov.au

ATS4747: www.saiglobal.com

Calculating your carbon footprint

With the Australian Government putting its Emissions Trading Scheme legislation on the backburner, it is saying that other measures to reduce our reliance on carbon and change to more sustainable energy source will be more important. If this is the case, then it makes sense for individuals and businesses to look at how much carbon they are contributing to the atmosphere. One good reason for doing this is that there are actually cost savings to be made.

As an example, a Perth based company recently did an audit of their energy use that included a carbon audit. As a result it discovered that its fluorescent lights were very inefficient and actually costing \$780 a month more than necessary. The company replaced the tubes with energy saving globes.

After 11 months they are budgeting that they will break even, and after 2 years they have calculated that they will be cutting their light bill by 66%.

Companies can also profit from trading in carbon credits.

Calculating carbon emissions

There are a number of carbon calculators around that you can use to calculate your carbon emissions. A few examples are Carbon Neutral, Origin (by Origin Energy), the Carbon Reduction Institute and 1 degree (websites listed below). If you are interested in this area, don't limit yourself to these calculators. By searching on "carbon calculator" you will find other sites. It's a good idea to check out which one suits you best.

Some websites also allow you to make donations to offset the contribution of your carbon emissions to the atmosphere.

Information

Websites for these calculators listed are:

Carbon Neutral <http://www.carbonneutral.com.au>

Origin http://www.originenergy.com.au/carbon/?_qf_p1_1_display=true

Carbon Reduction Institute <http://noco2.com.au/>

1 degree <http://www.1degree.com.au>

Acknowledgment. This article was written based on information in an article Nett Magazine, www.nett.com.au, "How to offset your carbon footprint", Kate Hennessey, 10 March 2010.

IRRIGEAR GEARS UP FOR THE FUTURE

A lot has been happening at Irrigear over the last few months. It has announced its 20 Year Celebration Dinner, it has launched its Community Marketing Program and announced a change of leadership. Also, it has added two new Victorian member stores - A&R Water in Echuca and Korumburra Plumbers and Pumps - both of which joined before Christmas as the most recent members. These two new stores take overall membership to 53 independent, irrigation specialist members in the group – still the largest group of its kind in the country.

20 Year Celebration

It is 20 years since Irrigear started as a fledgling group of stores in southeast Queensland. Since then, Irrigear membership and the benefits for members have grown steadily to the level we see today. Irrigear will celebrate this milestone in style later this year where it all began, with a huge celebration dinner at the Stamford Plaza Brisbane in August.

Members, suppliers and other guests from Irrigear's past and present will be there to mark this special event and send the group on to its next 20 years - and beyond. This will be the biggest event in Irrigear's history and promises to be a night that will not quickly be forgotten. Invitations to attend the Celebration Dinner on Saturday, August 14 are still available, so if you're a past or present member of the Irrigear family, a supplier to the group or have been involved with Irrigear in any way in the past and would like to be part of the celebrations, please contact our Head Office on 1800 814 550.

Community Marketing

In 2010, Irrigear is launching its Community Marketing program nationally. This innovative program formalises and recognises the good work many of the stores are already doing in their communities and takes it to the next step with a complete kit designed to make the task of supporting communities easier.

Each Irrigear store is a strong local community advocate and the Community Marketing program only

serves to enhance the support our stores provide. Under the program, community groups can approach their local Irrigear store for support packages designed to provide funding and facilities for special events or even regular activities. Irrigear has invested in a number of promotional marquees that stores will offer to community groups for use as weather shelters at a range of different outdoor events. The Community Marketing kit provides stores with all the forms and letters they need to quickly provide support to community groups.

Irrigear's Loyal Suppliers will also be able to participate in these events via the Irrigear member store at no additional cost, which opens the opportunity to show communities their support too. We are excited about this initiative and delighted by the opportunity to play an even bigger part in supporting the communities that support our stores

Leadership

After 16 years at the helm of Irrigear, our CEO, Terry O'Connor, has decided to leave the company at the end of August this year. Terry is an indelible part of the Irrigear landscape. He has led the group through many difficult times and, more than any other individual, is responsible for the success of the group and the services currently on offer to members.

Terry oversaw the restructuring of the company to allow the Centralised Payment System to be implemented and has grown Irrigear's Loyal Supplier base to over 40 and membership to over 50. Terry has decided to move on at the "top of his game" for personal reasons. All the Irrigear community wish Terry well in his next endeavours; we're sure he will excel at anything he turns his mind to.

Terry's departure opens a new chapter at Irrigear. Simon Treptow will take over as General Manager from 1 September. Simon joined Irrigear in the role of Business Finance Manager in September 2007 and quickly adapted to the irrigation industry and its many unique challenges.

He has worked for some of the world's leading companies, including Mercedes-Benz and the Australian global share registry giant,



Simon Teplow, who will be taking over as Irrigear's CEO in September, says he is looking forward to taking on the top job.

Computershare, in roles ranging from purchasing, operations, quality management and business analysis. Simon's initial brief was to implement the Centralised Payment System, which he did later in 2007. He has also been involved in all aspects of Irrigear, from membership, to supplier relations and financial stewardship.

Simon is looking forward to taking on the top job at Irrigear and will no doubt bring a fresh approach and new ideas to the role. One thing he says he won't be changing is the fundamental structure of the group that underpins its success. It will remain a group of like-minded, independent irrigation specialist stores that support their local markets and communities with the backing of a national group presence. The mission for Irrigear's Head Office will continue to be to find ways to enhance the success of Irrigear's member stores and their relationships to suppliers.

For more information about Irrigear, email irrigear@irrigear.com.au or phone toll free on 1800 814 550.

Acknowledgment. This article was supplied by Irrigear. 

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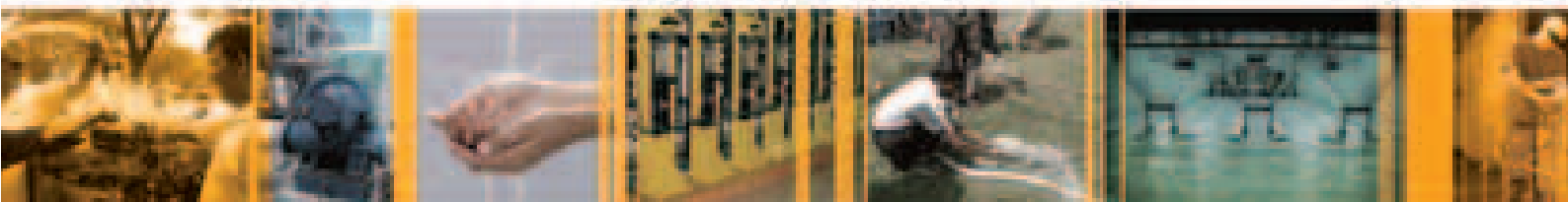
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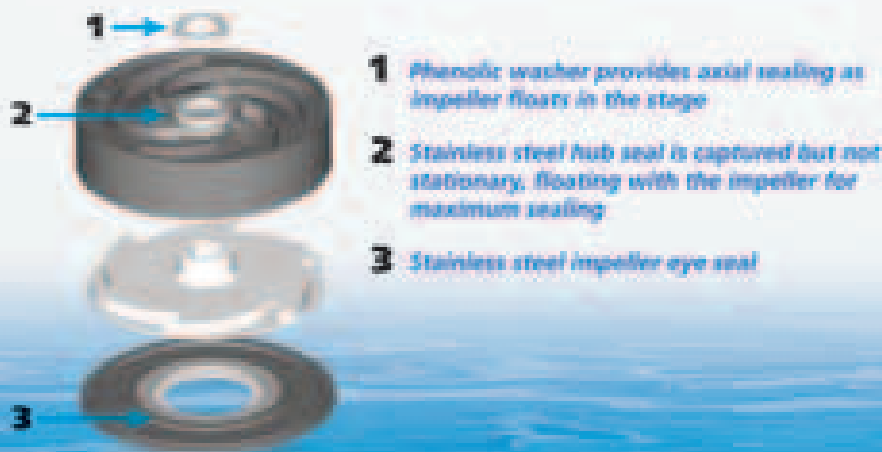
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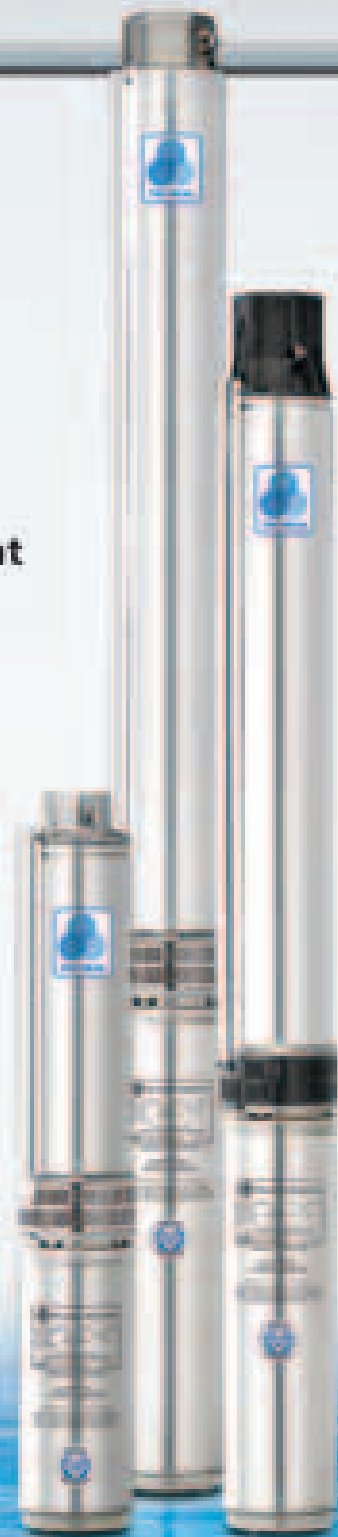
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Is it time to raise your prices?

Your customers might say “never”, but we all know that isn’t the answer to the question. Even though business costs very rarely, if ever, come down, chances are you still have some hesitation when it comes to raising the amount that you charge. You don’t need to be sold on the fact that you deserve every penny of what you work for, you simply want to be compensated for your efforts to the fullest extent possible. Yet, you are also concerned with the effect that any change to the normal course of your business relationships (read: price increases) will bring.

So, when is the best time to raise your prices? How about right now!

No time like the present

What you charge is directly related to the demand for the services that you provide. The more need for what you offer and the fewer who can fill that need, the more you’ll be able to ask in return for your services.

In addition, if you have gained a reputation as being the best at what you do, you will be able to ask for more compensation for your work...and likewise, if you have a poor record with customers, you’ll be unable to get top dollar.

What does all that mean? Try using the opinions of your current customers to see where you stand in their eyes. Either ask them in casual conversation or do a survey, but ask the question of where they rate your pricing on a scale between the extremes of “too high” and “too low.” If the number of complaints about your current pricing is less than 1.5% of your customers, it is a good indicator that your prices may be too low.

Timing is important as well. Ask yourself when you last had a price increase. Chances are it may be longer than you were aware of. Hesitancy to raise prices may be clouding your view of the calendar. Check to see when the people you do business with – materials suppliers as well as your labour – last passed on an increase to you. If they have, it’s probably time to adjust your prices upwards, too.

Absorb the small costs, charge for the big ones

Of course, you shouldn’t pass along every little increase that comes your way, or you would be in the position of adjusting your prices on a monthly or weekly basis. Absorb some of the smaller added costs that you incur and determine when they are sizable enough to merit having your customers pick up the higher prices.

If you decide that you’re pricing yourself too low for the market, be careful not to raise your prices to the other extreme. You may not end up with your intended result of more profit, but with fewer customers as the new higher prices scare them off.

Flat rate pricing

If you invoice your customers on a time and materials basis, any price increase is obvious because your invoices will state both a material price and an hourly labour rate. A customer’s recollection of what you charged last time is all it takes to invite some objection to your new costs. And your crew member taking the service call is no doubt the one who’ll get the burden of any customer dissatisfaction.

By changing your billing structure to flat rate pricing, it’s easier to roll any of your rising costs that need to be passed along into a single rate that

isn’t broken down into categories. By charging a flat rate for each type of job you perform, regardless of the amount of time and the amount of materials involved, you will also eliminate any haggling over exactly how many hours it will take to do the job – it won’t be a 3-hour job or a 4-hour job, it will simply be a job. With a set price.

Remember, in business, it’s the bottom line. It’s what you get to keep that matters. The more profit you make, the more you keep. If you think it may be time to keep a little more profit, maybe it’s time to raise your prices.

Job pricing: cutting prices or cutting customers?

Trying to gain some additional business for your company? Think discounting your prices might be answer? The solution to improving your bottom line may very well be the opposite – raising your prices.

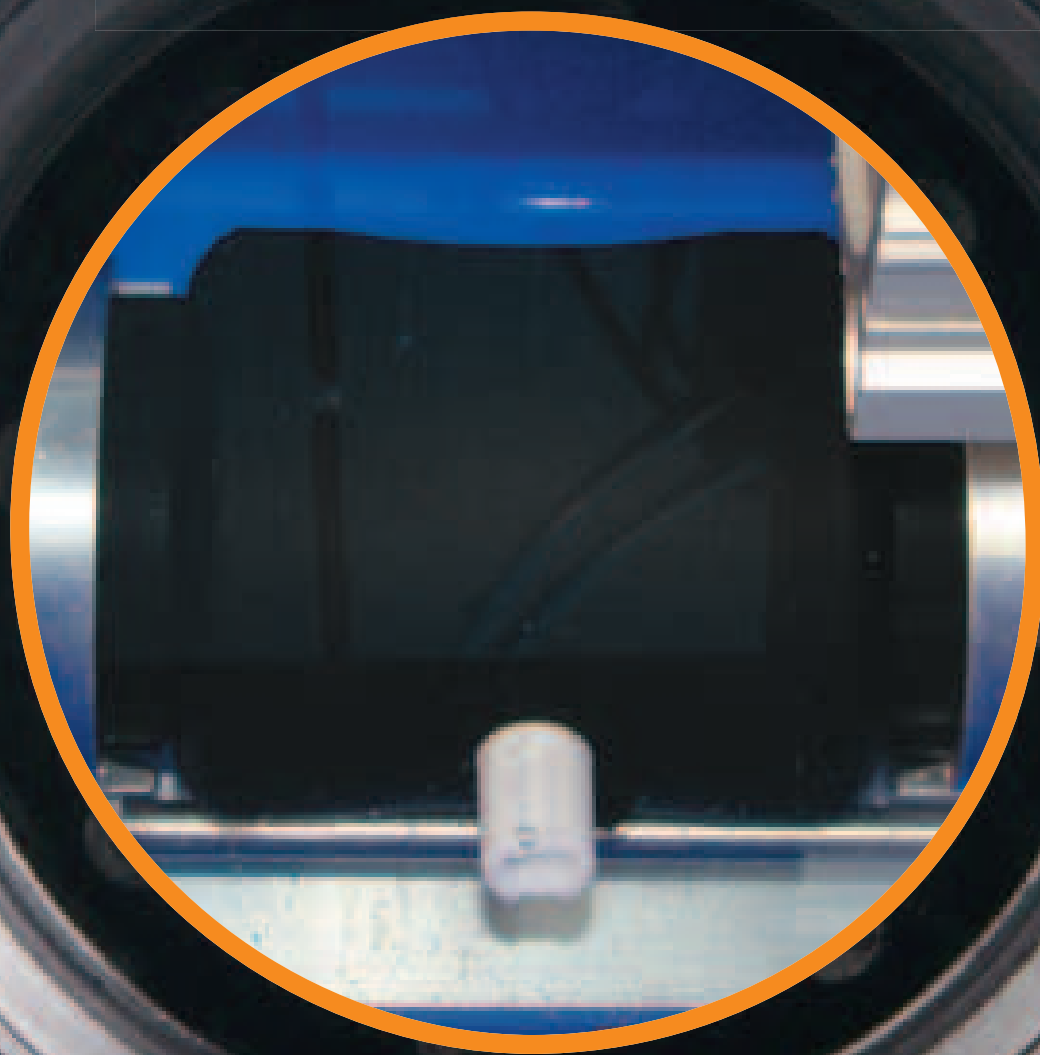
If you discount, you make less on each sale and have to recover that loss through increased volume. To recover a 10% discount requires more than a 10% increase in business. For example, if you reduce your price by 10% and your preset margin is 30%, you’ll actually need to increase your business by 50% to produce the same profit.

So, how much business could you do without if you increased your rate and lost some low margin customers?

Acknowledgment. Thanks to Hunter Industries for permission to reproduce this article. For more information go to the Hunter Industries website www.hunterindustries.com

If your preset margin is					And you decrease your price by:
20%	25%	30%	35%	40%	
To produce the same profit dollars, you need to increase your business by:					
14%	11%	9%	8%	7%	2.5%
33%	25%	20%	17%	14%	5.0%
61%	43%	34%	28%	23%	7.5%
100%	67%	50%	40%	33%	10.0%
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AROUND INDUSTRY

SA water industry exports grow 20%

The SA water industry boosted its exports last financial year by 20% to almost half a billion dollars, based on the results of an independent survey released by the Water Industry Alliance (WIA), which is based in Adelaide. According to the WIA, its members have grown annual exports of water technology and management services from \$399 million to \$479 million.

A decade ago, exports from the water industry in SA totalled just \$25 million.

Chief Executive of the WIA, Joe Flynn, said the increase was an outstanding result for the sector and bucks an overall trend of falling export sales in SA as a result of the global financial crisis and strong Australia dollar.

"The fact that the water industry has weathered the GFC and high Aussie dollar is testament to the sector's resilience and world-wide reputation for excellence, he said.

"We have world-leading water smarts in this State and, as an industry sector, we are punching well above our weight on the global stage.

In December 2009, PwC surveyed WIA members and other key market participants to gather information on the performance of the water industry. The survey, which had 98 respondents, found:

- Exports were \$479 million in the year ending 30 June 2009, up from \$399 million the previous year.
- Total sales (including local, interstate and overseas sales) of water-related goods and services was \$821 million, up from \$547 million.
- Sales in SA rose from \$184 million to \$342 million.
- Nationally, 61% of surveyed firms nominated SA as their most important geographical market.
- South America and the Middle East ranked as the two most important international markets, followed by Europe, India, North America and South East Asia.

- Urban water utilities, Government and commercial and industrial users ranked as the key target markets.

The WIA is a not-for-profit cluster of 250 water-related organisations focused on growing the South Australian water industry.

Futureflow wins water award

In March the Shepparton Irrigation Modernisation Project, undertaken in Northern Victoria by the FutureFlow Alliance that involved Sinclair Knight Merz (SKM), Transfield Services, Comdain and Goulburn-Murray Water, took out the Australian Water Association's prestigious Infrastructure Project Innovation Award.

The project was established in early 2007 to deliver the final works on the Central Goulburn 1-4 and Shepparton Modernisation projects, and was subsequently called on to deliver the 2008 Early Works program for the Northern Victoria Irrigation Renewal Project.

The A\$290 million FutureFlow project in the Goulburn-Murray Water region in northern Victoria is now the world's largest automated irrigation water management system.

The project was a collaboration between Goulburn-Murray Water's FutureFlow alliance, which included SKM, Transfield Services and Comdain and several suppliers, including Rubicon Systems Australia.

It built on previous research and pilot works undertaken by Goulburn-Murray Water and funding was provided by a number of Australian Commonwealth Government programs.

The works programs for the three projects totalled more than A\$290 million, with FutureFlow drawing on mainly local staff, contractors and suppliers. It involved installing more than 1700 Rubicon automated gates at more than nine hundred sites across a 90-day winter works period. That is five times the number of gates installed by any other irrigation modernisation project ever delivered in Australia.

On top of that, the FutureFlow consultation teams have worked with thousands of irrigators to ensure customers' future needs were reflected in the successful upgrade or

rationalisation of more than 3,500 farm outlets.

The FutureFlow program of works also included rationalising 40 km of redundant channel, lining 28 km of channel and installing twenty radio communication towers.

New environmental monitoring network for irrigators

More than 500 irrigators in the Myrtleford district of Victoria will benefit from a state-of-the-art web-based environmental monitoring network launched in April – all thanks to the foresight of the local farmers' cooperative.

The monitoring network consists of six weather stations that provide updated data every 15 minutes on local temperature, humidity, wind speed, rainfall and Delta-T readings to a central open access website. The stations are located on properties at Myrtleford, Beechworth, Whorouly, Coral Bank, King Valley and Porepunkah.

The Tobacco & Associated Farmers Co-operative Limited (TAFCO) sourced funding and commissioned the network from Measurement Engineering Australia (MEA) to help growers to make informed on-farm decisions on irrigation scheduling, disease monitoring and prediction and determining spray programs.

This means they will have access to much more localised data than previously when irrigators relied solely on readings from the nearest BOM station at Wangaratta, over 50 kilometres away from Myrtleford.

A broad range of crops including grapes, berries, green tea, apples and vegetables are being grown within a fairly confined region around Myrtleford - each with their own requirements. This makes it vital for growers get access to localised environmental data within a few kilometres of their properties.

MEA have developed similar networks along the Murray through NSW, Victoria and SA.

For information go to the TAFCO Monitoring Network at www.tafco.com.au

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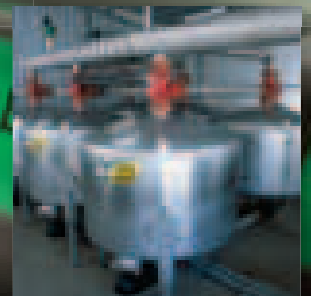
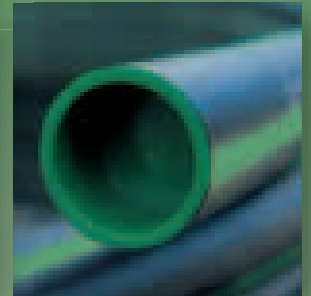


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BOOKSHELF

Adapting to climate change in rural Australia



It's a message we are hearing more and more; Australian agriculture needs to adapt now to climate change.

A book recently released by CSIRO, called *Adapting Agriculture to Climate Change: Preparing Australian Agriculture, Fisheries and Forestry for the Future*, provides some compelling reasons based on systematic analysis of long term trends in Australia's climate.

"Our science highlights a clear urgency to act to prepare Australian agriculture for future impacts and opportunities under climate change," said the book's

co-editor, Chief Research Scientist with CSIRO, Dr Mark Howden.

"Australia is highly sensitive to climate change and we know enough to start preparing adaptation strategies now. Well-informed and forewarned by science, we have the opportunity to implement practices to minimise the risks and enable primary industries to survive and prosper," he said.

According to the authors, it's not all doom and gloom. They say that, with effective adaptation, it is possible that agriculture will not be substantially worse off under the quite challenging climate change scenarios for Australia, but we need to start planning and acting now.

The book's findings are based on the expertise of senior researchers from CSIRO, state government departments, universities and other research institutions. It explains how climate change is likely to affect Australia's primary industries and provides summary information on promising options for dealing with these challenges.

Messages for water users

Messages that are particularly significant for water users are:

Recent climate change in southern and eastern Australia has resulted in catchment yields as low as the worst-case model projections for 2030 to 2050. These changes have not always been gradual: step changes in rainfall and streamflow were observed in southwestern Australia in the mid 1970s and in southern and eastern Australia in 1997, shifting many water systems beyond their historical operating limits.

Changes in some climate processes linked to rainfall decreases have been attributed to anthropogenic climate change, as have warming temperatures over most of Australia. Natural climate variability may also be contributing to recently observed rainfall changes.

The use of historical climate to construct the likely range of operating conditions for water resource management and to provide a baseline from which to measure potential future change is no longer sufficient. A 'whole of climate' approach to operational and strategic decision making is recommended, combining the analysis of past and recent climate with model projections of future change.

For eastern and southern Australia, the use of a 'whole of climate' approach recognises that the observed decreased

rainfall occurring over the past decade is a significant and persistent departure. A 'new normal' or operating baseline for rainfall for this area is required. Most of Australia is projected to warm at a rate of 0.2°C or more per decade for the next few decades. Rainfall over southern Australia is projected as very likely to decrease in future, so further declines may be expected in line with continued global warming. Changes in other regions are less clear.

The challenge for agriculture is to continue to improve its productivity during a period of historically unprecedented low water supply. Continuing water shortages over the southern and eastern parts of the continent can be expected.

Agriculture in Australia will also need to play its part in the water reform process by aiming to achieve sustainable management during a period of resource constraint and increased competition between water users.

Options for the future

Adapting Agriculture to Climate Change includes potential options for significant industries to survive and prosper in the face of climate variability and change. These industries include grains, cotton, rice, sugarcane, wine grapes, horticulture, forestry, broadacre grazing, intensive livestock industries, marine fisheries, aquaculture and water resources.

Examples of adaptation options include:

- new breeds of crops better suited to higher carbon dioxide concentrations in the air
- higher temperatures and reduced water resources
- changing fishing practices to match changing species distributions and populations
- choosing more suitable sites and species for forestry plantations.

It also includes information on greenhouse gas reduction options. The authors emphasise the significant need to develop the capacity within farm enterprises, communities and industries to adapt to global challenges. This includes considering social, economic and institutional constraints to adapting practices.

Adapting Agriculture to Climate Change: Preparing Australian Agriculture, Forestry and Fisheries for the Future, edited by Stokes C & Howden is published by CSIRO Publishing.

Continued from page 56

AquaSpy Group wins inaugural SA innovation award

In February the AquaSpy Group won the SA Government's inaugural CleverGreen Innovators to Watch Award for the best clean technology product in South Australia.

The Adelaide-based company was selected from a raft of candidate companies that have developed clean technology products for water, energy, wind and waste solutions in the construction, agriculture and information technology sectors

"This is a wonderful achievement for the AquaSpy team and clear recognition of the great advances being made in the area of information technology to save water," said AquaSpy Group Business Development Manager, Peter Moller.

AquaSpy also received recognition from the private sector with a KPMG Excellence in Cleantech Award, which will help AquaSpy with participating in the Banksia Environmental Awards later this year. 

Sustainable irrigation – the whole picture



A new book called *Incentives and Instruments for Sustainable Irrigation*, looks at sustainable irrigation in a holistic way, considering the multidisciplinary objectives of sustainable agriculture, sustainable water management, sustainable water infrastructure, sustainable irrigation communities and a sustainable environment, the need to reallocate water between competing users, and the need for water and food security in an environment of scarcity. It does

this by accepting the links between these objectives, and the need to change behavior and perceptions when it comes to water and how water is used.

It does not treat sustainable irrigation as a fixed defined endpoint, rather as a locally defined and constantly changing objective. It provides a comprehensive discussion of the importance of institutions and governance to guide this process and then provides examples from around the world showing how incentives and instruments have been introduced to support this development, how successful they have been and what the factors have promoted or impeded the successful outcomes.

The publisher says the book's features are that:

- it examines sustainable irrigation in a holistic way by considering interdependence of the objectives of sustainable agriculture, sustainable water management, sustainable water infrastructure, sustainable

irrigation communities and a sustainable environment, the need for reallocating water between competing users, and the need for water and food security in an environment of scarcity

- it is unique in the multidisciplinary background of the contributing authors
- it is possibly the first book concentrating on the issue of sustainable irrigation and addressing how to achieve it by both looking at governance, institutions, economic instruments, regulatory instruments, and the adoption of more efficient technology
- it provides both the conceptual background for the need for changes in these areas and also give examples of how such changes have taken place around the world and what early experiences have been.

Incentives and Instruments for Sustainable Irrigation, is edited by H. Bjornland and published by WIT Press, www.witpress.com

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STATE ROUNDUP

Productivity Commission releases MDB report

In March the Productivity Commission released its report into 'Market Mechanisms for Recovering Water in the Murray Darling Basin'.

The Commonwealth Government is considering the report's findings and recommendations, but foreshadowed not all of its recommendations are likely to be accepted.

Three of the key recommendations were:

- water purchase should be prioritised as a more efficient way of returning water to the rivers than investing in infrastructure
- infrastructure projects should be subject to rigorous approval processes
- buying water should be delayed until the long term basin plan is finalised.

The report also raised issues regarding the fact that social and economic issues weren't necessarily included in the development of the Basin Plan under the *Water Act 2007*.

According to Minister for Water, Energy Efficiency and Climate Change, Senator Penny Wong, the Commonwealth Government didn't agree that infrastructure investment shouldn't be given priority. She said that also important was investing in infrastructure to shore up the long term viability of our food producing communities and sustain the regions, particularly in the face of a future with less water.

Irrigators look to get out

After years of drought and low or non-existent allocations, two groups of irrigators, one in the Campaspe Irrigation District and one in the Murray Irrigation area have decided that it's time to call it quits. Their aim is to sell their water entitlements to the Australian Government through its water buyback initiative.

In March, 108 of 153 farmers in the Campaspe Irrigation District, which is north of Bendigo, voted to get out of irrigation and sell their allocation. Some said they would continue on the land as dryland farmers, while others will leave the land. With so many irrigators wanting to leave the irrigation area will be decommissioned.

The State Government committed to finding viable a viable option for those farmers who want to continue irrigating.

In April, the Federal Government rejected an offer from irrigators in the Wakool area of Murray Irrigation who offered their water for sale. If it had gone ahead 100 km of irrigation channels would have been retired. Murray Irrigation said it intends to keep negotiating with the government after the rejection of its Wakool water offer. (Source: ABC website abc.net.au)

Funding for irrigation in Tasmania

In March Minister for Water, Energy Efficiency and Climate Change, Senator Penny Wong, announced that the Headquarters Road Dam development near Scottsdale in Tasmania, would receive funding of up to \$1.46 million from the Australian Government.

As part of the funding, an accredited Water Access Plan will be required for each individual water user in the irrigation system. The aim of the plan is to optimise irrigation water use efficiency through the adoption of new irrigation technology and industry best practice.

According to the State Government, the project will increase the allocation of reliable irrigation water and lead to greater certainty to investment and productivity for local communities in Bass.

For information go to website www.environment.gov.au/water

Buying water is delivering results says report

According to the *Commonwealth Environmental Water 2008-09 Outcomes Report*, government purchases of water are improving the health of the rivers and wetlands of the Murray Darling Basin.

The report outlines the environmental benefits provided through environmental water returned to ten wetlands in SA, Victoria and NSW during the 2008-09 water year. This was the first year of the program to return environmental flows.

Nearly 800 billion litres of water entitlements were bought by the government as at the end of February 2010.

Signs of recovery have included trees have responded with new growth, a decrease in salinity, and rare and endangered species benefiting from the return of water to their habitats.

The Commonwealth Environmental Water Holder will provide regular,

ongoing reports on the outcomes of the environmental watering program.

The *Commonwealth Environmental Water 2008-09 Outcomes Report* is available at website

www.environment.gov.au/water

Water yields predicted to fall in WA

A major CSIRO report, the *South-West Western Australia Sustainable Yields Project*, has projected a marked decrease in river flows and water yields in southwest WA by 2030 under the impacts of climate change and increasing demand. The area examined in the report is the 40,000 square kilometres between Albany and Geraldton.

Key findings are:

- southwest WA will face a one-quarter reduction in water availability by 2030, relative to the last 30 years
- under the best-case scenario, mean annual surface yields will decrease by 4% by 2030
- under the worst-case scenario, that reduction will be 49% by 2030.

To read the report, go to CSIRO website www.csiro.au/partnerships/SWSY.html


Floodwaters reach Lower Murray Lakes

In April increased environmental flows in the Lower Murray Lakes began to have an effect. Average water levels in Lake Alexandrina had risen 200 mm since January, and they will continue to rise as more inflows reach the Lower Lakes by the end of June.

The effect of the increased flows has been to reduce salinity and stop the impact of acidification.

The SA Government says that it is expecting 500 GL of water from the Queensland floods, which will be allocated to environmental, social and economic purposes. The government is committed to establishing a 170 GL environmental reserve to meet the needs of the Lower Lakes next summer.

The total River Murray system inflow so far in 2009-10 is 2,895 GL, well below the long-term average of 8,200 GL. The average inflow during this period during the past ten years was 4,190 GL.

River Murray inflow during March 2010 was 150 GL, which was higher than the 40 GL received in March 2009 but less than the long-term March average of about 190 GL. 



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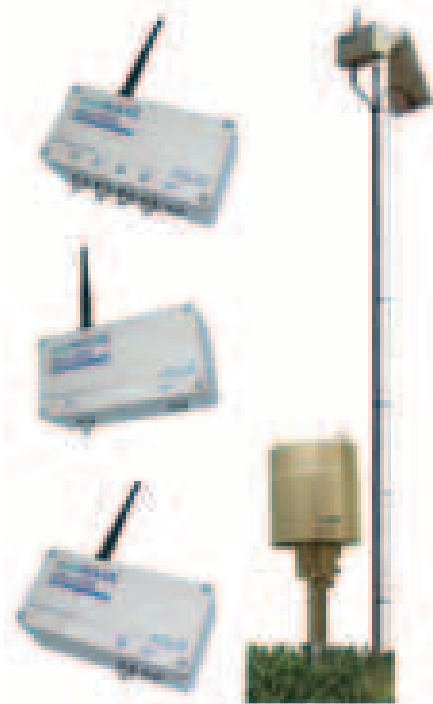
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NEW PRODUCTS AND SERVICES

Adcon expands addWAVE family

Adcon Telemetry has expanded its addWAVE family of GSM/GPRS based logging telemetry units, adding the A757 addAVE AMR to the A753 addWAVE and A755 addWAVE SDI.



All three units in the family share a common form factor, with a sturdy IP66 rated case, internal NiMH battery and waterproof connectors; all operate on either the conventional GSM service or on Telstra's NextG network. They differ in their input capacity and situations where they can be used.

The A753 is a flexible, general purpose logger with twelve analogue channels (16-bit resolution), four counter channels, four digital input/outputs and capacity for forty SDI-12 or MODBUS measurements. Two megabytes of internal memory is provided. The RTU supports WMO specification wind gust and vector wind averaging.

The A755 is the perfect companion for multi-parameter sensors, carrying the SDI-12 input as well as a single pulse counter channel.

The A757 has been designed for remote meter reading and rainfall monitoring. Its pulse input can be used in normal counter mode, or event mode, where it logs the date and time

of each tip of the rain gauge, making it ideal for rain intensity monitoring and flood warning networks.

All three units send their data via the mobile data network for display on Adcon's Internet based addVANTAGE Pro software.

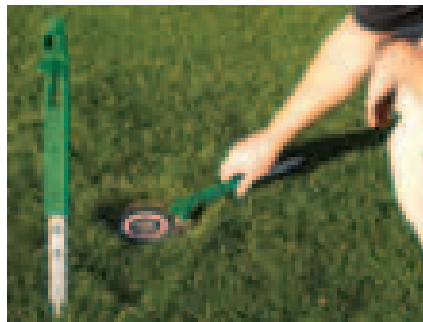
For details contact Adcon Telemetry Australia, phone 08 83425343, email info-aus@adcon.at.

Superkey, multi-function service tool for golf rotor maintenance

SuperKey, a versatile all-in-one golf rotor service tool, is now available from Underhill International for use with Rain Bird and Toro sprinklers.

Described as the "Swiss Army knife" of golf maintenance, SuperKey facilitates servicing of electric valve-in-head rotors, which account for 90% of heads on a typical course.

SuperKey measures about 30 cm tall and is offered in two models: A-GKRB for Rain Bird rotors and A-GKT for Toro rotors.



Depending on the model, SuperKey features a range of functions, including:

- manual on/off sprinkler control
- removal of on/off control assembly
- removal of debris from the rotor's on/off control
- removal of bottom valve snap ring and rotor assembly snap ring
- removal of solenoid plunger; and removal of pilot valve (regulator).

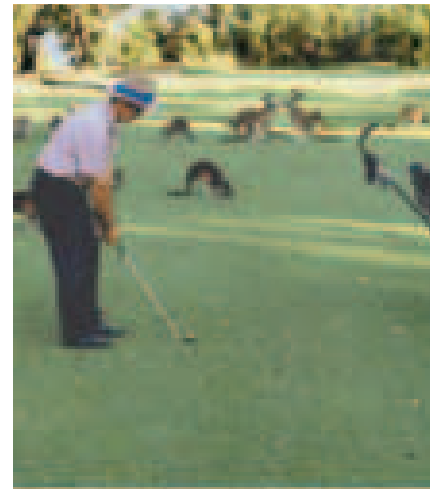
It also has an on/off control pointer.

SuperKey is made from aircraft-grade stainless steel and high-strength composite for long-lasting durability.

For more information on SuperKey, contact Better Methods, the Underhill distributor, phone 02 9524 5366, website www.bettermethods.com.au.

Capel Golf Club – automated reticulation system

M. D. Templeman, Chairman of the Capel Golf Club, describes the performance of their CalcClear units since they were first installed in 1998.



"Capel Golf Club was first introduced to CalcClear in 2008 when investigating high iron buildup in piping associated with the conversion of our manual watering system to a fully automated reticulation system. Following discussions with our local irrigation specialist, we evaluated the performance of the recommended CalcClear Hydro 200 Water Conditioning Unit.

The unit was installed on one of our two water bores, (supply holes 1-9) with the second bore (supply holes 10-18) to be used as a control standard for comparing results from the CalcClear unit, including sampling and analyses from three locations - initial supply, mid point and end of the existing reticulation piping.

Removable piping sections were installed at the mid-point in both networks allowing us to monitor iron scale buildup on new piping and to record any visual changes to the existing buildup in our systems.

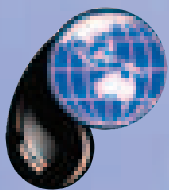
Water sampling and analyses indicated a vast improvement in ferrous iron retention throughout our system compared to the control bore, where there were big losses in ferrous iron by the mid-point sampling station, and up to 40% lower at the end point compared to CalcClear treated water.

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- Equipped for telemetry
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From our installed piping section there was very little soft scale type build up and a marked breakdown of existing piping scale from the CalcClear treated water while hard scale build up remained in the control bore water supply piping.

Another benefit of using the CalcClear units has been the improvement of grass condition on the fairways and greens. This improvement, we believe, comes from the water penetration benefits and the ability to take up available nutrients within the CalcClear treated water.

We installed the CalcClear Hydro 200 unit on our second bore in 2009 before this summer's watering programme and, as a result, overall course condition shows the improvement we observed following the testwork with the first CalcClear unit.

Capel Golf Club is very satisfied with the overall performance of both our CalcClear units and now we have our first nine holes on automatic reticulation, course quality continues to improve and the benefits of CalcClear treated water continues to become evident."

UP Series Engine Drive Pumps

Orange Pumps is proud to release its new range of Engine driven Utility Pumps (UP) for fighting fires and other applications. This pump has been designed and developed in Melbourne over 5 years. It is unique in the market by offering twin impeller pressures with all the benefits of a single impeller.

The UP600 has a maximum output of 120 m of pressure and can deliver volumes up to 600 L/minute at open flow, which is exceptional for a pump to supply both high pressure and high volume. Pressure is only really useful when it is delivering volume and the UP600 consistently delivers usable volumes at higher pressures.

Quick self priming is critical for a fire fighting pump. The UP range of pumps can prime in less than one minute with a 3 ½ meter vertical lift. This is 5 times quicker than the industrial average and even higher for twin impeller pumps.

Integral to the design of the pump is the torque tuned impeller which maximises the engines horse power. The impeller is made from a single piece of cast aluminum and features a self clearing, wide vane impeller for better solid handling.

The casing has a polyester powder coat finish with dual male female threads on the suction and discharge ports. The casing can hold a large volume of water and has a built in clacker valve which enables the pump to self prime quickly and over long distances.



The Orange range of Engine driven Utility Pumps use Robin Subaru engines, chosen for their high performance, excellent engineering and robust construction. They have with a 3-year warranty and a long history of proven performance.

Orange Pumps is owned and operated by the Davey family, who have had a long history of designing and manufacturing water pumps in Australia. Products are designed and built to deliver great performance over many years in various conditions at a competitive price.

For information phone 1800orange

Continuous flow monitoring for irrigation channels

Using SonTek's proven pulsed acoustic Doppler technology, the Argonaut-SW is designed for accurate flow measurements in natural streams, man-made channels and pipes. Because it is a "fast sampling" velocity profiler, the SW accounts for variations in the velocity field to make the most accurate flow measurements possible.

Typically mounted on the bottom of a channel or pipe, the SW combines velocity and water level data with user-supplied channel geometry to compute total flow in real time. Its unique "all-in-one" transducer and electronics design features an internal recorder and requires no top-side processing.

Features include:

- unique "all-in-one" design
- provides ten cells of velocity profiling
- internal data recorder
- real time output (rs 232/422, sdi-12, modbus, analogue)
- external flow display
- total volume output
- measures under ice.

CALCLEAR Water Conditioners reduce Iron build up in pipes and sprinklers. Helps maintain general turf health and effective watering on golf courses.

- + Keeps Iron in solution
- + Reduces Iron build up
- + Reduces hydrophobic damage to greens in hot weather
- + Softens Iron deposits on signage - easily removed

CALCLEAR Water Conditioners
Ph: 02 9977 8801
www.calc-clear.com.au

CALCLEAR

COMPUTERISED WATER CONDITIONERS

Reduce your Iron buildup in your irrigation system with CALCLEAR

Comparison of Capel two nine hole golf courses treated and untreated with CALCLEAR to test reduction of iron before installing subsurface irrigation. Iron buildup became softer and easily removed with CALCLEAR.

Rain Bird announces new range of fixed depth magnetic flow meters

Rain Bird Australia can now supply a series of three state-of-the-art, highly sophisticated fixed depth insertion electromagnetic flow meters for use with conductive liquids in pipe sizes between 80 and 200 mm. With no moving parts and superior materials, they are suitable for a wide range of irrigation applications.

Models ranging in size from 80 to 150 mm have been independently tested by NATA to ensure they meet AS3665.1 Clause 3.9 by displaying a calibration error rating of less than 2.5%. Test reports are available on request. The 200 mm size is currently being tested.

The FM model is a current-sinking pulse output flow meter designed for modularity and versatility. It has an output that can be combined with the appropriate transmitter or indicator, depending on the application. The FM meter can operate on a current loop voltage range of between 12 and 24 Vdc at temperatures between 0°-55°C and pressures up to 10 bar.

The FMND model is an analog output flow meter with a 'blind' (non-indicating) transmitter that delivers a continuous analog output signal. The digital design makes it possible to calibrate the unit in the field without the use of tools.

The required 20 mA frequency is fed into a microcontroller using a set of internal rotary switches and the microcontroller automatically scales all other values accordingly. An additional benefit of the microcontroller



is its ability to average inputs in order to smooth out the output signal. The FMND model will operate on a relatively wide range of current loop voltages between 12 and 36 Vdc. A built-in power regulator supplies the appropriate power to the flow sensor.

Third in the range is the FMDT model which is essentially a combination of the FM and the FMND with the addition of indicators displaying flow rate and flow total. The FMDT flow meter has a dual-relay output board with both pulse and 4-20 mA analog outputs. A password protected keypad allows settings to be changed without removing the cover. All the meters in the range feature empty pipe detection, whereby the software defaults to zero flow.

For information about the new range of Rain Bird magnetic flow meters, phone (freecall) 1800 424 044, email info@rainbird.com.au or go to www.rainbird.com.au

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Sensor programmable by station Total run-time calculator Cycle and soak Modular design for easy
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Real-time flow monitoring Multi sensor capability Bold, backlit graphic display Seasonal
adjustment independent by program
Real-time flow monitoring Six-language capability Familiar programming Seasonal adjustment independent by program
Real-time flow monitoring Six-language capability Familiar programming Seasonal adjustment independent by program



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THE IRRIGATION INNOVATORS



Next generation wireless crop monitoring for precision agriculture

Thermo Fisher Scientific and Crossbow Technology Inc. have announced the release of eKo™ Pro Series, a turnkey live data, wireless crop monitoring system enabling precision agriculture.

The eKo Pro Series follows Crossbow's already popular sensor and navigation solutions for heavy agricultural equipment. eKo Pro Series represents the next generation in crop monitoring and precision agriculture techniques, employing a mesh network of wireless sensors and providing vital live data about crop health, vigour and growth progress via a simple internet browser.

Features are:

- solar powered - requires no electrical power so that sensors can be placed where needed

- simple-to-use, web-based data viewing that allows remote access to live sensor data, critical trend charts and alarm settings - all of which are highly customisable
- Leading-edge, reliable wireless mesh network technology that is self configuring and self healing, thus providing easy setup and scalability, where additional wireless nodes and sensors can be added easily by non-technical users.

eKo Pro Series enables lower input costs, mitigates crop loss risks, increases per-hectare yields and delivers higher quality crops with greater consistency.

For information, contact Thermo Fisher Scientific, phone 1300 736767, email InfoIndustrialAU@thermofisher.com, website www.thermofisher.com.au/eko

Applying global knowledge to maximise local water resources

Federal Water Minister Penny Wong's April announcement of \$101 million of funding for irrigation infrastructure projects brings the first round of investment under the Private Irrigation Infrastructure Operators Program to \$263 million. The funds will enable infrastructure upgrades across NSW to reduce on-farm water losses, with a goal of preserving 69,000 ML of water for irrigators and the environment. It is expected that a second round of funding will be announced later this year.

Projects will include replacing irrigation channels with pipelines, installing water management technologies and reconstructing channels.

Such large-scale work will no doubt benefit from global best practice, and eyes are shifting toward the western US, a region which faces similar climate and water scarcity challenges.

The All American Canal Lining Project in Southern California is one example of a large, successful water conservation project. About 37 km of existing earthen canal was concrete lined to save about 83,000 ML of water per year. Located next and parallel to the existing canal, 1.5 km of canal lining was built in the existing canal while it was in operation. This was accomplished by driving sheet pile to split the canal in half and lining one half at a time. As well, 3.2 km of the canal lining was built partially in the existing canal while in operation, and 6.4 km of the existing canal was lined to serve as off-line storage for the new concrete-lined canal.

By not interrupting water and power deliveries, the Imperial Irrigation District was able to maintain service to customers while building a canal that efficiently delivers about 3.8 million ML of Colorado River water per year to California's Imperial Valley. A large portion of the water conserved is transferred to enhance short-term and long-term water supply reliability for the San Diego region.

Guyco release more Australian made products

Australian manufacturer and distributor, Guyco Pty Ltd, has added a comprehensive range of Australian made BSP threaded fittings to its impressive stable of irrigation and farm water products.

After 15 years of product innovation, Guyco developed and manufactured Australia's first and only telescopic fitting range for both rural and metric poly pipe. After the success of "Telescopic", Guyco then released "SlipFit" joiners, which take away all the frustration, guesswork and excess digging when making pipe repairs.

With the introduction of BSP manufacturing, the 'SlipFit' range has been expanded to include Rural Poly Tees, Poly Tees with male BSP off-takes and Poly BSP end connectors. These are also available in 'Telescopic' for both rural and metric poly pipe.



To facilitate these expansions Guyco relocated its head office to a new, purpose-built distribution warehouse with state-of-the-art packaging and processing facilities.

Managing Director, Guy Phillipps, proudly said, "Since inception we have sourced, designed and manufactured many innovative products for the rural and irrigation industries. By adding BSP to our ever-increasing range of Guyco manufactured and branded products,

we simply had to expand our operation. We are extremely pleased with our new facility."

Guyco is a fully owned and operated Australian company with its focus on quality Australian made products. Its design and manufacturing processes are constantly evolving with a number of big, exciting developments in the pipeline.

To see the current range of Guyco product lines visit www.guyco.com.au

“THAT’S INNOVATION”

Meet James. As Director of Aqua West, Dubbo he chooses Nelson Australia as his preferred irrigation supplier because...

Someone asked me “ What do you think of Nelson Irrigation Corporation?” (not much I said).

It was a question I never really thought about. The company to me is trustworthy, and reliable but when I really sat back and thought about it, I came up with these reasons.

I modeled my business on being a professional Irrigation outlet, by employing the best people and providing the best possible service and product.

I guess that’s what Nelson Irrigation Corporation do as well. They have the people that can give you the right answer and their technical crew are a great back up to the guys on the road.

The Nelson Irrigation product, I believe, is the industry’s best, that’s why many other companies I suppose try to imitate their product.

Now they have added the Hunter range of product, this I think compliments the Nelson range, they are truly a dedicated Irrigation Manufacturer/ Supplier. They deal in Irrigation products only and not all the other junk that some of these distributors have. It’s really an un-cluttered line up of products.

Along with having the leading products in both Turf and Agricultural Irrigation their service is second to none. This means I can run a lean shop in terms of stock, knowing I will receive goods the next day, or at the latest within 48 hours. It allows me to put a lot more resources into my Customer service, which is why I survive.

Overall, I think I modeled my business on the same premise as Nelson Irrigation, Trustworthy, Reliable, and Knowledgeable.

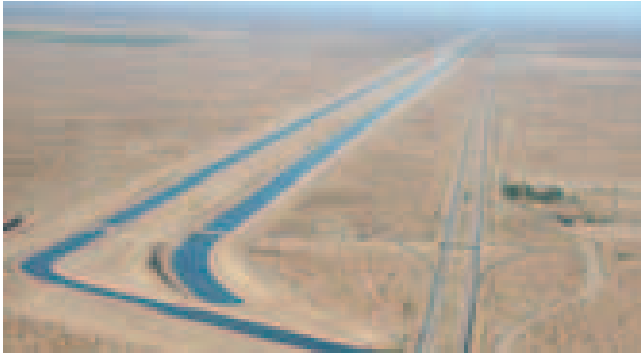
Oh, one other thing, they are innovative, which a lot of others “claim”, but Nelson Irrigation are - their products simply last and last. If they claim a sprinkler will save water, increase yield, and save energy, then they do...That’s Innovation.



Nelson Irrigation Corporation of Australia Pty Ltd
35 Sudbury Street, Darra QLD 4076 PO Box 530, Sumner QLD 4074
Ph: 1300 856 368 | Fax: 1300 856 369
E: info@nelsonirrigation.com.au | W: www.nelsonirrigation.com.au

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All American Canal Lining Project

MWH was part of the team that provided engineering services, including preliminary design, hydraulics, and final design, including design support services during construction. Construction of Reaches 2 and 3 was completed in 2009 and with Construction of Reach 1 scheduled for 2010, the team is working to capture the knowledge gained on the project and share it throughout the MWH global knowledge network.

Earlier this year, MWH hosted a study tour of project sites across California to demonstrate the application of innovative water resource modelling, design and construction techniques (e.g. ground water banking and controlled water quality ground water recharging) to the Australian marketplace. Several MWH team members have been to California since for hands-on collaboration with the teams that worked on the All American Canal Lining Project and the Coachella Canal Lining Project, a water conservation project that has preserved an estimated 40,000 ML of water per year.

The Australian-based MWH water resources team brings a broad range of expertise that includes canal lining design, water management consulting, flow control and SCADA system design, on-farm micro irrigation design, and soil surveying and analysis. Experience abroad and locally has prepared them to advise on irrigation design and management on a range of land uses and cropping systems across Australia.

For more information, contact Vaughan Pearce on +61 2 9493 9700.

Does my dam need aeration?

With continuing pressure on our existing water sources, it is imperative we look after the water that we have available. Still water needs aeration. The new Toro Airpro aerator creates many small bubbles at the bottom of a pond or dam in an arrangement that carries a large column of water to the surface of the pond. This "pumping" action is effective in providing bottom to top circulation in deep ponds.

There has been much confusion in the industry regarding the definition of an aerator. Toro defines only high pumping rate, axial (propeller) pumps as aerators because effective aeration is highly dependent on the flow rates.

Fountains use centrifugal pumps (impeller) pumps that produce high pressure and low flow rates. The Airpro aerators pump high flow rates relative to the HP and achieve a high level of aeration.

Why aeration is important. Aeration is the transfer of oxygen from air into water. All healthy bodies of water need oxygen for the normal biological cycle to be completed. In large bodies of water this occurs naturally as a result of wave action. In smaller lakes and ponds, it is easy for biological factors to become unbalanced, causing the oxygen levels to drop, making mechanical aeration necessary.

Insufficient aeration and low oxygen levels cause obnoxious smells and unsightly water. Without enough circulation, a pond becomes stratified with warmer water on the surface and colder, oxygen depleted water on the bottom. Lack of oxygen increases the anaerobic (without oxygen) decomposition of the sludge at the bottom. That increases nutrients in the pond, which in turn increases algae blooms.

An un-circulated or un-aerated pond or lake develops a thermocline. This is a stratification of the water by temperature. The warmer water is at the surface in contact with the air and the cooler water drops to the bottom where it becomes oxygen starved. Proper circulation and aeration will increase the amount of oxygen at all depths and break down the thermocline. Cool water holds more oxygen than warm does so mixing the cooler water from the bottom with the warmer surface water enables the entire body of water to hold more oxygen as well.

Aerating a pond reduces algae blooms, improves water clarity, and rids the pond of bad smells, making it far more suitable for all uses including irrigation.

Are you experiencing lower bore yields?

Pumping sand or silt?

Having bacteria issues with your bore water?

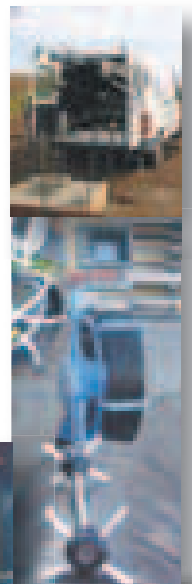
If so, contact

AGE Developments

on telephone +61 8 9209 2844

or visit us at

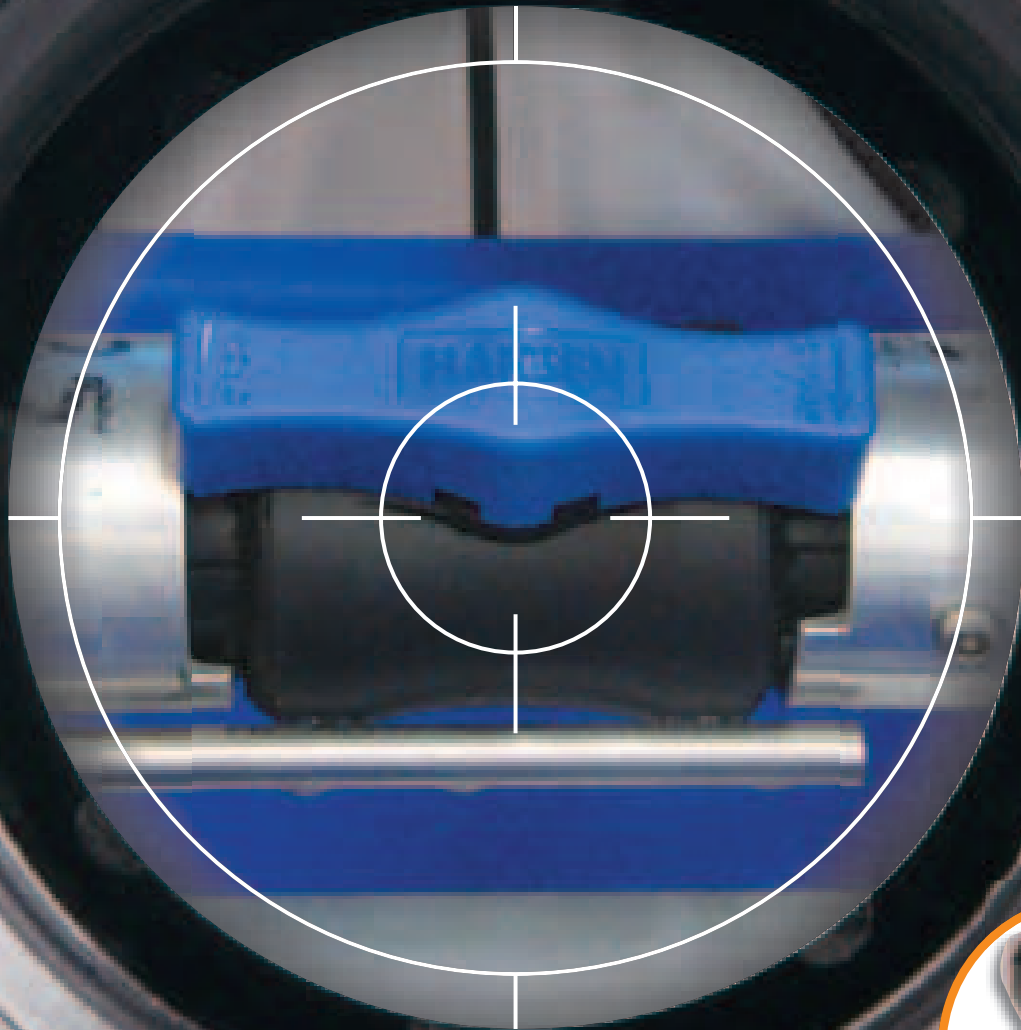
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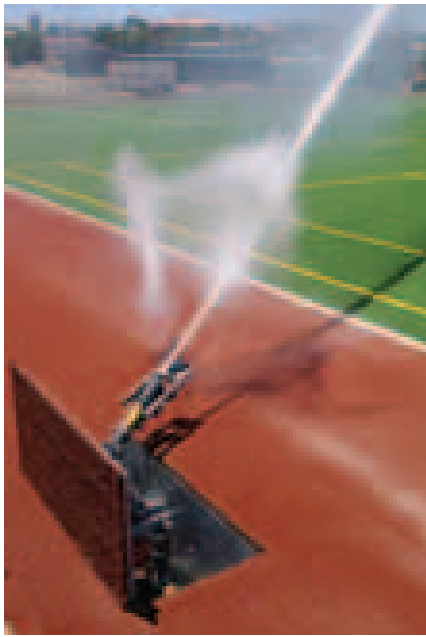


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TG101 Pop Up Big Gun sprinkler for sports field irrigation

The Toro TG101 Pop Up Big Gun sprinkler is a box mounted gun and installed below ground level. It has a radius of 55 m so it can throw across the width of a hockey, soccer or rugby field! It can therefore be mounted off-field, and still deliver the required coverage and saturation. Being a pop up means there is also a greatly reduced risk of OH&S issues and vandalism.

Another key benefit is its in-built sensors that stop the gun being deployed if there is any weight on the lid. A big environmental benefit is less water waste as the guns fire just above ground level and are sheltered by the lid. This means wind deflection is much less than with pole mounted canons. This can reduce the amount of water lost to windspray by between 10 and 20%.

Dirty water valves: Toro P-220 Scrubber valves

The new Toro P220 Scrubber Series valves are a true dirty water irrigation valve. The "Scrubber" valves are able to handle chlorine and other chemicals found in reclaimed and other non-potable water systems. Built from heavy-duty, glass-filled nylon and EPDM rubber materials, these valves resist clogging and feature a patent-pending active scrubbing mechanism to actively fight sand, algae and other particles from blocking the actuation of the valve.

For more information on these products, contact Toro, phone 1300 130 898, or visit us at Irrigation Australia, stand 190.

Low bore yield problem diagnosed and solved

A water bore can be one of those things out of sight, out of mind and something we don't worry about until its yield suddenly drops or it starts pumping sand. This is the point where Waterwell often gets calls from clients for a camera inspection to diagnose the problem.

If the lowered bore yield is due to iron bacteria biofouling we offer our dedicated brush and airlift service in conjunction with liquid BluBac bore cleaner from Waterwell Solutions. While there is a granular product that works well, in the quantities we use, it can take half a day to mix into a solution and if the water is exceptionally "hard" it can react with the water to form insoluble precipitates. Instead, Waterwell uses BluBac because it is safe and performs very well even in calcium and magnesium-rich waters.

An example is a bore in Hillston NSW we rehabilitated with BluBac. The screen in this bore was badly blocked with bacterial infection in some places, causing water to move at higher velocity elsewhere through the screen. This high velocity water was drawing fine silts out from the formation and into the bore where it was causing premature wear on the pump. Treatment with BluBac cleared the bacterial infection resulting in the whole screen becoming open again and the incoming water velocities being lowered. Production was increased and drawdown decreased. Silts were no longer being mobilised into the bore and the premature pump wear was halted.

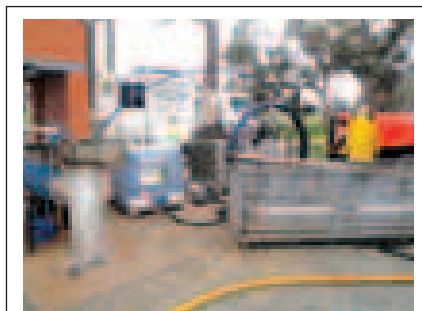


Figure 1: BluBac dosing straight from the container

One of the most common calls for our camera services is from clients who have recently had a holed pump replaced with a new one in their bore only to have it fail soon after from sand damage. Our camera inspection often reveals that a water jet from the hole in the pump created a hole in the adjacent screen. Best practice is to inspect the condition of the bore before replacing the pump.

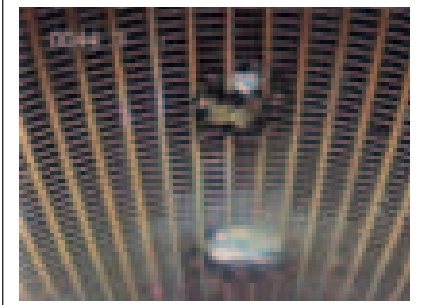


Figure 2: Screen damaged by water jet.

As part of your regular maintenance program it is a good idea to include a camera inspection of your bore to check the condition before heading into a period where your bore performance is critical to your business. The business owner of the bore in the photo below was fortunate that the sudden failure occurred in autumn when they were able to survive on their other bores.

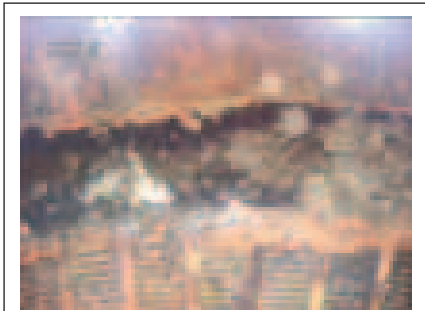


Figure 3: Corrosion and erosion where the screen joins the casing.

The AGE Developments team are passionate about their work, constantly looking for ways to improve on their services and turn theory into knowledge. Their down-hole cameras can inspect holes to depths of two km and bore diameters ranging from 9 mm up to 20 m. Many of these cameras can tilt through 180°, rotate through 360° and focus at any range. With their digital closed circuit devices, fibre optic cables and DVD technology, the picture is the clearest you can get.

For information go to www.waterwellsolutions.com.au or www.agedevelopments.com.au

Asta® drip pressure compensating spike drippers

The Asta® project was driven by Antelco's philosophy of "Putting water where it counts!®".

With water shortages around the world, Antelco is committed to producing products that minimise water wastage by providing targeted water solutions for domestic and agricultural applications.

Asta® Drip Pressure Compensating is an all-in-one stake and dripper.



The pressure compensating dripper incorporates a turbulent flow path to provide accurate metering of flow, a pre-filter and an insect baffle to minimise potential for blockages. An anti-siphon feature on shut-down also minimises the chance of particles being sucked back into the dripper. The product is sonically welded to maintain pre-set discharge rates and uniformity. Asta® Drip spike drippers are available in 2, 4 and 8 L/hr flow rates identifiable by colour coded bases.

The Asta® Drip's external design uses the benefits of the tri-lobal spike profile from Antelco's innovative and unique Asta® Stake design, providing strength and excellent soil retention. Comfortable grip-points for easy installation, coupled with a smooth design, differentiate this product from others in the market.

Asta® Drip Pressure Compensating spike drippers incorporate flexible diaphragm to ensure that a uniform

flow rate is delivered to the plant root zone irrespective of the inlet pressure (within the recommended operating pressure range of 100 to 350 kPa), reducing inefficient watering caused by fluctuating inlet pressures and uneven terrain. The outlet spout extends away from the spike to allow for visual confirmation of correct placement and operation of the product once installed, thereby reducing wastage through overwatering or unnecessary watering of areas outside of the root zone.

Antelco is committed to reducing non renewable material waste through optimisation of design and use of recycled materials where suitable. Asta® Drip Pressure Compensating spike drippers received the Green Leap 2008 Sustainable Design Award at the 2008 Design Institute of Australia and The Laminex Group South Australian Design Awards, as recognition from an independent panel of judges for addressing environment issues.

The Green Leap award, sponsored by Green Leap Planet Saving Products, acknowledges design that has minimal impact on the natural environment and adheres to the principles of ecological sustainability and production, whilst maintaining a high level of quality and functionality.

Antelco believe Asta® Drip to be the first sealed Pressure Compensating spike dripper on the world market. Through a combination of high cavity number tooling, automated assembly and stringent quality control, Asta® Drip is price competitive against simpler less functional non-compensating spike drippers currently on the market.

For information call by the Antelco Stand 266 at the Irrigation Australia 2010 Exhibition, or visit the website www.antelco.com.

New DB fittings from Antelco

For decades irrigators have been challenging the traditional methods of irrigating crops and gardens. Recent pressure on water availability has fast tracked the changes from flood, furrow and sprinkler systems, to low volume drip irrigation systems.

Substantial water savings have been achieved by delivering water more directly to plants via LDPE tubing and micro irrigation systems. But the single biggest peeve has been the combination of low quality, non-standard LDPE supply tubing and poor quality polypropylene fittings. Tubing blowing apart or leaking at the connections, loss of water and loss of crop production are expensive frustrations for the irrigation manager.

Finally a solution is here. Antelco has released a new range of high quality double barb fittings that provide increased strength, retention and long-term reliability. Furthermore, the extensive range of sizes now makes it possible to connect the traditional Australian LDPE tubing to in-line drip tubing.

Antelco's new DB Fittings are manufactured from Acetal, a robust material that offers increased strength, durability and long-lasting properties. As a result DB Fittings are tougher and won't break under tension, are UV stabilised to ensure long life and are resistant to most

Just toughen up!

NEW
DB double barb Fittings

Come see us at Irrigation Australia 2010, stand 266

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www.antelco.com



Putting water where it counts!®



agricultural chemicals, heat and wear. Manufacturing DB Fittings from a hard wearing plastic ensures barb edges are sharp and stay sharp so they "bite" into the tubing to form a secure connection. The double barbed design coupled with a superior quality engineering grade plastic, ensure DB Fittings provide a secure leak-proof seal and can be confidently installed without clamps in low pressure micro irrigation installations*. Cost savings can be made by dispensing with clamps altogether, reducing installation time and greatly reducing maintenance and service.

Don't believe it's true? Call by the Antelco Stand 266 at the Irrigation Australia 2010 Exhibition and test them out, or email Antelco for a free sample. For technical information, please

refer to the Antelco 2010 Irrigation Equipment Metric Catalogue available on the website www.antelco.com.

*When matched to quality low pressure poly tubing with corresponding dimensions. Operating pressures should not exceed 300 kPa.

New air release valves from Triangle Waterquip

Triangle Waterquip now have a competitively priced new range of 1" and 2" (25 and 50 mm) automatic air release valves. Made by Spanish company Hidroten from corrosion resistant materials with EPDM rubber seals, units are designed for high air flow capacities. Standard units are pressure rated at PN16. PN25 rated units come with a brass base. All units have been tested and certified to ISO standard UNE 1074-4.

Automatic air release valves are designed to:

- release air from a filling pipeline
- allow air into an emptying pipeline
- release air from a pressurised pipeline (degassing).

Removing air from a pressurised pipeline system is critical as compressed air can store enormous

amounts of kinetic energy which when release can result in water hammer and even movement and blow-outs in pipelines causing significant damage, downtime and costs. It can also cause severe restrictions in flow in mounded profiles of the pipeline where entrapped air can build-up.

For information contact Triangle Waterquip Pty Ltd, phone 03 9580 2122, email triangle@trianglewaterquip.com. See us at the IA show in Sydney 8-10 June.



Through continued commitment to innovation, quality, research & development, the Vinidex & Rodney Industries' team will lead the way in meeting & exceeding customers' expectations.

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Tiers without tears

A lot of the Cummins engines offered today in new excavators, wheel loaders and other types of off highway machinery carry the designation 'Tier 3'.

What exactly does Tier refer to?

The terms Tier 1, Tier 2, Tier 3 and so on, apply to emissions standards set by the US Environmental Protection Agency (EPA) for mobile off-highway diesels.

Currently there are no regulated off highway Tier emissions levels in Australia, so the fact that Cummins engines meet Tier 3 standards – currently the most stringent in the world for diesel industrial applications – may not seem significant in this country.

However, Tier 3 engines, which have been operating in the US since 2006, have a range of benefits.

The Tier 3 Cummins QSB, for example, features evolutionary reliability and durability upgrades, significant noise reduction and performance improvements.

The lower exhaust emissions are a major benefit in a number of applications, and also meet many companies' business values in a world increasingly challenged by environmental compliance.

Comparing the performance of about the same capacity – one a Tier 3, the other an equivalent model from the pre-emissions US

era of the early 1970s – clearly shows the Tier 3 benefits. These figures show that, compared with the earlier powerplant, the Cummins Tier 3 diesel engine has:

- 100% more power
- 50% better fuel economy
- 400% longer engine life and overall reliability
- 90% lower emissions
- and costs 70% less (in 1970 constant dollars).

The Tier 3 QSB six-cylinder version has a displacement of 6.7 L, increased from 5.9 L.

Upgrades include a new high pressure common rail fuel system, a new electronic control module, and a rear geartrain configuration. The engine also meets higher reliability, durability and power density targets.

The noise level of the Tier 3 QSB has been reduced by as much as 9 dBA through using a rear geartrain, an enclosed valve tappet cavity, and a sculpted block. In fact, the new engine is as quiet at full load as its predecessor was without load.

The QSB's full-authority electronic controls provide standard Cummins features such as diagnostics, data downloading, maintenance monitoring and engine protection.

So if you see the term Tier 3 from now on, you know you'll be getting a Cummins engine that is not only a gain for environment but also offers a range of operational benefits.

Holman Industries to introduce the revolutionary LEIT-2


Director of Holman Industries, Wally Edwards, has expressed his excitement of the release of the LEIT-2 ET weather based system at the upcoming Irrigation Australia Exhibition, in June.

"The LEIT-2 ET is an innovative product, which will significantly influence the irrigation market" says Wally.

The LEIT-2 ET, manufactured in the US by DIG Corporation, is a true, wireless control system and operates solely on ambient light, which charges lead-free 'super capacitors' as opposed to batteries. No running wires to valves or AC

powered are required, making the LEIT-2 ET very environmentally friendly.

The LEIT-2 ET operates by collecting evapotranspiration (ET) data. It can then be programmed to monitor, control and adjust irrigation schedules for each zone through the data received by the weather station and site information received from the LEIT RC2ET handset.

Interested in seeing LEIT-2ET? You are invited to see it at Holman Industries stand at Irrigation Australia Exhibition. The product has also been nominated for the Best New Product Award. 

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IRRIGATION RESEARCH

DRIP IRRIGATION HAS LITTLE EFFECT ON STRUCTURE

According to a study funded by the National Program for Sustainable Irrigation and the Grape and Wine Research and Development Corporation, the environmental and management benefits from drip irrigation outweigh effects on soil condition. The research also indicates that drip could be made even more efficient by addressing the naturally poor structure of Australian soil which is made worse by compaction under tractor wheels.

Investigations into the sustainability of drip irrigation were appropriate considering its rapid uptake. In Australia drip irrigation could be found on just a few properties in the 1960s, yet by 2006, when the study started, around eighty per cent of the 150,000 ha of vineyards had precision systems. The vast majority of these systems were drip, with some micro-spray. Although the work concerned vines, there has also been wide adoption of precision systems in citrus, stone fruits, vegetables and other crops.

Naturally poor soil structure the issue

Some grape growers thought change was occurring to soil structure, so it was important to see if this was the case and, if so, what was driving any change to physical and chemical properties of soil under the vines.

Early research did find some instances of minor structural decline and a buildup of salts around the



The rapid expansion of drip irrigation systems raised questions about sustainability.

wetted pattern created by drip irrigation. But it was recognised that a bigger contributor to structural change was compaction caused by vineyard traffic and that salt accumulation might not necessarily be problematic given a normal flush of winter rain.

Team leader Rob Murray from the University of Adelaide explains that as far as soil properties are concerned the big picture is dominated by the naturally poor structure of soils at depth, a fact reinforced by the study of structure under drip lines. It posed the question of what can be done to make structure better, and so enhance the efficient distribution of water through drip irrigation, whether above-ground or sub-surface.

“New vineyards may start well with pre-planting treatments to improve structure and root penetration,” he said.

“Unfortunately deep-ripping benefits are only temporary, normal mulching and cover-cropping have a positive effect on structure in the upper part of the soil but do not have a deep enough effect, and cultivation to treat compacted soil along wheel lines is only useful until the next tractor pass.

“This means we have to consider other ways to improve structure at depth and limit re-compaction.

Over-row machinery, where wheel loads are in the centre of the space between rows, will ultimately improve the extension of vine roots by having the compacted wheel lines away from vine rows.

The options are limited, however, for making real improvements to structure beyond 30 to 40 cm, although there is the potential for growing species of plants that can push their roots deeply through the hard soil layers. By penetrating further through the profiles, carbon will be added, and structure and water-infiltration should improve, enabling a bigger ‘root friendly’ volume for vine roots to explore.

Improving structure at depth the key

Rob Murray says that while research points to the fact that drip irrigation does not compromise soil quality, the study has emphasised the natural limitations of most agricultural soils and the need to look for new ways of improving structure at depth.



Jinky and Steve Nicholls found conversion to drip irrigation resulted in management and environmental advantages

“Drip remains an efficient irrigation system which will be even more effective if ways are found for extending the spread of roots,” he said. “This will also add to the resilience of vines in extremely hot, dry, seasons.”

An example of drip irrigation efficiency can be found on Steve and Jinky Nicholls’ property at Dareton in NSW, where 27 ha of vines have been under drip irrigation for two seasons. Previously served by undervine sprinklers, the vines are producing slightly better yields while still meeting the required quality specifications for winegrapes and dried vine fruit. The family has recorded a third less water needing to be applied under drip and less time being required to check the system. Last summer was hotter than normal yet the total water applied was only 6 ML/ha.

“The management and water-saving benefits are clear and the environmental benefits are there too because we are not taking the spray tank through the vineyard causing compaction when the rows are still fairly moist from sprinkler irrigation,” Steve said. “Another sustainability advantage with drip systems being taken up in the district is that the water table had been lowered and outflows have been reduced.”

Local NSW Department of Primary Industries irrigation officer Jeremy Giddings said conversion to drip systems across the district was the main factor responsible for eighty per cent less water going into evaporation basins since 1998.

Catalogue

CONFERENCE AND EXHIBITION

8 - 10 JUNE 2010 SYDNEY CONVENTION AND EXHIBITION CENTRE, DARLING HARBOUR



AUSTRALIAN IRRIGATION Conference & Exhibition 2010

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- Alternative water sources for sports fields & parks
- The new era of irrigation metering, what does it mean?
- What's your dam water worth?

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- Professor Kader Asmel
- Professor Chandra Madramootoo

National Speakers

- Chris Thompson
- Jim Taliangis
- Peter Hayes
- George Warne
- Keith Bristow

IAL & CRCIF CONFERENCE DINNER

Sponsored by GHD
Wednesday 9 June
Dockside



EXHIBITION - ENTRY IS FREE & TRADE ONLY

TUESDAY 8 JUNE 9.00 AM – 5.00 PM
WEDNESDAY 9 JUNE 9.00 AM – 5.00 PM

Happy hour drinks 5.00 pm – 6.00 pm Tue/Wed

Tuesday 8: sponsored by
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THURSDAY 10 JUNE 9.00 AM – 3.00 PM

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WELCOME TO THE AUSTRALIAN IRRIGATION 2010 CONFERENCE AND EXHIBITION

Irrigation Australia Limited, the CRC for Irrigation Futures and Exhibitions & Trade Fairs are delighted to welcome you to the largest irrigation event in the southern hemisphere, the 10th Biennial Irrigation Australia Conference and Exhibition.

This is 'the place' to see latest technology, products and solutions available to the irrigation industry.

Hear up-to-date presentations from industry experts about irrigation practice and policy, and meet key people in the industry at this year's conference.

The theme of the conference in 2010 is "One Water Many Futures". This looks to the future of irrigation, and its role in food, fibre and lifestyles, as the Australian irrigation industry undergoes a once-in-a-lifetime transformation.

While looking forward, the conference will also mark the end of the Cooperative Research Centre for Irrigation Future's seven-year term.

The conference has confirmed an exciting mix of international and Australian keynote speakers. Our international presenters include Dr Sandra Postel, who directs the Global Water Policy Project based in New

Mexico, USA; Professor Kader Asmal, currently Patron of the Global Water Partnership, South Africa; and Professor Chandra Madramootoo Dean, Faculty of Agricultural and Environmental Sciences, McGill University, Canada.

Local keynote presenters include Chris Thompson, Tasmanian Irrigation Development Board; George Warne, State Water; Peter Hayes, CRC for Irrigation Futures; Jim Taliangis, SA Water; and Keith Bristow, CSIRO.

The Workshop Program, which has proved to be a very successful addition to the program since 2004, will be continued and is a major element of Irrigation Australia.

The workshops provide participants the opportunity to take part in very topical, hands-on activities. They will take away practical tips and advice to assist their businesses.

We haven't forgotten the social aspects of the event. We've scheduled plenty of opportunities to socialise and catch up with friends and colleagues at the IAL and CRCIF Industry Dinner, exhibition happy hours and the welcome function.

This year's exhibition will be the largest irrigation industry event Sydney has seen. There will be more than 100 exhibitors representing more

than five hundred brands, providing an extensive array of "What's New" in technology, products and solutions available to the irrigation industry - and all in one convenient location for 3 days.

We would like to extend our special thanks to the exhibitors, in particular, to the new and international exhibitors. This year we are proud to host exhibitors from France, Italy, USA, South Korea, New Zealand and Australia.

We hope you enjoy your visit to the AUSTRALIAN IRRIGATION 2010 Conference and Exhibition. A great place to start your visit is at the New Product Showcase, proudly sponsored by Rural Press - a display of the latest in irrigation innovations to be found throughout the exhibition.

We look forward to seeing you again in Adelaide 2012, at the Adelaide Convention Centre.

Dr Kelvin Montagu,
CRC for Irrigation Futures

Scott Barber, Irrigation Australia

Rob Keen, ETF

*Joint chairs, Irrigation Australia 2010
Conference Organising Committee*



Kelvin Montagu, Scott Barber and Rob Keen encourage industry members to visit Irrigation Australia Conference and Exhibition



CONFERENCE PROGRAM

(Please note that this program may be subject to change)

TUESDAY 8 th June				
0830	Welcome –Kelvin Montagu & Scott Barber, Conference Chairs			
0900	Opening – The Hon Tony Burke MP, Minister for Agriculture, Fisheries and Forestry, has been invited to officially open the Conference			
0930	Plenary Session 1: Responsible transformation of water management in an era of scarcity Professor Kader Asmal, University of Western Cape, and former South African Minister of Water			
1030	MORNING TEA – Bayside Foyer Level 2 Sydney Convention Centre			
	Concurrent Sessions			
	Session 1 - Modernising Off-farm Storages and Delivery Systems	Session 2 - Policies and Planning for Uncertainty	Session 3 - Increasing Crop Water Productivity	Session 4 - Solutes Signatures & Salinity
1100	To be the best - what it will take to be the best location for sustainable irrigated agriculture. D. Stewart	The role of engagement, collaboration and co-learning in delivering system harmonization. J. Camkin , G. Starky , K. Bristow , P. Martin , J. Williams , B. Maheshwari , B. Simmons , H. Malano , B. Davidson , M. Hafeez , J. McKay	Whole farm approach to irrigation water use focuses efforts to improve water use efficiency. P. Hulme , J. Purcell	Searching for solute signatures. R. Stirzaker
1120	A new dimension for irrigation system decision making: combining location intelligence with a system network model for better levels of service, resource optimisation & a healthier ecosystem. B. Manicavasagar , K. Hutchinson	Partnerships for irrigation modernisation - case study of Victoria's agency for the Linking Farms and Catchments Initiative. B. Keeble , G. Kaine , H. Murdoch , R. Maskey , N. Gemmill	Optimising profitability of sweet corn by understanding high plant density effects on water use, phenology and yield S. Limpus , C. Henderson , G. Finlay	Estimating nitrate leaching losses through the monitoring and modeling of mobile and resident soil water concentrations. M. van der Laan , R. Stirzaker , J. Annandale , K. Bristow , C. du Preez
1140	Investment in operational infrastructure to increase the efficiency of water delivery on the Murrumbidgee River. P. Deamer , K. Dalton , J. Skinner	Planning for a water constrained future A. Boland , M. Shanahan , M. Toulmin , A. Kelliher , R. Rendell , C. Thompson	Level of water stress substantially affects the productivity and water use efficiency of 32 forages used to feed dairy cows in Australia. J. Neal , B. Fulkerson	Understanding and managing rootzone salinity in Langhorne Creek A. Richards , J. Hutson , M. McCarthy
1200	The Productivity Dividend from Channel System Modernisation. K. Preece	The political discourse of land and water stewardship, reframed as a statutory duty of care. M. Shephard , P. Martin	The effect of irrigation non-uniformity on carrot production R. Koech , S. Raine	Electrical conductivity of root zone soil water, and marketable yield of an iceberg lettuce (<i>Lactuca sativa</i>) crop, irrigated with different water qualities A. Hunt , C. Henderson , G. Finlay
1220	Advanced maintenance for optimised asset management. G. Fyfe , S. Nield	What is a 'sustainable' diversion limit? M. Hamstead	Crop Water Use: a web-based tool for irrigation planning of fully-irrigated crops in Australia J. Payero , G. Harris , S. Vriesema , D. Singh , J. Hare , L. Pendergast	Will increased water use efficiency lead to salt accumulation in the root zone? A comparison of adjacent lateral move and furrow irrigation systems. I. Gunawardena , D. McGarry , T. Gardner
			S. Limpus , Y. Chauhan .	
1245	LUNCH in Exhibition Hall 1 & Poster Viewing			
	Concurrent Sessions			
	Session 5 - Metering	Session 6 - Policies and Planning for Uncertainty	Session 7 - Increasing Crop Water Productivity	Session 8 - Extension - It's the People, Stupid!
1400	The Australian Institutional framework for Non Urban water metering J. Cape	Water Markets Information – the evolutionary role of the Bureau of Meteorology – a view to the past, present & future A. De Duonni	Achieving higher water use efficiency in fruit trees by adjusting irrigation rates to actual crop load A. Naor	Sustaining irrigation efficiency achievements in Bookpurnong – maximizing the effectiveness and cost efficiency of continued extension programs J. Nelson
1430	National Metering Standards - meeting the challenge. G. Mann , B. Heslop	Understanding the extent to which transaction costs determine water market outcomes in Australia and the USA. P. Martin , J. Shortle	Postharvest deficit irrigation did not affect the following season's yield and fruit quality in WBC pear. A. Qassim , L. Goodwin , R. Bruce	Understanding landholder responses to inform successful system modernization B. Stary
1450	Central Irrigation Trust Remote Reading of Irrigation Water Meters Project I. Brock	A New Way Forward for Water Management - the Canterbury Water Management Strategy L. Hume , A. Curtis	Diversifying the application of oxygation to lawn, landscape, and large scale agricultural irrigation. S. Bhattarai , D. Midmore , J. Dhungel	Coping with reduced irrigation allocations in the Victorian Mallee: past, present and future. M. Schache
1510	Smart metering for improved irrigation efficiency practice D. Pezzaniti	Assessing Irrigators Perspectives on Water Management Issues using Photostory. G. Keremane , J. McKay	Simulation of adaptive site-specific irrigation control performance with spatially variable rainfall. A. McCarthy , N. Hancock , S. Raine	Finding Solutions to NZ's Water Allocation Challenge – A Users Perspective A. Curtis
1530	AFTERNOON TEA in Exhibition Hall 1			
1600	Chaired Poster Session Tour IAL meetings – topics to be announced			
1700	Happy Hour Drinks in the Exhibition			

IRRIGATION AUSTRALIA CONFERENCE AND EXHIBITION 2010

WEDNESDAY 9 th June				
0830	Plenary Session: 2 Irrigation in a Water-Stressed World: Adapting to a New Normal Dr Sandra Postel, Director Global Water Policy Project & National Geographic Society's first Freshwater Fellow			
0930	System Harmonisation - irrigation within a catchment context Dr Keith Bristow, CRC for Irrigation Futures & CSIRO			
1000	What Happens When the Environment Becomes our Biggest Customer? George Warne, NSW State Water Corporation			
1030	MORNING TEA – Bayside Foyer Level 2 Sydney Convention Centre			
	Concurrent Sessions			
	Session 9 - Managing Environmental Water	Session 10 -Water Cycle Management	Session 11 - Competing Water Demand in Peri-urban Regions	Session 12 - ET – Estimating Plant Water Use
1100	Management and use of the Commonwealth environmental water holdings – a basin wide approach. J. Robinson, S. Banks, G. Milnes, B. Docker	The Bureau of Meteorology's water information role: how will the irrigation sector benefit? D. Jayasuriya, J. Elliott, N. Plummer	Systems harmonisation in Western Sydney: The WISER Story B. Simmons, B. Maheshwari, G. Starkey	Convenient and low cost irrigation scheduling – an opportunity for irrigators J. Hornbuckle, E. Christen, N. Car, D. Smith
1120	Managing environmental water in NSW D. Rutherford, G. Enders	Statistical seasonal streamflow prediction towards an operational service N. Plummer, T. Peatey, J. Perkins, D. Robertson, A. Schepen, D. Shin, Q. Wang, S. Zhou	Modelling hydrological impacts of water cycle management activities in a peri-urban catchment R. Singh, B. Maheshwari, B. Simmons	ET-based irrigation DSS using mobile phones where remote sensing is not applicable N. Car, E. Christen, J. Hornbuckle, G. Moore
1140	Kerang Lakes Water Savings Project: an innovative approach to saving water and providing environmental benefit. S. Morath, S. Treadwell, S. Heron, L. Lowe, T. Smith, M. Manivaskan, K. Collett, G. Smith	Seasonal stream flow forecasts: an industry perspective G. Hannan, A. Shields	Water cycle modelling for system harmonisation in the South Creek Peri-urban Catchment. B. Nawarathna, H. Malano, B. Maheshwari, B. Simmons	Satellite remote sensing crop water requirement in perennial horticultural crops M. O'Connell, D. Whitfield, M. Abuzar, K. Sheffield, L. McClymont, A. McAllister
1200	Environmental water as part of an irrigation future. D. Nias.	Understanding the Water Cycle: Why is it important? H. Malano, B. Nawarathna, B. George	Assessing the economic impacts of allocating water M. Gartley, M. Reynolds, I. Hirs, B. Simmons, M. Varua, B. Nawarathna, H. Malano, B. Davidson	Progress towards an ET forecasting service for the irrigation industry V. Carr
			Policy risk assessment of peri-urban water strategies: a case study of Western Sydney P. Martin, J. Williams	
1220	Environmental water and the self-supply irrigation industry in the south west of Western Australia B. Donohue, E. Said, F. Bunny	Understanding spatial patterns of actual evapotranspiration at different crop growth stages using Landsat TM imagery: An example from Murrumbidgee Irrigation Area M. Ahmad, A. Abbas, E. Xevi, J. Foley	Learnings from system harmonisation: the WISER experience P. Martin, J. Williams, C. Stone, T. Alter	A new 'one step' method for calculating irrigated crop evaporation J. Wallace, J. Shuttleworth
1245	LUNCH in Exhibition Hall 1 & Poster Viewing			
	Session 13 - Water Accounting	Session 14- Groundwater	Session 15 - Alternative Water Sources	Session 16 - Impacts of Climate Change on Irrigation
1400	Australian Water Accounting Standards and the Irrigation Industry M. Smith, S. Hanley	Opportunities to Improve Roof Zone Drainage Values of the groundwater models used for lower Murray River salinity prediction. T. Biswas, A. Katupitiya	Strategic considerations for planning reclaimed water use in peri-urban regions P. Houston	Surviving with less water: the implications of past, present and future droughts for irrigation M. Kirby, F. Chew, M. Mainuddin, B. Young, G. Podger, A. Close
1430	NSW General Purpose Water Accounts – Developed under the Preliminary Australian Water Accounting Standards P. Moss, M. Burrell	What happens to groundwater recharge in the Coleambally Irrigation Area? A. Barr, E. Xevi, M. Ahmad, Y. Chen, H. Beuttikofer, M. Kirby	Key lessons from 3 Sydney stormwater harvesting & reuse schemes M. Brown, N. Lo, B. Addison, C. Fox, P. Chandrawansan, J. Pang	Irrigated crop water requirement in the SA MDB Region D. Smith, E. Christen, M. Cutting, J. Hornbuckle
1450	Reporting Using the Australian Water Accounting Standards (AWAS) – a practical application from an Irrigation Water Service Company. S. Greenwood, G. Calder	Redox controls on nitrate (NO3-) mobility in the lower Burdekin coastal groundwater systems. M. Lenahan, K. Bristow	Application And Adaptation Of Recycled Water As A Sustainable Solution G. Jones, Linda K	Finding the balance: Comparing water, energy and emissions patterns for irrigation in surface and ground water dependent irrigation regions. T. Jackson, S. Khan, M. Hafeez
1510	Introducing the Bureau of Meteorology's new National Water Account responsibilities G. Mitchell, L. Minty, R. Kidson	Impacts of sodic soil amelioration on hydraulic conductivity and deep drainage in the Lower Burdekin. L. Reading, D. Lockington, K. Bristow, T. Baumgartl	Factors determining the treatment and recycling of wastewater G. Mekala	The water requirement of cotton and wheat in a changing climate: a Queensland Analysis D. Singh, J. Hare, S. Limpus, J. Payero, S. Vriesema, L. Pendergast, Y. Chauhan, G. Harris
1530	AFTERNOON TEA in Exhibition Hall 1			
1600	Chaired Poster Session Tour IAL meetings – topics to be announced			
1700	Happy Hour Drinks in the Exhibition			
1930	Conference Dinner Venue: Dockside, Cockle Bay, Darling Harbour			

THURSDAY 10 th June				
0900	Plenary Session: 3 Tasmania, irrigated agricultures newest opportunity Chris Thompson, Tasmania Irrigation Development Board			
0920	Has the development of irrigated public open space created a win- win – win? Impact on the irrigator, the environment and industry Jim Taliangis, SA Water			
0940	TBA			
1000	National Irrigation Research & Development - why collaborate? Peter Hayes, CRC for Irrigation Futures			
1030	MORNING TEA – Bayside Foyer Level 2 Sydney Convention Centre			
	Concurrent Sessions			
	Session 17 - Environmental, Social, Economic Assessment	Session 18 - Urban irrigation	Session 19 - Modernising on-farm delivery systems	Session 20 - Reducing dam evaporation losses
1100	The impacts of water trading in the southern Murray-Darling Basin: an economic, social and environmental assessment L. Arthur	Technology and management - the key to keeping the tap on R. Dilena, A. Miller	The Commonwealth Governments irrigation infrastructure programs: Structure, funding, objectives and implementation M. Harwood, R. McLoughlin, S. Nethercott-Watson, N. Rayns	Collaborative research towards reducing evaporation losses from water storages E. Schmidt
1120	The Impacts of Trade Report. W. Faragher	Irrigation smart – A trial to improve residential irrigation systems across the ACT A. Porter, K. Civil, S. Simard, J. Ryan	Irrigation infrastructure modernisation - NSW sustaining the basin: Border Rivers Gwydir R. Jackson, J. Montgomery, A. McCaffery	Efficacy of selected micro- and mono-layer products on evaporation H. Gill, E. Prime, D. Solomon
1140	Economic, Environmental and Social Sustainability Indicators for the Australian Cotton Industry. G. Roth	Developments in soil moisture sensing for improved landscape water management P. Symes, M. Dalton, P. Buss, S. Liu, G. Connellan	FarmWater: Northern Victoria Farm Irrigation Modernisation - Saving Water through Farm Works C. Walters, T. Shanahan, B. O’Kane, C. Thompson	A scalable distribution system for the optimal application of evaporation-suppressant film to farm dams T. Symes, G. BrinkT
1200	Measuring the Community Value of Ecosystem Services. C. Stone	Water management central control R. Freedman, B. Punscon	Improving performance of bay irrigation through higher flow rates M. Gillies, R. Smith, B. Williamson, M. Shanahan	Wind-assisted surface probe (WASP) – an automated sensor for the detection of evaporation reducing monolayers P. Coop, D. Lamb, C. Fellows, R. Bradbury
1220	A research agenda to document the progressive development of Sustainable development law in Australia- water plans, polycentric organisations and water policy entrepreneurs. J. McKay	How to maximise the benefit of sportsfield irrigation upgrades J. Ryan, C. Hammond, A. Bryce, A. Porter	Assessment of benefits low pressure irrigation systems have had on Queensland dairy farms. J. Miller, R. Warren, M. Callow, P. Daley	The impact of water quality on monolayer performance in reducing evaporative loss from water storages P. Pittaway, T. van den Ancker
1245	LUNCH in Exhibition Hall 1 & Poster Viewing			
1345	Current Trends in Irrigation Management from Around the World Professor Chandra Madramootoo, President International Commission on Irrigation & Drainage			
1415	National Program for Sustainable Irrigation Travel fellowship report Dr Tamara Jackson			
1430	Q and A , hosted by award winning journalist Ticky Fullerton The panel will consider what should irrigation policy, practise and research look like in 2020; following the \$30 billion of private and public investment and a further decade of reform. Panel members include Dr Sandra Postel, Director Global Water Policy Project & National Geographic Society's first Freshwater Fellow Murray Smith, CEO Northern Victoria Irrigation Renewal Project & former CEO Coleambally Irrigation Co-operative Limited Mathew Stott, young irrigator & 2008 Nuffield Scholar Senator Bill Heffernan, Chair - Senate Select Committee on Agriculture and Related Industries, Dr Richard Storzaker, Scientist CRC for Irrigation Futures & CSIRO and author of "Out of the scientist garden"			
1530	Wrap Up and Closing Comments Peter Toome, Chair of IAL & Peter Hayes, Chair of CRC for Irrigation Futures			

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WORKSHOP PROGRAM

Workshop Cost: \$90 per workshop including workshops and refreshments

Workshops can be booked on line at www.irrigationaustralia.com.au

Workshop 1: The New Era of Irrigation Metering: What Does it Mean for You?

10.00 am to 12 pm Tuesday 8 June
Coordinator: Peter Smith

The aim of the workshop is to inform, enthuse and skill irrigators, consultants and advisers in the Sydney Basin and near regions (e.g. Hunter Valley) on the new national requirements for metering.

The target audience is irrigators, consultants and advisers.

Workshop 2: What's Your Dam Water Worth?

1.00 to 3.00 pm Tuesday 8 June
Coordinator: Debbie Atkins

This workshop will offer information on latest research and products available to improve management of farm dams used for irrigation.

The target audience is irrigators, consultants, advisers, and water authority staff.

Workshop 3: Getting the Best Playing Surface Possible

10.00 am to 12.00 pm Wednesday 9 June
Coordinator: Tony Robinson

The aim of this workshop is to make the participants aware of the Best Practices Guideline for Open Space Turf and its associated online tools.

The target audience is open space managers, council GMs, consultants and irrigation advisors.

Workshop 4: Alternative water sources for irrigating sports fields and parks

1.00 to 3.00 pm Wednesday 9 June
Coordinator: Matthew Wilson

This workshop will inform and discuss practical challenges, lessons and solutions resulting from real examples of irrigating public open space with alternative water sources.

The target audience is council engineers and consultants.

OPTIONAL POST-CONFERENCE TOURS

Friday 11 June 2010

Tours can be booked on line at www.irrigationaustralia.com.au

Tours will commence from Harbourside Shopping Complex, next to the Sydney Convention and Exhibition Centre, Darling Harbour at 8.30 am and return between 2.00 and 2.30 pm.

Tour 1: Water from the Sea

Tour Leader: Tony Robinson, Sydney Water

A tour of Sydney's newly commissioned desalination plant at Kurnell followed by the Sydney Cricket Ground and the Sydney Football Stadium. Lunch will be at the Sydney Cricket Ground

Cost: \$90 including lunch

Tour 2. Irrigation in the City

Tour Leader: Bhakti Devi, City of Sydney Council

A walking tour in the City of Sydney will focus on the issues and challenges of urban irrigation.

Cost: \$65 including lunch

Tour 3: Irrigation on the edge

Tour Leader: Matthew Wilson

The challenges of irrigation in peri-urban areas using alternative water sources. The tour will include the Pennant Hills Golf Club, Cammeray Golf Club and North Sydney Oval.

Cost: \$90 including lunch

EXHIBITOR STANDS

Stand	Company Name	Stand	Company Name	Stand	Company Name
126	2iE International	304	Holman Industries	257	Observant Pty Ltd
296	ABB Australia Pty Limited	220	HR Products	155	Orange Pumps Pty Ltd
166	Adcon Telemetry Australia	300	Hunter Industries	240	Outdoor Design Source
173	ADG Global Supply	328	Hydro-plan	186	Philmac
274	Amiad Water Systems	123	Hydrosmart International Pty Ltd	160	Pierce Corporation Pty Ltd
266	Antelco Pty Ltd	238	IB International	177	Pioneer Water Tanks
195	Aqua Guardian Group Ltd	234	Ibis Controls /Custom Built Stainless*	132	Plastica Alfa S.R.L
261	AquaPlan Irrigation	284	Infinity Water Filtration P/L	272	Power Equipment
135	AquaSpy	134	InterCEL Pty Ltd	244	PPI Corporation Pty Ltd
146	Batescrew Pumps & Valves Australia	150	International Water and Irrigation Magazine	250	Queensland Irrigation Services Pty Ltd
262	Bermad Water Technologies	116	Iplex Pipelines	106	Rain Bird Australia Pty Ltd
102	Bureau of Meteorology & CSIRO*	124	Irrigation Australia Limited/CRCIF*	172	Reinke Manufacturing Company, Inc
164	CalcClear Water Conditioners	278	Irrigation Components Australia	282	Rhino Water Tanks
127	Campbell Scientific	114	Irrigear Stores Pty Ltd	162	Rubicon Systems
156	CAP Industries Pty Ltd	158	Irriland Srl	122	Ruralco Holdings Ltd
108	Caprari Pumps Pty Ltd	252	ITT Fluid Technology International (Australia) Pty Ltd	119	Rural Press Agricultural Publishing
289	Care-Free Conditioners Australia	118	John Deere Water Pty Ltd	254	SAER ELETTROPOMPE S.P.A
100	Clearpond	175	K Line Irrigation	214	Sentek Sensor Technologies
142	CRCIF Professional Irrigation Services Network	323	Lindsay International	298A	Signature Control Systems, Inc*
287	Cromford Group Pty Ltd	170	Lister-Petter (Welling & Crossley Pty Ltd)	254	Sterling Pumps Pty Ltd*
295	Crusader Hose	143	Maccaferri Australia Pty Ltd	119A	Storm Consulting Pty Ltd
264	Cummins South Pacific	242	Macmahon Adasa	174	Sub Motors Australia (WLG(Aust)Pty Ltd)
238A	Dallai Ernesto S.r.l	275	Macquarrie Corporation Pty Ltd	168	Sun-Flow Inc / Hawkes International
297	Dama Manufacturing Ltd	151	Mait Industries	148	Thermo Fisher Scientific
260	Davey Water Products Pty Ltd	152	Maric Flow Control Australia	294	Think Water Pty Ltd
144	Dynapumps	125	Marsh Pty Ltd	190	Toro Australia
288	Emflow Valves	154	Measurement Engineering Australia Pty Ltd	197	Trench'N Edge Irrigation Trencher
171	FPT (Welling & Crossley Pty Ltd)	139	Membrane Liners Int'l (Firestone)	320	Triangle WaterQuip
226	Franklin Electric Australia Pty Ltd	232	Metzerplas Australia	121	Tridon Australia Pty Ltd
292	Fusion Hire Services	268	Midstream Instrumentation (Process Control Services Pty Ltd)	130	Tyco Water
133	Geo9 & Groundwater Imaging	210	Naandan Jain Australia	298	UnderHill International
176	Goldtec Control Systems Pty Ltd	145	Nam Kyung Co., Ltd	256	Valmont Australia
211	Grundfos Pumps	182	Nelson Australia Pty Ltd	314	Vinindex
112	Guyco Pty Ltd	194	Netafim Australia	128	Water Dynamics/Tyco Environmental
216	Hatz Diesel Australia			178	Waterwell Solutions
				212	Weathermatic (Reece Irrigation)

*Co-Exhibitors. Exhibitor list correct at time of printing



The southern hemisphere's BIGGEST irrigation event
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 Sydney Convention & Exhibition Centre | 8 to 10 June 2010

EXHIBITION FLOORPLAN



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EXHIBITION CENTRE,
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ORGANISED BY



EXHIBITORS

2iE INTERNATIONAL

Stand Number: 126

2iE INTERNATIONAL manufactures centre pivots and linear move systems, with 45 years experience. Inventor of the Lateral Hippodrome (1974) and the unique "Mini Corner" (1986). Its AGS technology, recognised as one of the best, makes it a leader in the Irrigation World. 2iE is present in Australia and worldwide.

BP 23347, Le Mans Cedex 1,
72003 France

Tel: 33 02437 65050

Fax: 33 02437 65060

Email: info@2ie.com

Website: www.2ie.com

Brand Names: 2 I E, A G S, A G S 2, IRRICO, Rain Liner 2

ABB Australia Pty Limited

Stand Number: 296

ABB's comprehensive range of Flow Measurement solutions will be on display, including our world renowned AquaMaster battery powered flow meter, WaterMaster range of flow meters, and our soon-to-be-released IrriMaster product range. The ABB heritage of flow includes the largest installed base of magnetic flow meters worldwide.

Bapaume Road, Moorebank NSW 2170

Tel: 02 9821 0953 Fax: 02 9821 0911

Email: linda.kelly@au.abb.com

Website: www.abb.com.au

Brand Names: WaterMaster, IrriMaster

Adcon Telemetry Australia

Stand Number: 166

Adcon Telemetry is a world leader in the manufacture of radio communication products for environmental monitoring. The company's compact, solar powered radio and GPRS loggers feed data to a computer running our addVANTAGE Pro software, which in turn makes data available to users over the Internet via a web browser.

1/184 Prospect Rd Prospect SA 5082

Tel: 08 8342 4353

Fax: 08 8342 5363

Email: info-aus@adcon.com

Website: www.adcon.com

Brand Names: Adcon, addVANTAGE, addWAVE, addIT, AquaCheck, EnviroPro, EnviroSmart, HydraProbe, AquaFlex, Vaisala

ADG Global Supply - Universal Pumps

Stand Number: 173

ADG Global Supply is the company behind Universal Pumps, PondMate, GreyFlow and Waterboy Wizard products. The Universal range features reliable, excellent value pumps for all applications, pond pumps & water garden accessories, grey water diversion systems and rainwater harvesting - tank to toilet - systems. ADG also specialise in mining supplies, drilling fluids, drilling rigs and earthmover tyres.

17 Oxleigh Drive Malaga WA 6090

Tel: 08 924 97599

Email: water@adgglobalsupply.com

Website: www.universalpumps.com.au

Brand Names: Universal Pumps, Universal GreyFlow, Waterboy Wizard, PondMate

Amiad Water Systems

Stand Number: 274

Amiad Water Systems is a specialist Filtration and Valve company which has been in operation in Australia for over 30 years. Amiad offers screen, disc, hydrocyclone and media filtration, as well as membrane technologies. Amiad also offer the full range of Dorot Valves and ARI air valves.

138 Northcorp Boulevard
Broadmeadows VIC 3047

Tel: 03 9358 5800 Fax: 03 9358 5888

Email: david@amiad.com.au Website:

www.amiad.com.au

Brand Names: Amiad, Dorot, ARI

Antelco Pty Ltd

Stand Number: 266

Australian manufacturer Antelco has continued its product development focus on providing high quality, micro irrigation products to meet the global need for efficient water distribution. New products on display include; new pressure compensating emitters and dedicated range of fittings to reduce leaks and "blow offs" for LDPE tubes and drip line products for landscape and horticultural applications.

14 - 18 Rosslyn Street Mile End SA 5031

Tel: 08 8416 9000 Fax: 08 8416 9099

Email: adelaide@antelco.com.au

Website: www.antelco.com

Brand Names: Antelco

AquaPlan Irrigation

Stand Number: 261

Importers and distributors for a wide range of specialty irrigation control systems, filtration and flow monitoring products. These products are typically used in a variety of commercial agricultural and turf applications. Services offered include complete system design, supply, installation and ongoing support services.

52 Phillis St Maylands SA 5069

Tel: 08 8132 0133 Fax: 08 8132 0722

Email: nickmoschis@optusnet.com.au

Brand Names: Rain Bird, Data Industrial, Texas Electronics, Badger Meters, Aquaterr Instruments, Amiad Filtration, C&M Meteorological, Holman Industries

AquaSpy

Stand Number: 135

AquaSpy's smart water technologies have been proven to save up to 70% of water used in agriculture for food and beverage production and urban environments. Using AquaSpy's wireless sensors deployed throughout irrigation districts, cities and towns - growers and managers monitor water use remotely and select strategies to save water and improve agriculture productivity and urban aesthetics.

16 Phillips Street Thebarton SA 5031

Tel: 08 8416 9900 Fax: 08 8416 9901

Email: pmoller@aquaspy.com Website: www.aquaspy.com

Brand Names: AquaSpy, AquaBlu, MetSpy

Aqua Guardian Group Ltd

Stand Number: 195

Aqua Guardian Group, a water conservation company, has developed AquaArmour™, a world first, environmentally friendly modular evaporation control system for large scale deployment on major water storages, reducing evaporation by 88% and inhibiting algal growth. AquaArmour™ qualifies for three year accelerated depreciation and up to 50% government grant subsidies.

Level 9, 564 St Kilda Rd, Melbourne VIC 3004

Tel: 03 8530 2000 Fax: 03 8530 2020

Email: dannyd@aquaguardiangroup.com

Website: www.aquaguardiangroup.com

Brand Names: AquaArmour™

Bermad Water Technologies

Stand Number: 262

Bermad Water Technologies has been a leading supplier of water control valves, air release valves and water meters into irrigation systems for over 20 years in Australia. We have innovative and leading technology to achieve the highest level of control of your irrigation systems.

7 Inglewood Drive Thomastown
VIC 3074

Tel: 03 9464 2374 Fax: 03 9464 2382

Email: info@bermad.com.au Website:
www.bermad.com.au

Brand Names: Bermad Control Valves, Bermad Air Release Valves, CSA Air Release Valves, CSA pressure relief valves, Sensus Water Meters

Bureau of Meteorology

Stand Number: 102

The Bureau of Meteorology and CSIRO are proud to present their Water Information Research and Development Alliance (WIRADA). WIRADA brings together the expertise of CSIRO and the Bureau to transform the way Australia manages its water resources. The Bureau will showcase water information products including new national water storage data.

L9, 700 Collins Street Docklands
VIC 3008

Tel: 03 8638 8289 Fax: 03 8638 8200

Email: g.forman@bom.gov.au Website:
www.bom.gov.au/water

Brand Names: Bureau of Meteorology
Co-Exhibitors: CSIRO

CALCLEAR Water Conditioners

Stand Number: 164

Electronic water conditioner reduces maintenance and energy costs, softens hard water in commercial quantities (without using chemicals) and eliminates the need for hydrochloric or phosphoric acid de-scaling. It progressively de-scales irrigation systems, valves, elements, pipes and pumps and is suitable for reducing iron scale buildup while improving plant growth. Also conditions high salinity borewater and effectively treats whole township water supply. Aust C-tick approvals.

Suite 207/20 Dale St, Brookvale
NSW 2100

Tel: 02 9977 8801 Fax: 02 9977 8805

Email: info@calclear.com.au Website:
www.calclear.com.au

Brand Names: CALCLEAR, DIGITAL, HYDROMASTER 80,100,200, WaterBuddy

Campbell Scientific Australia

Stand Number: 127

Our automated weather stations and measurement products provide accurate, reliable data that assist in the overall management of crops and farm operations. The versatility of our systems allow use in various applications including; irrigation scheduling, soil moisture evaluation, evapotranspiration, heat/chill monitoring, integrated pest management, pesticide/fertiliser application and frost prediction.

PO Box 444 Thuringowa Central
QLD 4817

Tel: 07 4772 0444 Fax: 07 4772 0555

Email: tracy@campbellsci.com.au

Website: www.campbellsci.com.au

Brand Names: Campbell Scientific, Apogee, Licor, Hukseflux, Kipp & Zonen, Weatherhawk, RM Young

CAP Industries Pty Ltd

Stand Number: 156

CAP Industries are experts in pump control and pump systems. We design, assemble, commission and maintain pump controllers and packaged pump sets for a wide range of industries. From domestic systems to large-scale agricultural, irrigation and industrial solutions, our systems are recognised throughout industry for their exceptional performance, reliability and efficiency.

Factory 3/8 Samantha Court Knoxfield
VIC 3180

Tel: 03 9763 8799 Fax: 03 9763 9910

Email: info@capindustries.com.au

Website: www.capindustries.com.au

Brand Names: MAC3, NAUTI pumps

Caprari Pumps Pty Ltd

Stand Number: 108

The Caprari Group is a leading international manufacturer of pumps for management of the integrated water cycle; offering high quality and efficient solutions for extraction of water from bores; lifting drainage and waste water; municipal, mining, industrial and agricultural supply and distribution; and water treatment in general

3 Jeanes St, Beverley SA, 5009

Tel: 08 8244 4442 Fax: 08 8244 4462

Email: kevin@caprari.com.au Web:

www.caprari.com

Care-Free Conditioners Australia

Stand Number: 289

Reducing soil salinity and growing more crop per drop is just the

beginning. When you install a Care-Free Water Conditioner the cost saving benefits to you alone are fabulous. Everywhere people are raving about this amazing, natural water treatment for their home, farm or industry. Find out why at Stand 289.

3/73 Dobney Avenue Wagga Wagga
NSW 2650

Tel: 02 6925 2304 Fax: 02 6925 5078

Email: waterguys@carefree.com.au

Website: www.carefree.com.au

Brand Names: Care-Free Conditioners

Clearpond

Stand Number: 100

Since 1992, Clearpond has been the complete watergarten experience. From fascinating garden ponds and waterfeatures in private homes to large commercial fountain displays in public areas, or our new category of lake management. Clearpond strives to be innovative, reputable and responsible.

4 Kingscote St Kewdale WA 6103

Tel: 08 9353 2266 Fax: 08 9353 5285

Email: michael.cave@clearpond.com.au

Website: www.clearpond.com.au

Brand Names: Oase, Clearpond, Aquagarden, Billabong Rock

CRC for Irrigation Futures 2003 to 2010

Stand Number: 124A

The Cooperative Research Centre for Irrigation Futures ran from 2003 – 2010. A wide range of research was undertaken at catchment and farm scale to deliver better irrigation, a better environment and a better future. A number of tools were produced which have been transferred to industry to continue to benefit the irrigation industry. Nearly 100 reports will remain available on both the CRC for Irrigation Futures and IAL's websites. The CRC for Irrigation Futures produced more than 50 highly skilled postgraduate professionals who will continue to contribute to the future of the irrigation industry. A comprehensive record of the CRC for Irrigation Futures outputs can be found on the website. The website will continue until at least 2015.

Website: www.irrigationfutures.org.au

CRCIF Professional Irrigation Services Network

Stand Number: 142

CRCIF is deploying new tools to support Professional irrigation services. CRCIF is seeking distributors and manufacturers (Tier 1) of tools, and developing a network of consultants

and service providers (Tier 2) to make the technology available to end users in the form of a services.

PO Box 56 Dover Heights QLD 4350

Tel: 0418 452 367

Email: bill.williamson@

irrigationfutures.org.au Website: www.

irrigationfutures.org.au

Brand Names: IrriSATSMS, Fullstop, Monolayer Applicator, Monolayer Detector, PIMS, Smart Water Metering, WASP, CP/LM Training

Co-exhibitors: SunRise 21, Water Data Services, WaterBiz Alliance

Cromford Group Pty Ltd

Stand Number: 287

Cromford Pipe, the major business division of Cromford Group Pty Ltd, aims to meet Australia's burgeoning infrastructure needs, particularly in the area of water supply and gas.

Pipe varieties are made to stock and to order, with a full array of fittings for plumbing, gas, water supply, sewer, drainage, irrigation, mining, energy, telecommunications and electrical industries.

120 Ballandella Road Pendle Hill NSW 2145

Tel: 02 9931 6644 Fax: 02 9896 3915

Email: info@cromford.com.au

Website: www.cromford.com.au

Cummins South Pacific

Stand Number: 264

Cummins Inc., a global power leader, is a corporation of complementary business units that design, manufacture, distribute and service engines and related technologies, including fuel systems, controls, air handling, filtration, emission solutions and electrical power generation systems. With their HO in the US, Cummins serves customers in more than 180 countries and territories through a network of more than 500 company-owned and independent distributor locations and approximately 5,200 dealer locations.

2 Caribbean Drive Scoresby VIC 3179

Tel: 03 9765 3222

Website: www.southpacific.cummins.com

Custom Built Stainless / Ibis Controls

Stand Number: 234

Custom Built Stainless Prides itself on specialising in stainless steel fabrication, design engineering, pipe work, pump filtration and mainline fittings - with an emphasis on stainless steel within the water transfer industry.

Ibis Controls prides itself on all aspects of control automation and switchboard manufacturing, with an emphasis on automation efficiency within the water transfer industry.

6-10 Collier Street Griffith NSW 2680

Tel: 02 6962 3666 Fax: 02 6962 3699

Email: chill@cbstainless.com.au/

wsalvestro@ibiscontrols.com.au

Website: www.cbstainless.com.au/

www.ibiscontrols.com.au

DALLAI ERNESTO SRL

Stand Number: 238A

Dallai is a manufacturing success based on 50 years' experience in the production of spherical fittings. Dallai produces five types of spherical fittings and accessories in galvanised steel, stainless steel and aluminium used for numerous applications. And it produces a new type of galvanised fitting for irrigation purposes which uses polyethylene pipes.

Via Marco Polo 15 Reggiolo (Re) 42046 Italy

Tel: 39 0522 210811

Fax: 39 0522 973140

Email: trade@dallai.it

Website: www.dallai.it

Brand Names: Dallai, Polyron, Polycrimp

Co-exhibitors: IB International

Dama Manufacturing Ltd - KleenScreen

Stand Number: 297

Dama Manufacturing design and manufacture pumping related equipment mainly for the New Zealand and Australian irrigation markets. Our products include self-cleaning intake screens and ultrasonic flow meters.

46A Weaver St Whangarei 0112

New Zealand

Tel: 64 27 493 3183 Fax: 64 9 926 1811

Email: matthew@kleenscreen.com

Website: www.kleenscreen.com

Brand Names: KleenScreen, Hydrofficient

Davey Water Products Pty Ltd

Stand Number: 260

Davey Water Products is a wholly owned subsidiary of GUD, a Top 200 Australian public company. Davey Water Products is proudly an Australian manufacturer and distributor of Water products for transfer, conservation, treatment and filtration.

6 Lakeview Drive Scoresby VIC 3179

Tel: 03 9730 9222 Fax: 03 9753 4100

Email: sales@davey.com.au

Website: www.davey.com.au

Brand Names: Acquasafe, Speedman, Aquashield MAX, Speedman Compact, Davey Softener, Steriflo, Filterpure, Torrium, Firefighter, VM Series, HM Series, ISOSpec, Microlene, Monsoon, RainBank

Emflow Valves

Stand Number: 288

Emflow is a manufacturer of irrigation and industrial hydraulic valves, Emflow Valves are wholly made in Australia, not just assembled in Australia. The company has been manufacturing valves for 30 years now.

103 Fenaughty Street Kyabram VIC 3620

Tel: 03 5853 1577 Fax: 03 5853 1721

Email: neil.davies@emflow.com.au

Website: www.emflow.com.au

Brand Names: Emflow

FHS

Stand Number: 292

Fusion Hire Services specialises in hire and sales of plastic welding equipment. Our initial operations were solely based on the provision of plastic pipe welding equipment for hire.

FHS expanded to incorporate a range of complimentary services; from equipment hire, sales and training to extensive in-house fabrication and onsite welding services.

11-15 Marth St Seaford VIC 3198

Tel: 03 8770 5770 Fax: 03 87705771

Email: darren@fhs.com.au

Website: www.fhs.com.au

Brand Names: FHS, Forsthoff, Munsch, Omisa, PolySmart

FPT Iveco industrial engines

Stand Number: 171

Welling and Crossley distribute FPT Iveco and Doosan industrial engine power packs from 50 to 800 hp (37 to 589 kW) throughout Australia. These engines are at the cutting edge in terms of technological features, low price, high performance and reduced fuel consumption, achieved with constant research and development activity.

1224 Lytton road Hemmant QLD 4174

Tel: 07 3390 5522 Fax: 07 3390 7571

Email: sales@leespower.com.au

Website: www.wellcross.com.au

Brand Names: FPT Iveco, Doosan (Daewoo)

Franklin Electric

Stand Number: 226

Franklin Electric is a leading global manufacturer and distributor of water and fuelling system products.

Water system products include class leading submersible bore pumps up to 500m3h, ISO, tank sump and vertical multistage pumps as well as Drives and controls.

106-110 Micro Circuit,
Dandenong South VIC 3175
Tel: 03 9799 5000 Fax: 03 9799 5050
Email: prichardson@fele.com
Website: www.franklin-electric.com.au

Brand Names: Franklin Electric, FPS, SubDrive, SubDrive QuickPAK, SubMonitor, TriSeal, SandHandler, Sand Fighter, SubDrive2W, SubDrive Inline 1100, VR Series, ISO Series, CS Series, SR Series, ST, FS, FT Series, Subtrol, Super Stainless, Pumptec

Geo9 Groundwater Explorers and Groundwater Imaging

Stand Number: 133

Geo9 Groundwater Explorers. A smarter way to find water. A better way to drill. Find the most sustainable groundwater supply on your farm with our "9 Step to Discovery" process. Groundwater Imaging conducts geophysical surveys for water saving projects including canal leakage and seepage studies, managed aquifer recharge projects and water connectivity studies.

7b Noonbinna Cr, Northbridge
NSW 2063
Tel: 02 9011 7770 Fax: 02 8078 3899
Email: findwater@geo9.com.au
Website: www.geo9.com.au www.groundwaterimaging.com
Co-exhibitors: Groundwater Imaging

Goldtec Control Systems

Stand Number: 176

Goldtec Control Systems were established in 2003 by Meir Goldstein, the company came to give an answer to many requests for a professional, reliable and effective service for control systems in agriculture. Goldtec is based around delivering the best products and services to the market and specialises in controllers, fertigation and climate control. Goldtec expands rapidly towards supplying new markets while retaining its stronghold: frequent software updates to customers, intensive product training to dealers and end users, with continue research for new products.

RSD 509, Harrogate SA 5244
Tel: 08 8389 9477 Fax: 08 8389 9466
Email: info@goldtecsystems.com.au
Website: www.goldtecsystems.com.au

Brand Names: Tal-Gil: Dream, Vision, Smart Fertigation. Aquaflex: Soil

Moisture Sensor, Garfish: Green houses controls, Optigaide: humidity control, Water treatments

Grundfos Pumps Pty Ltd

Stand Number: 211

For over 25 years, Grundfos Australia has offered tailored solutions to meet the changing market and environmental needs of our customers. We strive to understand and meet your needs through local dealers and market specialists in irrigation, utilities, building services, home and garden, golf and turf and water treatment.

515 South Rd, Regency Park SA 5010
Tel: 08 8461 4611 Fax: 08 8340 2293
Email: contact-au@grundfos.com
Website: www.grundfos.com.au

Guyco Pty Ltd

Stand Number: 112

Guyco is an Australian company, founded in 1994. The company initially distributed products nationally from reputable manufacturers around the world. Guyco now manufactures and distributes a number of its own products. These include plastic and metal valves and fittings for Irrigation, farm watering, plumbing and industrial markets.

22-24 Furness Ave, Edwardstown
SA 5039
Tel: 08 8374 3999 Fax: 08 8374 3930
Email: sales@guyco.com.au Website: www.guyco.com.au

Brand Names: Apex Valves, Double-Lin Valves, Guyco Slipfit, L.D. Valves, Plassim Fittings

HATZ Diesel Australia Pty Ltd

Stand Number: 216

The HATZ family-owned company (since 1880) are one of the largest manufacturers of industrial air-cooled diesel engines in the world. Ranging from 2 to 65 HP. HATZ Australia also manufacture a range of specially built diesel driven air-cooled gensets to suit such applications as travelling irrigators & submersible bore pumps amongst others.

7 Hume Road, Smithfield NSW 2164
Tel: 02 8788 7999 Fax: 02 9729 4277
Email: engines@hatz.com.au Website: www.hatz.com.au

Hawkes International Trading Pty Ltd

Stand Number: 168

Based in California, Sun-Flow Incorporated was the first manufacturer of discharge hose is

the USA. Producing hose since 1975 the company is said to be the largest maker of PVC layflat discharge hose in the USA. Australian stock 1 - 8", is distributed nationally from warehouse facilities located in Brisbane.

3 Zariba Court, Surrey Downs SA 5126
Tel: 08 8825 11711 Fax: 08 8825 14666

Email: hawkesintl@internode.on.net
Website: www.hawkesintl.com.au

Brand Names: Al-Magor Metal & Plastic Works Ltd, Al-Wassel PE Pipes, Automat Engineering, Pacific Echo Inc., Sun-Flow Inc., Spiralite® 1100, ®Sun-Flow SF-10, ®Sun-Flow SF-50, ®Sun-Flow SF-50, ®Sun-Flow SF-55

Holman Industries

Stand Number: 304

Holman are the Australian representative of a group of innovative and progressive irrigation manufacturers, all of which are market leaders in their speciality field.

463 Scarborough Beach Rd, Osborne Park WA 6017

Tel: 08 9204 1011 Fax: 08 9204 1013
Email: wally@holmanindustries.com.au
Website: www.holmanindustries.com.au

Brand Names: Automat, Dawn , Beckson, DIG Irrigation, Holman, K-Rain, LEIT, Presco, Sime, TRC Irrigation Remotes

Co-exhibitors: K-Rain, DIG Irrigation Products, Dawn Industries, Presco Products, Automat Sprinklers

HR PRODUCTS

Stand Number: 220

HR Products distributes the widest range of sprinklers, valves, controllers, filtration units, fittings, agricultural irrigation products, industrial valves and hose-end products for all markets. HR Products has grown into one of the largest wholesale and manufacturing suppliers of irrigation equipment in Australia. We remain focused on specification work, fast and complete supply and distributor support.

207 Bannister Rd, Canning Vale WA 6155
Tel: 08 9455 1677 Fax: 08 9455 1680
Email: hrsales@hrproducts.com.au
Website: www.hrproducts.com.au

Brand Names: Hunter Industries, Hansen , Weld On - Ips, Alprene, Orbit, Galcon, Christy's, Hydro Rain, Dura , Superior Controls, Antelco, Mp Rotator, Heron, Komet, Irrrometer, Irrrometer, Senninger, Vyrsa, Tavlit

Plastics, EIN DOR, KBI
Co-Exhibitors: Hansen Products (NZ) Limited

Hunter Industries**Stand Number: 300**

Hunter Industries "The Irrigation Innovators". New products include: I-Core with Solar Sync, XC Hybrid, ICD HP, PS Ultra, MP Rotator, Eco Rotator, PGP Ultra. 8 The Parade West, Kent Town SA 5067 Tel: 08 8363 3599 Fax: 08 8363 3687 Website: www.hunterindustries.com

HydroPlan P/L**Stand Number: 328**

HydroPlan is an independent irrigation design consultancy. We have the resources to manage many large and small projects concurrently - from concept to completion, and beyond. HydroPlan was formed in 1985 and has offices in Perth, Adelaide, Sydney, Brisbane and Beijing. Clients include councils, golf courses, horticulturalists, developers, architects and engineers. 7/62 GlenOsmond Rd, Parkside SA 5024 Tel: 08 8373 4949 Fax: 08 8373 0779 Email: us@hydroplan.com.au Website: www.hydroplan.com.au

Hydrosmart International Pty Ltd**Stand Number: 123**

Hydrosmart is an innovative chemical free water conditioner, solving salinity, scale, iron, algae, and blue green algae problems. The company builds, consults and sells an effective chemical free water conditioner that doesn't cost the earth. It is a fresh approach to solving current water problems. 259 Fullarton Rd, Parkside SA 5063 Tel: 08 8357 3334 Fax: 08 8357 3336 Email: info@hydrosmart.com.au Website: www.hydrosmart.com.au
Brand Names: Hydrosmart Hydromaster, Hydrosmart Digital, Hydrosmart Hydromaster Enhanced Output, Hydrosmart Digital Enhanced Output, Poolmaster

I B INTERNATIONAL PTY LTD**Stand Number: 238**

After serving the industry for more than 20 years Ian Baines opened IB International. After 5 years IB International has grown to be recognised as an experienced Leader in the irrigation industry. Best quality, best support IB International boasts the supply of the best Ocmis Variorain technology, Dallai Couplings, Sime Water Canons and more. Warehouse 9 /227 Fleming Rd, Hemmant QLD 4174 Tel: 07 3348 8300 Fax: 07 3348 8900

Email: sales@ibinternational.com.au Website: www.ibinternational.com.au
Brand Names: Autoclave, Dallai, IB International, Nelson, Ocmis, Polyrion, Sime, Snap-Tite

Infinity Water Filtration Pty Ltd**Stand Number: 284**

Infinity provides an innovative chemical free water filtration system to remove Iron and Manganese from bore water. The system is designed to be hydro-automatic, which means the filter undergoes its full filter functions without the need of an operator or any moving parts. The filter only requires the bore pump pressure to operate efficiently.

L1 290 Botany Rd, Alexandria NSW 2015 Tel: 02 9331 8535 Fax: 02 9331 8536 Email: angelo.silvio@infinity.net.au Website: www.infinityenvironmental.com.au

Brand Names: Infinity Water Filters**InterCEL Pty Ltd****Stand Number: 134**

InterCEL Pty Ltd is the leading supplier of GSM/GPRS and 3G mobile data solutions in the Australian market since 1988. InterCEL can tailor solutions to suit your individual application or supply its own in-house designed modems for end users alike who require mobile communication solutions such as irrigation monitoring and environmental monitoring and many other applications.

33 Glenvale Cres, Mulgrave VIC 3170 Tel: 03 9239 2000 Fax: 03 9561 2614 Email: alok.goswami@intercel.com.au Website: www.intercel.com.au

Brand Names: GSM Modems, 3G Modems, Ethernet 3G Routers, Telemetry Applications**Iplex Pipelines****Stand Number: 116**

Iplex Pipelines. Dedicated People. Total Solutions. Iplex Pipelines are the largest Australian owned and operated pipe and fittings manufacturing businesses in Australia. With a comprehensive product range that includes PVC pressure pipe and fittings, poly pipe and fittings, ductile iron pipe and ductile fittings and valves, you can be confident Iplex Irrigation has the total solution. Corner South Pine Rd and Johnstone Rd, Brendale QLD 4500 Tel: 07 3881 9222 Fax: 07 3881 9202 Email: tony.hart@iplexpipelines.com.au

Website: www.iplex.com.au

Brand Names: ApolloBLUE, AVK, BlackMAX, Crevet, Iplex, Kingston Bridge, MILNES, Poliplex, Rhino, SewerMAX**Irrigation Australia Limited****Stand Number: 124**

IAL is leading the development of a professional irrigation industry embracing best practice to underpin healthy, sustainable urban and rural communities and lifestyles. IAL was formed in September 2007 with the amalgamation of two well established Australian irrigation groups, the Irrigation Association of Australia (IAA) and the Australian National Committee on Irrigation and Drainage (ANCID) 59 Hunter St, Hornsby NSW 2077 Tel: 02 9476 0142 Fax: 02 9476 0792 Email: info@irrigation.org.au Website: www.irrigation.org.au

Brand Names: Irrigation Australia Ltd, Irrigation Training Australia, AUSCID**Co-exhibitors:** Cooperative Research Centre for Irrigation Futures**Irrigation Components Australia****Stand Number: 278**

Irrigation Components Australia sources irrigation spare parts and supplies them into the Australia and New Zealand retail trade. Largely these spares are US made OEM product used by most large pivot manufacturers. Our key product lines are Senninger, UMC, Clemons, SeaMetrics, McCrometer and control parts manufactured by Irrigation Components International. Unit 2/10 Morgan St, Botany NSW 2019

Tel: 02 9695 7015 Fax: 02 9316 5450 Email: sales@irricomp.com.au Website: www.irricomp.com.au

Brand Names: Clemons, ICII, McCrometer, SeaMetrics, Senninger, South Wire, UMC**Co-exhibitors:** Senninger, UMC, South Wire, SeaMetrics, ICII,**Irrigear Stores****Stand Number: 114**

Irrigear Stores is a public company of independently owned irrigation stores through out Australia. It is the biggest group of its type in Australia and supports community marketing of all its members putting back to the local communities. Irrigear is not a franchise company, and is focussed on marketing its independent members. PO Box 3060, Mornington VIC 3931

Tel: 03 5976 1588 Fax: 03 597 61544
 Email: irrigear@irrigear.com.au
 Website: www.irrigear.com.au

Brand Names: AAP, AIP, Davey, Pumpmaster, Dixon, Franklin, Hr Products, Iplex, Nelson Australia, Philmac, PPI, Rain Bird, Rodney Industries, Toro, Triangle Waterquip, Triangle Waterquip, Vinidex

IRRILAND SRL

Stand Number: 158

High performance automatic irrigators, pivots, motor pumps, power packs, generating sets, pumps and separators for slurry.

Via Togliatti, 4, Z. Ind. S. Giacomo, Guastalla 42016 Italy

Tel: 39 0522 831544

Fax: 39 0522 831548

Email: info@irriland.it Website: www.irriland.it

ITT Fluid Technology International (Aust) R&CW

Stand Number: 252

ITT Fluid Technology International (Australia) P/L is the worlds largest provider of water pumps for various application in agricultural and irrigation markets, including the residential and commercial markets. Unit 3/1 Federation Way, Mentone VIC 3194

Tel: 03 9551 7333 Fax: 03 9551 0321

Email: akif.jeka@itt.com

Website: www.itt.com

Brand Names: Lowara, Goulds, Centripro, Hydrovar, Bell & Gossett, A-C Fire

John Deere Water

Stand Number: 118

John Deere Water is a manufacturer of high performance plastic micro and drip irrigation products for the agricultural, nursery, landscape, and greenhouse markets headquartered in San Marcos, California. John Deere Water is among the world's leading providers of high performance precision irrigation.

1 Cawley Rd, Brooklyn VIC 3012

Tel: 03 8080 8900 Fax: 03 8080 8910

Email: ghoffensetz@johndeerewater.com

Website: www.JohnDeereWater.com

Brand Names: T-Tape, Hydolite, Hydrodrip, Hydrogol, Hydro PC/PCND, T-Tape Layflat, Dripline Fittings, Katif, Supertif, Supertif ND/NDH, O-Tif, Tufftif, Rondo, RFR - Rondo Flow Regulated, Tornado Ray Jet, Jet+/JFR, Tornado Mist Sprayer, Rondo Mist Sprayer, FLF

Lindsay International Sales and Service LLC

Stand Number: 323

Lindsay has become a major worldwide force in expanding the benefits of irrigation while making it more efficient. The company's success comes from finding a better way to irrigate almost any crop on varied terrain and soils to increase yields and better utilize natural resources. The latest technology advancements include FieldNet web based pivot and pump control/ monitoring, the MAXfield Custom Corner with patented uniform water application, GPS controller, corrosion resistant poly-lined pipeline and custom built pump stations that maximize the use of natural resources.

433 Logan Rd, Stones Corner

QLD 4120

Tel: 07 3394 8254 Fax: 07 3394 4080

Email: richard.hall@lindsay.com

Website: www.zimmatic.com

Brand Names: Zimmatic, Greenfield, Growsmart, Watertronics

LISTER PETER DIESEL ENGINES

Stand Number: 170

Many people think that legendary diesel engine manufacturer Lister Petter have gone out of business, nothing could be further from the truth. New owners, new distributors, new competitive pricing but the same old legendary Lister Petter quality and reliability are combining to rebuild the brand worldwide.

59 Export Dr, Brooklyn VIC 3012

Tel: 03 9316 9700 Fax: 03 9314 0909

Email: medwards@wellcross.com.au

Website: www.wellcross.com.au

Brand Names: Lister Petter

Maccaferri Australia Pty. Ltd.

Stand Number: 143

Maccaferri Australia are a leading supplier of materials to the civil, building and landscape construction industries. The products range from double twist mesh gabions and Reno mattresses, all forms of geosynthetics, erosion control products and drainage and sub-surface irrigation products. Maccaferri can also assist with on-site training and design proposals.

Building M 22 Powers Rd, Seven Hills NSW 2147

Tel: 02 8825 6300 Fax: 02 8825 6399

Email: johnbolton@maccaferri.com.au

Website: www.maccaferri.com.au

Brand Names: ECORain sub-surface irrigation mat, Maccaferri Gabions and Reno Mattresses, Striddrai/Cordrain sub

surface drainage, Ten Cate geosynthetics, Colbond A20 erosion mat, Lanka Coco Products coir erosion mats

Co-exhibitors: ECORain International

Macquarrie Corporation Pty Ltd

Stand Number: 275

Our family-owned company has over 60 years experience serving the irrigation, agricultural, industrial, marine, mining, oil and gas sectors. We provide: Wuxi pumps and pumpsets, Murphy based control, monitoring and protection solutions; custom designed solutions that are customer focused, cost effective, based on uncompromised performance, durable, reliable, and easy to operate and maintain.

1620 Sydney Rd, Campbellfield VIC 3061

Tel: 03 9358 5555 Fax: 03 9358 5558

Email: murphy@macquarrie.com.au

Website: www.macquarrie.com.au

Brand Names: Amot,Chalwyn, Macquarrie,Murphy, Wuxi

MAIT Industries

Stand Number: 151

MAIT Industries provides innovative monitoring and irrigation control solutions that helpgrowers, horticulturists, turf managers and other water users and providers to improve their water management practices. The philosophy of MAIT's development is based on our agronomic and engineering background.

26/26 Burguss Rd, Bayswater VIC 3153

Tel: 1300 739 920 Fax: 1300 739 940

Email: sales@mait.com.au Website:

www.mait.com.au

Brand Names: Enviropro, INTELLITROL, iNTELLIWEB

Maric Flow Control Australia

Stand Number: 152

Maric will be presenting their flow control valves used for pump protection, i.e. keeping pumps on their curve and preventing upthrust or cavitation damage. Maric flow controls maintain a constant flow regardless of pressure fluctuations, and have many water distribution applications. Come and see where your industry could use them.

15 Old Norton Summit Rd, Magill SA 5072

Tel: 08 8431 2281 Fax: 08 8431 2025

Email: grant@maric.com.au

Website: www.maric.com.au

Brand Names: Maric

Intelligent Doers, Dependable Delivery



Our knowledge is a result of nearly 50 years experience of hands-on doing. Practical project insight that can only be formed from leading, planning and executing projects.

Comdain is a leading infrastructure construction and maintenance services business specialising in the irrigation, water and energy sectors. We are proudly 100% Australian owned and our approach is always intelligent and considered.

Comdain.com.au



MEA

Stand Number: 154

Measurement Engineering Australia (MEA) manufactures a range of environmental monitoring systems for use in agriculture. MEA has a range of soil moisture monitoring products. Our automatic weather stations can provide valuable data to assist in irrigation scheduling. Data can be delivered to an ftp server and viewed via a website. 41 Vine St, MAGILL SA 5072
Tel: 08 8332 9044 Fax: 08 8332 9577
Email: tanya.liddell@mea.com.au
Website: www.mea.com.au

Brand Names: GDot, GBug, TBug, Delta-T, MEA AWS

Metzerplas Australia Pty Ltd

Stand Number: 232

Metzerplas manufactures and markets state of the art drip irrigation systems with our unique advanced technology. We develop our products according to Australian market requirements with the emphasis on water efficiency. Our range covers all drip laterals from long runs, non drain, anti siphon to rootgard.

PO Box 1509, Griffith NSW 2680
Tel: 02 6962 9588 Fax: 02 6962 9533
Email: info@metzerplas.com.au
Website: www.metzerplas.com.au

Brand Names: ADI, ASSIF, IDIT, INBAR, LIN, VARDIT, VERED, ADO

NaanDan Jain Australia

Stand Number: 210

214-216 Hammond Rd, Dandenong VIC 3175
Tel: 03 9767 1222 Fax: 03 9767 1223
Email: marketing@naandanjain.com.au
Website: www.naandanjain.com.au

Nam Kyung Co., Ltd.

Stand Number: 145

We have been manufacturing irrigation drip tape/hose in Korea since 1996, and we cover over 65% of the domestic market demand. We are the front-runner in drip/micro irrigation systems and our company is certified with ISO 9001:2000 and ISO 14001:2004.

376-11, Songsan-ri, Yanggam-myeon, Hwaseong-si, Gyeonggi-do 445-933 South Korea

Tel: 082 31352 8912
Fax: 082 31352 8911

Email: stephen@irrigation.co.kr
Website: www.irrigation.co.kr

Brand Names: Waterfall (Drip Tape), Waterline (Drip Hose)

Nelson Australia

Stand Number: 182

Nelson Australia delivers advanced technology in irrigation equipment to the Asia Pacific market. Specialising in agricultural, turf, landscape, golf, and dust suppression irrigation, the company works with end users and scientists around the world to improve water efficiency, save energy and ultimately preserve our greatest resource - water. 35 Sudbury St, Darra QLD 4076
Tel: 1300 856 368 Fax: 1300 856 369
Email: info@nelsonirrigation.com.au
Website: www.nelsonirrigation.com.au

Brand Names: Nelson, Hunter

Netafim Australia

Stand Number: 194

Over 30 years ago Netafim pioneered the use of drip irrigation in Australia and New Zealand.

Today, Netafim is still at the forefront of the micro-irrigation industry and leads the way in sustainable irrigation technologies. Visit Netafim at Stand 194, to see the latest product innovations within the agricultural, landscape, water re-use and broadacre markets.

213-217 Fitzgerald Rd, Laverton VIC 3026

Tel: 03 8331 6500 Fax: 03 9369 3865
Email: netinfo@netafim.com.au Website: www.netafim.com.au

Brand Names: Netafim Dripperlines, Netafim Drippers, Netafim Sprinklers, Arak Filtration Systems, Arad Water Meters, Netafim Nutrigation Systems, Netafim Control Systems, Motorola Control Systems, ARI Air Valves, Dosatron Dosing Pumps, Raphael Valves

Orange Pumps

Stand Number: 155

Orange pumps is owned and operated by the Davey family, who have had a long history of designing and manufacturing water pumps in Australia. Products are designed and built to deliver great performance over many years in various conditions at a competitive price.

125 Cremorne St, Richmond VIC 3121

Tel: 03 9426 3400 Fax: 03 9426 3499
Email: sales@orangepumps.com Website: www.orangepumps.com

Brand Names: Orange Pumps

Outdoor Design Source

Stand Number: 240

Outdoor Design Source is Australia's most comprehensive annual directory and website (www.outdoordesign.com.au) servicing the external works industry. With 600 pages of landscaping and

external works products and services, ODS is the leading industry directory and website covering all stages of an external works project.

Unit 5, 6-8 Byfield St, North Ryde NSW 2113

Tel: 02 9887 0310 Fax: 02 9805 0748

Email: emontibeler@universalmagazines.com.au

Website: www.outdoordesign.com.au

Brand Names: Outdoor Design Source, Outdoor Design & Living, Backyard & Garden Design Ideas

Co-exhibitors: Natalie Raad

Philmac Pty Ltd

Stand Number: 186

Philmac manufactures and distributes a wide range of products for the Australian irrigation industry. Philmac is a leader in connection technology with a particular focus on PE connections.

53 Deeds Rd, North Plympton SA 5037

Tel: 08 8300 9200 Fax: 08 8300 9390

Email: contact@philmac.com.au Website: www.philmac.com.au

Brand Names: Philmac, Friatec, Jimten

Pierce Corporation Pty Ltd

Stand Number: 160

Pierce Corporation is a global leader in the design and manufacture of centre pivot and move irrigation systems. Pierce announces their new programmable, web based "Evolution" series control panel. The Evolution panel is the ideal foundation for monitoring and controlling your entire irrigation scheme via your laptop/smart phone.

3 Roseby Rd, Caboolture QLD 4510

Tel: 07 5499 1415 Fax: 07 5499 1409

Email: peterh@piercec Corporation.com

Website: www.piercec Corporation.com

Brand Names: Acremaster/Micro Pivots, CP600 Pivots/Linears

Pioneer Water Tanks (Aust 94) Pty Ltd

Stand Number: 177

Pioneer Water Tanks is an Australian manufacturing company which has been producing water tanks since the mid 1980s and are now one of the largest tank manufacturers in Australia. The Pioneer tanks range from 12 kL to 2.6 ML, being supplied to many market sectors such as irrigation, process, fire services, industrial, mining and many more.

113 Dunheved Circuit, St Marys NSW 2760

Tel: 1800 240 433 Fax: 02 9623 6547

Email: garyp@pwtaust.com Website: www.pioneertanks.com

Brand Names: GALAXY®

PLASTICA ALFA, Italy

Stand Number: 132

Manufacturer of compression fittings PN16 - metal/plastic ball valves, disk filters, sand separator, grooved fittings joints and fittings, injectors pumps (venturi type) and irrigation accessories.

Industrial Area C.Da Balchino, 95041, Italy

Tel: 03 9093 351973

Fax: 03 9093 353049

Email: exportdpt@plasticaalfa.it

Website: www.plasticaalfa.it

Brand Names: BLULINE PLUS

Compression Fittings, VALVEVOLUTION, ALFATURBO Hydrocyclone, ALFARAPID grooved joints

PPI Corporation Pty Ltd

Stand Number: 244

PPI Corporation commenced operations in 1979 and today is a leading manufacturer of products for irrigation for both the rural and domestic markets as well as major supplier of PE pipe and fittings into water and gas infrastructure projects for mining, industrial and civil.

PPI's range includes PE metric pipe and fittings up to 800 mm, PPI rural green pipe and fittings, Dix screen and hydromedia filters, Azud disc, screen and helix automatic filters, Neta garden and home irrigation products.

12A Kitchen Rd, Dandenong VIC 3175

Tel: 03 9791 3700 Fax: 03 9791 3900

Email: sandral@ppi.com.au

Website: www.ppi.com.au

Brand Names: PPI, Garden Drip, Garden Pol, Neta, RX Threaded Fittings, Dix, PPI Rural Green, Dix Hydromedia, Poly Drain, Azud, Azud Helix, Azud Automatic, NupiGeco, NupiGeco, Lo-Pol

Queensland Irrigation Services

Stand Number: 250

We are a manufacturer, agent, wholesaler and distributor of products into the irrigation industry. Australian agents for Anka products, distributors for HYDRO-FLO St/St foot valves and bulk container fittings, Wetta sprinklers, Read products and The Mussel. We manufacture RJ, QISCROSS, QISJAX, Custom, Ezi-Turf turf valves and a full range of irrigation seals and gaskets.

PO Box 856, Virginia BC QLD 4134

Tel: 07 3265 7799 Fax: 07 3865 1764

Email: info@qldirrig.com.au

Website: www.qldirrig.com.au

Brand Names: Anka, Custom, QIS, RJ, QISJAX, Hydro-Flo, Read Industrial, Wetta, QISCROSS, Mussel, Ezi-Turf

RAIN BIRD AUSTRALIA PTY LTD

Stand Number: 106

Rain Bird - the world's leading manufacturer and provider of irrigation products and services for nearly 80 years. We are committed to The Intelligent Use of Water. It is our legacy to design and manufacture only those products of the highest value and quality. We work for long-term, responsible partnerships with our customers and our suppliers.

10 Mareno Rd, Tullamarine VIC 3043

Tel: 1800 424 044 Fax: 1800 424 050

Email: info@rainbird.com.au Web: www.rainbird.com.au

Brand Names: RAIN BIRD

Reinke Manufacturing Company, Inc.

Stand Number: 172

Reinke Manufacturing Co., Inc. is one of the world's largest manufacturers of centre pivot and lateral move irrigation systems. Reinke recently introduced the 3-Wheel Flex Base and in process of introducing a new Model 2045 4" pipe system to enhance our industry leadership.

5325 Reinke Rd, Deshler Nebraska 68340 USA

Tel: 402 365 7251 Fax: 402 365 4370

Email: robertfrank@reinke.com Website: www.reinke.com

Brand Names: Reinke

Rhino Water Tanks

Stand Number: 282

Rhino Water Tanks is Australian owned and operated and is one of the world's leading manufacturers of polyethylene-lined steel water tanks for rural, domestic and commercial applications. Rhino's corrugated tanks range from 26,000 to 470,000 L in Zinalume® or Colorbond®. Rhino also manufacture flat panel commercial tanks up to 2.2 ML.

504 Gt East Hwy, Redcliffe WA 6104

Tel: 1800 632 410 Fax: 08 9478 6223

Email: sales@rhinotanks.com.au Website: www.rhinotanks.com.au

Brand Names: Rhino Water Tanks

Rubicon

Stand Number: 162

Rubicon is a water technology company which designs, manufactures, installs and maintains irrigation automation hardware and software that enables water authorities and rural water users to manage their water resources automatically and efficiently. Rubicon's technology can identify, minimise and monitor water loss and improve water distribution using automated control.

1 Cato St, Hawthorn East VIC 3123

Tel: 03 9832 3000 Fax: 03 9832 3030

Email: enquiry@rubicon.com.au Website: www.rubicon.com.au

Brand Names: FarmConnect®, FlumeGate™, MicronLevel™, SCADACoConnect™, SlipGate™, Sonaray™, Total Channel Control®, ValveGate™, ValveGate™, Motorola Reseller Partner - MOSCAD and ACE

Rural Press Agricultural Publishing

Stand Number: 119

Today, Rural Press is owned by Fairfax Media Limited, Australasia's largest integrated metropolitan, rural, regional, print and online digital media company. We have over 250 daily, weekly and monthly publications throughout Australia; 63 specialist publications in agriculture in Australia, New Zealand and the United States.

68 Chandos St, St Leonards NSW 2065

Tel: 02 9478 1200 Fax: 02 9906 7306

Email: harry.gallagher@ruralpress.com

Website: www.farmonline.com.au

Brand Names: North Queensland Register, Queensland Country Life, The Land, Stock & Land, Stock Journal, Farm Weekly

Ruralco

Stand Number: 122

Ruralco Holdings Ltd is a leading Australian agribusiness operating through a national footprint of businesses providing rural customers with a vast range of products and services. Ruralco's water businesses specialise in: survey and design, whole farm planning, engineering and fabrication, installations, stock and domestic systems, irrigation structures and equipment, product procurement, importing, marketing and administration, and water broking.

PO Box 515, Wentworthville NSW 2145

Tel: 02 9688 8502

Email: tdoolan@ruralco.com.au Website: www.ruralco.com.au

Brand Names: Archards Irrigation, WaterNET, Roberts Irrigation, CRT

Saer Elettropompe S.P.A.

Stand Number: 254

Saer Elettropompe S.P.A. (Est.1951) is an Italian manufacturer of submersible (4 -14") and surface centrifugal pumps (monoblock, bareshaft, vertical and horizontal multistage) motors and booster sets. Products, fully made in Italy, can be supplied in four different metals: cast iron, carbon steel, bronze marine and stainless steel covering industrial irrigation civil applications.

Via Circonvallazione 22, Guastalla (Re), 42016 Italy

Tel: 39 0522 830941
 Fax: 39 0522 826948
 Email: info@saer.it
 Website: www.saerlettropompe.com
Brand Names: Saer Elettropompe, Saer, Saer Submersible Motors
 Co-exhibitors: Sterling Pumps Pty Ltd

Sentek Sensor Technologies

Stand Number: 214

Sentek provides solutions for precision measurement of soil water and salinity dynamics. Sentek sensors are used in irrigated and dryland agriculture, research and education, environmental applications and turf, parks and gardens. Sentek products have gained international credibility, through published peer review, among research agencies and commercial enterprises. They are sold and supported through a global network of highly trained distributors.

77 Magill Rd, Stepney SA 5069
 Tel: 08 8366 1900 Fax: 08 8362 8400
 Email: marketing@sentek.com.au
 Website: www.sentek.com.au

Brand Names: Diviner 2000, EasyAG, EnviroSCAN, IrriMAX, Sentek Plus, Sentek RT6, Sentek Solo, Sentek SoluSAMPLER, Sentek SoluSAMPLER, TriSCAN

Signature Control Systems

Stand Number: 298A

The Constellation and Galaxy range of irrigation controllers and software are industry recognised as the latest technology in cost effective irrigation. Irrigation control management systems are provided in hardware, radio and telephone configurations including weather station equipment. In addition we have a comprehensive range of commercial and large turf sprinklers, valves and rotors, and battery valve controllers. The new iStop spray head feature saves water by stopping the flow of water on broken and damaged spray heads as well as during nozzle maintenance, and also has a pressure regulator option to maintain optimum nozzle performance and prevent misting. PO Box 63 Glen Osmond SA 5064
 Tel: 08 83383939 Fax: 08 83382021
 Email: class.australia@bigpond.com Web: www.signaturecontrolsystems.com

STORM Consulting

Stand Number: 119A

STORM specialises in planning, management and harvesting of stormwater. We seek to integrate flood control, water quality, waterway

management and harvesting. STORM are leaders in streams and wetland design and planning waterways for rural and urban environments. We design for stable ecosystems and people to connect with the environment. We foster a culture of innovation.

Suite3/6 West St, Pymble NSW 2073
 Tel: 02 9499 4333 Fax: 02 9499 4311
 Email: benw@stormconsulting.com.au
 Website: www.stormconsulting.com.au
Brand Names: STORM Consulting

Sub Motors Australia

Stand Number: 174

Sub Motors Australia is the Australian distributor for the Sumoto range of submersible motors. The Sumoto range of 4" motors includes both oil and water filled, from .37 to .75 kw in 6"; oil filled from 5.5 to 40 kw. Sumoto - reliable power for pumps.

Fcty 1 50-54 Lock Ave, Werribee VIC 3030
 Tel: 03 9974 0041 Fax: 03 9974 0068
 Email: submotors@bigpond.com.au
 Website: www.sumoto.com

Brand Names: Sumoto

Thermo Fisher Scientific

Stand Number: 148

Thermo Fisher Scientific excel in delivering a range of specialised technology focused products, professional applications support and instrumentation servicing into the irrigation, municipal, industrial and environmental water, analysis, monitoring and treatment markets. We source cutting edge technology to provide laboratory, environmental and process solutions.

Po Box 9092 Scoresby VIC 3179
 Tel: 03 9757 4379 Fax: 03 9763 1169
 Email: joanne.clapton@thermofisher.com
 Website: www.thermofisher.com.au
Brand Names: SonTek, Katronic, GE Druck, dataTaker, Eutech

Think Water

Stand Number: 294

Think Water is a leading national network of independently owned and operated water services businesses that specialise in the design and implementation of water efficient irrigation and water management programs across Australia and New Zealand.

Suite 11, Level 2. 470 Upper Roma St, Brisbane QLD 4000
 Tel: 1300 723 500 Fax: 07 3211 4255
 Email: admin@thinkwater.com.au
 Website: www.thinkwater.com.au
Brand Names: Think Water

Toro Australia Pty Ltd

Stand Number: 190

Toro Australia, Stand 190, will be displaying new products. Come and talk to us about the new Precision Series spray nozzles and Precision rotating nozzles, Aqua control aerators, TG101 Big Gun pop up sprinklers, Waterbird VII mini sprinklers, Toro battery controllers, Ocloc vineyard post repair system, Scrubber valves and DripX driptube.

53 Howards Rd, Beverley SA 5009
 Tel: 08 8300 3633 Fax: 08 8445 9705
 Email: info.au@toro.com
 Website: www.toro.com.au

Brand Names: Antelco, Motorola, Aqua Control, Norma, Bermad, Ocloc, DripMaxx, Mazzei, Richdel, DripX, Spears, Dura, Toro, Irritrol, Toro Ag, KISS, Waterbird, Komet, Yamit

TRENCH'N edge Irrigation Trencher

Stand Number: 197

Our Irrigation trencher installs both standard and subsurface drip irrigation systems all in the same machine. In addition, the trencher can install low voltage lighting, cable lines, brick edging, retaining wall block, drain tile, silt fencing, brick patios, and waste water recycling systems. The trencher can discharge on either side of the machine. Can cut circles down to 18 inches.

8028 Hill Trail N, Lake Elmo Minnesota, USA, 55042-9534
 Tel: 01 65 1777 7923
 Fax: 01 65 1770 9430
 E-mail: ped@trenchnedge.com
 Website: www.trenchnedge.com

Brand Names: TRENCH'N edge Irrigation Trencher

TRIANGLE WATERQUIP PTY LTD.

Stand Number: 320

For over 20 years Triangle Waterquip, an Australian owned and managed company, has been a major supplier to the irrigation industry of fully automatic and manual filtration systems, hydraulic control valves, fertigation injection equipment, impact agricultural sprinklers, water meters and a company with a sound reputation for problem solving and supplying tailored solutions.

17 Hinkler Rd, Mordialloc VIC 3195
 Tel: 03 9580 2122 Fax: 03 9580 3131
 Email: gary@trianglewaterquip.com.au
 Website: www.trianglewaterquip.com.au
Brand Names: Arag, Wasteflow, Cometal, Yamit, Fit-In, Filtomat, Geoflow, Hidroten, ITC, Riegos Costa, Riegos Costa, Timley, TRIMEC

Tridon Australia

Stand Number: 121

Tridon is a 100% Australian owned and managed company and the leading quality accredited hose clamp manufacturer in the southern hemisphere. The range includes solid and perforated band worm drive hose clamps, heavy duty T-Bolt and a range of specialty clamps. Full stainless steel clamps are ideally suited to many irrigation applications for corrosion protection.

21 Derby St, Silverwater NSW 2128

Tel: 1300 362 263 Fax: 1300 656 006

Email: sales@tridon.com.au Website:

www.tridon.com.au

Brand Names: Tridon, Toledo, Knipex

Tyco Water

Stand Number: 130

Tyco Water prides itself on providing "Complete Pipeline Solutions". Whether your pipe and fittings requirements are for steel, ductile iron or plastic, Tyco Water can provide the pipeline system to suit your needs. Tyco Water - helping the water industry secure our most precious resource.

125-175 Patullos Lane, Somerton VIC 3062

Tel: 1800 811 848 Fax: 03 9305 4380

Email: twpps@tycowater.com Website:

www.tycowater.com

Brand Names: Auslite, Bluboss, D-Flo, Dura-Flo, Fusion, Plas-Flo, Strata-Flo, Supreme, Tyton, Tuf-Flo, Vari-Gib, Wang

Underhill International

Stand Number: 298

Underhill are at the forefront of water saving with their range of products for turf and golf irrigation. FCI NOZZLES™ and DEEPDRIP™ Tree watering stakes both have been awarded the Smart Approved WaterMark. New products include SUPERKEY™ tool for adjusting golf rotors and WATERDEX™ smart simple convenient water conservation by radio control, retrofit to any irrigation controller.

PO Box 63, Glen Osmond SA 5064

Tel: 0417 862 269 Fax: 08 8338 2021

Email: underhill.australia@bigpond.com

Website: www.underhill.us

Brand Names: 2-Wire, Mirage™, Blazing Wire Joints, PelletPro™, CatchCan Pro™, Precision™, CoolPro (TM)™, Profile™, Deep Drip™, SuperKey™, Gulp™, Switchblade™, Magnum™, WaterDex™, HeadChecker™, Tracker™, HoseTap™, HoseTap™, TurfSpy™, LiquidPro™, VersaLid™

Co-exhibitors: Signature Control Systems, Oldcastle Carson Drainage & Valve Boxes

Valmont Australia

Stand Number: 256

Valmont Irrigation is the world leader in the development and manufacture of mechanised irrigation equipment and technology. Valmont Australia support 28 dealers throughout Australia and New Zealand with warehousing and distribution facilities located in Brisbane. The Valley product line includes centre pivots, towable pivots, corner arms, lateral move, small field machines and telemetry.

123 Cobalt St (PO Box 225), Carole Park QLD 4300

Tel: 07 3879 3622 Fax: 07 3879 3655

Email: vaus@valmontinternational.com.

au Website: www.valley-au.com

Brand Names: Valley

Vinidex Pty Ltd

Stand Number: 314

Vinidex is a leading manufacturer and distributor of thermoplastic pipe systems for the rural, agriculture, mining and water markets. Celebrating 50 years of operation Vinidex has developed production and distribution plants throughout Australia. Vinidex has more than 750 staff working nationally across departments from manufacturing, product development, testing and distribution.

19-21 Loyalty Rd, North Rocks NSW 2151

Tel: 02 8839 9006 Fax: 02 8839 9099

Email: info@vinidex.com.au

Website: www.vinidex.com.au

Brand Names: Ductile Iron Systems, Hawle, Plasson, Marani, Rodney Industries, SewerPRO, StormPRO

Water Dynamics and Tyco Environmental

Stand Number: 128

Water Dynamics have a number of well established irrigation stores across Australia and New Zealand. Design, supply, install water efficient irrigation systems.

Tyco Environmental Systems, are an Australian manufacturer and supplier of monitoring products and services for the water, industrial and environmental markets. These include solar powered flow meters for irrigation applications.

114 Albatross Rd, Nowra NSW 2541

Tel: 02 4448 0300 Fax: 02 4423 3232

Email: vcostelow@typac.com.au Website:

www.tycoflowcontrol.com.au

Brand Names: Combined Instruments, Netafim, Goyen, Philmac, Greenspan, Southern Cross, Emflux, T-L Irrigation Company, Everflow, HR products, Irriflow, John Deere Water, Keystone Valves, Nelson

Co-exhibitors: Water Dynamics, Tyco Environmental, TL Pivots

Waterwell Solutions

Stand Number: 178

Waterwell Solutions manufactures and supplies the industry with safe-to-use BluBac bore-cleaner chemicals. BluBac removes scale and iron bacteria, is Health Dept approved, Safe for workers, Safe for plants, No mixing required. AGE's high definition camera trucks allow accurate trouble shooting. These high definition cameras can travel to depths exceeding 1000 m.

36 Harris Rd, Malaga WA 6090

Tel: 08 6103 8530 Fax: 08 6314 6611

Email: sales@waterwellsolutions.com.au

Website: www.waterwellsolutions.com.au

Brand Names: BluBac Borecleaner, BluBac Xtra Borecleaner, BluBac Xtender

Co-exhibitors: Age Developments Downhole Camera Trucks

Weathermatic (Reece Irrigation)

Stand Number: 212

For over 60 years, Weathermatic have led the way in the manufacture of smart irrigation solutions for professional irrigation specialists. Our quality range provides you with advanced choices in professional rotary sprinklers, solenoid valves, irrigation control systems, weather stations and accessories. Every product is 100% factory-water-tested and supported nationwide by your local Reece Irrigation Store. Available now from Reece Irrigation with over 35 locations nationally. Call 1800 032 566 or visit www.reece.com.au/irrigation for your nearest Reece Irrigation Branch.

Yanmar

Stand Number: 272

Power Equipment is the exclusive and authorised Australian and South Pacific Distributor of Yanmar diesel engines. Power Equipment are also the authorised Distributor of JCB DieselMax engines for both Australia and New Zealand. Power Equipment also distributes the Yanmar powered MASE diesel marine generators and Gori folding sailboat propellers.

10-12 Commercial Dr, Lynbrook Vic 3975

Tel: 03 9709 8500 Fax: 03 9709 8544

Email: info@powerequipment.com.au

Website: www.yanmar.com.au

Brand Names: JCB DieselMax, Yanmar

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Every System Integrated.



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Cummins engines have successfully proven their reliability and durability in the toughest industrial applications around the world. For Tiers 3 and 4 Cummins will build on the successful platform with our in-house technologies to provide the highest engine availability at the lowest possible running costs.

Cummins technology portfolio is unique in the industry and includes the key enablers for the most appropriate Tier 3 and 4 solutions such as the VGT (Variable Geometry Turbocharger). This puts Cummins in an ideal position to help you deal with the most stringent emissions yet.

For more information on how Tiers 3 and 4 will affect you, email our experts on sthpac.enquiries@cummins.com

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Scoresby Vic 3179 Australia
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Fax 613 9764 0034
www.cummins.com

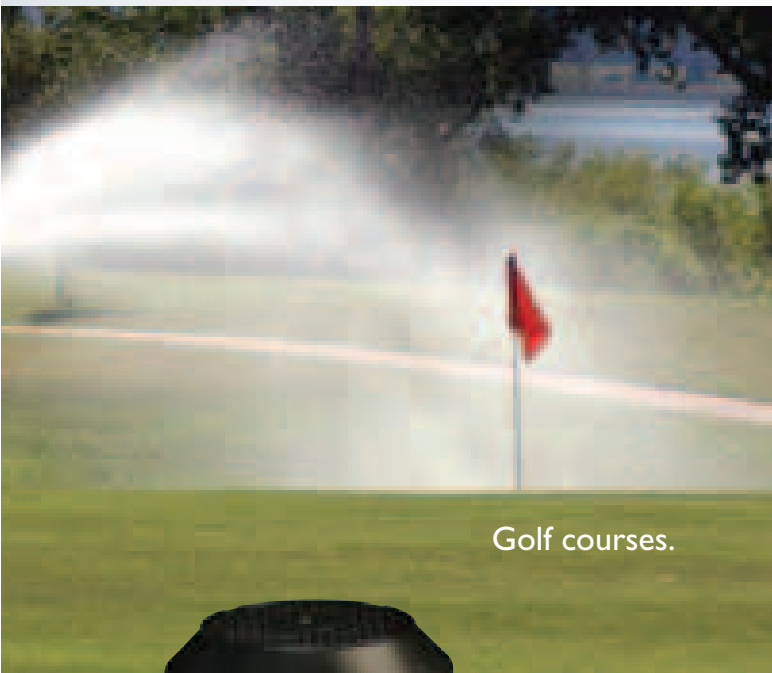


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Where do you find Franklin Electric?



Golf courses.



Vineyards.



High rise buildings.



Fountains.

Now more than ever, you can find Franklin products in places you never thought to look. Our centrifugal, VR-Series stainless steel pumps provide reliable, long-term operation that performs over a wide variety of applications. Above and below ground, Franklin has water systems products for all sorts of irrigation and pressure boosting applications.



Franklin Electric

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VR series pumps

IRRIGATION AUSTRALIA CONFERENCE AND EXHIBITION 2010

Brand name	Company	Stand Number
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Lanka Coco Products		
coir erosion mats	Maccaferri Australia Pty. Ltd.	143
LEIT	Holman Industries	304
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Omisa	FHS	292
Optigaide: humidity control, Water treatments	Goldtec Control Systems	176
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ORBIT	HR PRODUCTS	220

Where do you find Franklin Electric?



Orange groves.



High rise buildings.



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Green houses.



ISO series pumps

Now more than ever, you can find Franklin products in places you never thought to look. Franklin's ISO Series pumps offer the highest grade cast iron/bronze/stainless steel construction material, perfect for demanding applications. Above and below ground, Franklin has water system products for all sorts of industrial and agricultural applications.



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Brand name	Company	Stand Number
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Philmac	Water Dynamics and Tyco Environmental	128
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Plasson	Vinidex Pty Ltd	314
Poliplex	Iplex Pipelines	116
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SewerPRO	Vinidex Pty Ltd	314
Sime	Holman Industries	304
SIME	I B INTERNATIONAL PTY LTD	238
SlipGate®	Rubicon	162
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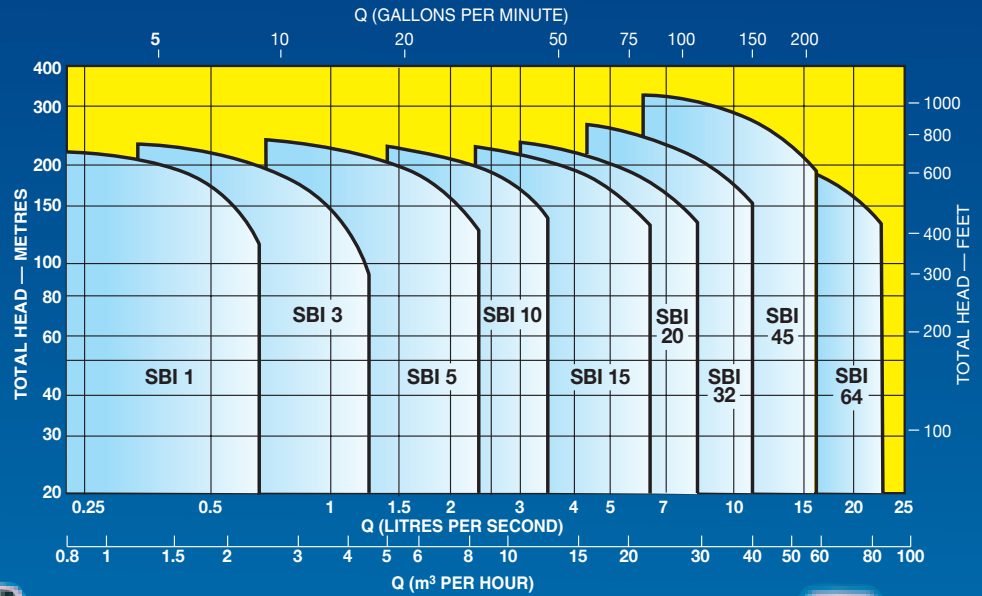
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Tridon	Tridon Australia	121
TRIMEC	TRIANGLE WATERQUIP PTY LTD.	320
TriSCAN	Sentek Sensor Technologies	214
TriSeal	Franklin Electric	226
T-Tape	John Deere Water	118
T-Tape Layflat	John Deere Water	118
TUF-FLO	Tyco Water	130
Tufftif	John Deere Water	118
TurfSpy™	Underhill International	298
TYTON	Tyco Water	130
UMC	Irrigation Components Australia	278
Universal GreyFlow	ADG Global Supply - Universal Pumps	173
Universal Pumps	ADG Global Supply - Universal Pumps	173
Vaisala	Adcon Telemetry Australia	166
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VR Series	Franklin Electric	226
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WASTEFLOW	TRIANGLE WATERQUIP PTY LTD.	320
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Yamit	Toro Australia Pty Ltd	190
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SBI(N) – Series

Vertical Multi-Stage Centrifugal Pumps & Pressure Units

All 304 Stainless Steel
Optional 316 Stainless Steel (N)



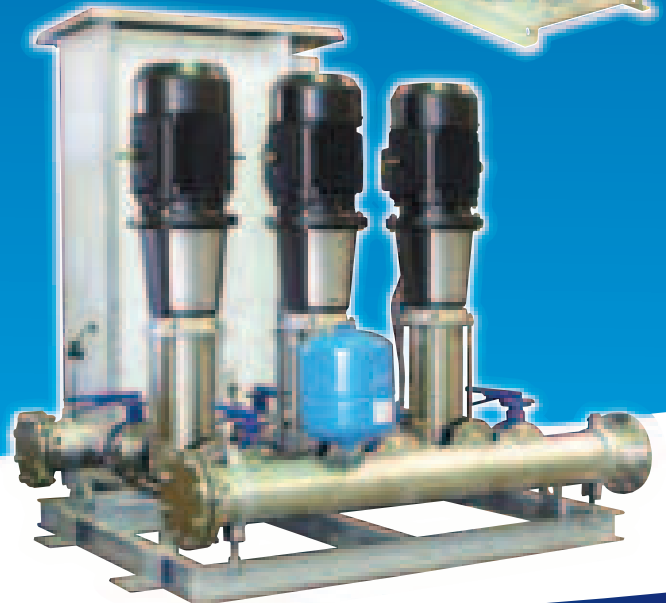
Applications

- Domestic Water Boosters – Irrigation –
- Sprinkler / Firefighting – Food Processing –
- Water Treatment Plants –
- Chemical / Processing –
- Seawater Pumping –



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- Vertical multi-stage centrifugal pumps, suitable for water and lightly aggressive, watery liquids.
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- Mechanical shaft seal.
- Units comply with latest safety regulations (CE-mark)
- O-ring seals on pump sleeve. – In-line industry standard connections.
- All hydraulic components AISI304 stainless steel. Cast iron base plate and motor bracket with protective coating.
- Motor - AS1359, MEPS compliant.



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Flow Control

Pumping Systems

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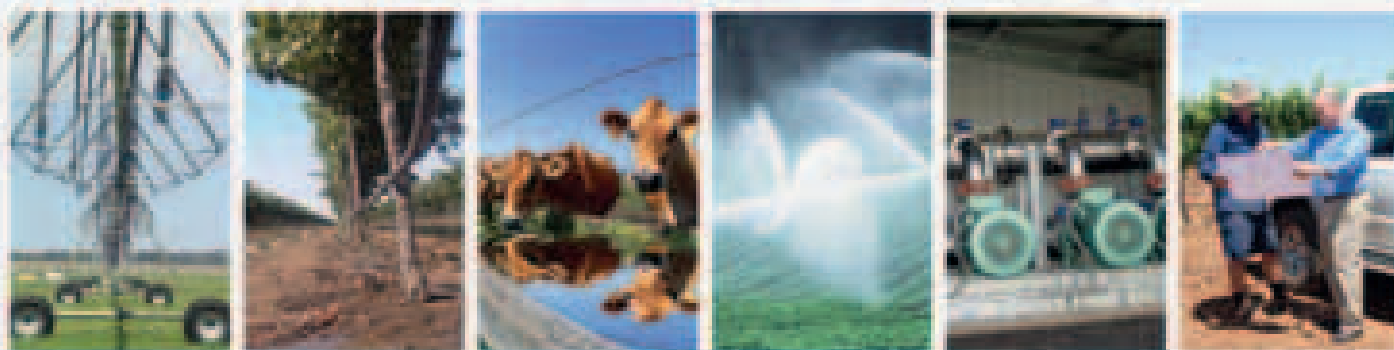


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