

A smarter approach to urban water conservation

Chris Bennett
Irrigation Australia Ltd

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HG07029

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**Project HG07029:
A Smarter Approach to Urban Water
Conservation**

Completion Date: 31 August 2010

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Project Purpose:

The ultimate purpose of the project was to work with willing jurisdictions to develop technically sound urban water conservation programs that support a vibrant urban lifestyle horticulture sector.

Funding Sources



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Report Date: 31 August 2010

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Summary

The ultimate purpose of the project was to work with willing jurisdictions to develop technically sound urban water conservation programs that support a vibrant urban lifestyle horticulture sector and peri-urban horticulture, including nursery, turf, landscape, irrigation, and market garden fruit and farm vegetables.

The project involved:

1. developing a well considered IAL position on permanent outdoor water conservation measures that will drive increased outdoor urban water use efficiency and therefore improve confidence in the community and the lifestyle horticultural sector for continued access to urban water sources;
2. assessing current State frameworks for outdoor water conservation and prioritising willing State jurisdictions to examine and/or implement alternatives to traditional water restrictions;
3. undertaking opportunistic work with state jurisdictions in urban and peri-urban locations where there was benefit to the lifestyle horticultural sector such as nursery and turf industries or the wider horticultural industry such as peri-urban fruit and vegetable farms; and
4. working at a national level in relation to urban water reform and funding programs, to promote IAL's position on permanent outdoor water conservation measures and to influence macro policies to ultimately support access to urban water for the urban and peri-urban based horticultural industries.

The project has contributed to the achievement of:

- immediate relief from domestic water restrictions in SE Queensland and Sydney, both substantial markets for both the lifestyle horticultural sector;
- introduction of a policy framework in SE Queensland which permanently drives improved domestic irrigation practice and outdoor urban water use efficiency in the longer term;
- processes for examining alternative permanent, domestic urban outdoor water conservation frameworks in Sydney and Melbourne;
- a sophisticated policy framework to drive best practice open space irrigation in SE Queensland;
- enabling IAL to develop emerging frameworks to drive best practice open space irrigation in Sydney and Melbourne; and
- generating formal, commercial opportunities for Certified Irrigation Professionals in the domestic and open space markets in SE Queensland, and in peri-urban horticultural industries in Western Sydney through NSW Government's Water Smart Farms funding program.

There is more work to be undertaken by IAL to improve urban water conservation for the benefit of the lifestyle horticultural sector, including:

- regular review of existing frameworks in each jurisdiction;
- continuing to assist the emergence of open space irrigation improvement programs in Sydney and Melbourne, and domestic programs in Adelaide;
- developing nationally consistent urban irrigation performance standards; and
- remaining vigilant and engaged in national urban water reform processes.

1. Introduction

The lifestyle horticulture sector is comprised of turf and nursery industries and landscape and irrigation industries. Together these industries produce horticultural product for and provide services that maintain our urban green spaces across Australia, from domestic lawns and gardens to public open space such as parks and gardens, playing fields and golf courses. This urban green space provides enormous social benefits for our urban communities, including environmental, health and economic benefits. Urban communities are also supported by peri-urban horticultural industries such as market garden fruit and vegetables and olives.

Urban green space in our urban environments is fundamentally supported by good irrigation practice which is itself dependent on the security and reliability of our water supplies. Water supplies around Australia have been severely affected by drought since the early 2000's, through climate change, through population growth and a failure over many decades to adequately invest in either new water supplies or to effect significant and lasting demand management measures.

The response by most governments to these circumstances has been to introduce restrictions on outdoor water use until investments in new water supplies such as desalination, stormwater harvesting and recycling schemes come on line. However, large scale infrastructure projects generally have long lead times, and so the water restrictions regimes have been prolonged. This prolonged use of urban water restrictions diminishes the confidence of the community to invest in horticultural products and therefore has created significant business uncertainty for the lifestyle horticulture sector in many locations around Australia. Further, the use of blunt water restrictions generally came at significant community cost and do not secure sustainable savings as they do not encourage the community to adopt behaviours or invest in equipment that can help deliver longer term, sustainable water use efficiency in our urban communities.

This project therefore sought to work with water authorities across Australia to develop technically sound alternatives to water restrictions, where the alternatives permanently drive outdoor water use efficiency that supports a vibrant urban lifestyle horticulture and peri-urban horticultural sectors in the longer term. This project was significant for the irrigation and horticultural industries as it:

- raised the profile and importance of the lifestyle horticultural sector to governments across Australia, and the contribution that this sector makes to urban environments and to community health;
- assisted urban water policy makers to better understand the complexity of best practice irrigation, the science behind best practice and the need for professional irrigation services to be available to the community which will provide the platform for better, more sophisticated water conservation policy frameworks in future; and
- worked directly with water supply authorities, urban water policy makers and other greenspace organisations in SE Queensland, Sydney, NSW Central Coast, Adelaide, Perth and Melbourne to develop and implement programs to drive improved outdoor urban water use efficiency and to improve on-farm irrigation efficiency at peri-urban horticulture.

2. Method and Activities

2.1 Background

2.1.1 The Lifestyle Horticultural and Peri-Urban Horticultural Sectors

The lifestyle horticulture sector is comprised of turf and nursery industries and suppliers of landscape and irrigation services. The sector is estimated to employ approximately 110,000 people across Australia with a total input value of \$9.39billion per annum¹, of which the irrigation sector has over 2,500 businesses employing over 13,700 people and turning over more than \$3billion each year².

The lifestyle horticultural sector contributes to, and supports broader social benefits for the urban community, including environmental, health and economic benefits. For example, the benefits of green open space have been valued in two Sydney local government areas as having an annual net social benefit of \$1.2million and \$1.4million for the Ashfield and Mosman local government areas respectively, from environmental services, increased capital property values, and reduced health issues such as obesity and depression³. This research is confirmed by the Co-operative Research Centre for Irrigation Futures (CRCIF) Technical Report No04/08⁴ which presented a catalogue of research on the value of green open space to show, inter alia:

- environmental benefits such as:
 - cooling effects on buildings to reduce energy consumption by between 7 and 47%;
 - improving urban stormwater management by reducing peak flows and runoff pollutant loads;
 - maintaining soil structure and preventing erosion; and
 - maintaining biodiversity in urban areas.
- social benefits such as:
 - preventative health care including stress reduction, depression management and avoidance of obesity;
 - childhood development in parks and open space;
 - commons for social interaction and cohesion; and
 - benefits associated with organised sport.
- economic benefits such as increased property values and tax revenue.

Clearly, urban green space provides important and valuable social benefits, and these benefits are fundamentally supported by the lifestyle horticultural sector.

This project also assisted NSW DPI to implement a funding program for improving on-farm irrigation efficiency in western Sydney. The peri-urban horticultural sector in western Sydney includes over 5,700 hectares of turf, fruit and vegetable farms.

¹ Agtrans Research and CapeAbility Consultants. October 2005. *The Lifestyle Horticulture Sector: Report to Lifestyle Horticulture Council.*

² *The value of urban irrigation in Australia* – a pamphlet published by the Irrigation of Australia 2007.

³ J. Morison, L. Mathieson, 2008 EconSearch Pty Ltd 2008, Scoping Study: Economic Value of Irrigation in Urban Green Open Space

⁴ CRCIF Technical Report No.04/08. *Irrigation of Urban Green Spaces: a Review of the Environmental, Social and Economic benefits*, April 2008

2.1.2 Water Restrictions

Most governments across Australia responded to the onset of drought in the early 2000's with the introduction of water restrictions on outdoor water use. Restrictions generally included prohibitions on some types of watering equipment, and restrictions on times and days when watering could be undertaken. Restrictions have been used since 2000 in all Australian capital cities except for Darwin and Hobart.

While water restrictions have generally reduced water consumption, including by 22% in Melbourne and approximately 30% in Sydney, they have generally come at significant community cost, do not secure sustainable savings and are not designed for long term measures to achieve a supply demand balance.

The implied costs of long term water restrictions in Australia have been estimated in the order of \$1.6 – 6.2 billion each year. Urban green spaces are estimated to account for 27% of these costs⁴. The magnitude of this estimate is confirmed by the Productivity Commission⁵ which listed estimates of the cost of water restrictions in various Australian cities as:

- \$150 per annum per household in Sydney, as the additional costs to using higher water prices to achieve behavioural change;
- between \$347 and \$870 per annum per household in Perth if sprinklers were to be banned, using opportunity cost of time based on mean wage; and
- a willingness to pay up to \$268 per household per annum in Canberra to avoid Level 5 water restrictions.

There are no data on the impact of water restrictions on the lifestyle horticultural sector, although anecdotal information from the irrigation services industry is that many people departed from the industry and that retail sales were significantly affected.

2.1.3 Permanent Water Conservation Measures

Across Australia, we are no longer facing short term drought. We are clearly facing a different, significant and longer term urban water supply-demand imbalance brought about by a combination and overlap of:

- climate change rather than just drought, with the Garnaut Climate Change review: Draft Report (Ch 7) suggesting that capital city water supply systems will be subjected to a high or extreme magnitude of impact by 2030 with no strong global mitigation measures, and South Australia, Victoria And Western Australia expected to have moderate level impacts irrespective of mitigation efforts⁶;
- significant population growth that has eroded supply security, and with a fair deal of national debate about population growth; and
- a failure over many decades to adequately invest in either new water supplies or to effect significant and lasting demand management measures.

Given these changed circumstances and the social costs of water restrictions, governments must clearly respond with different policy approaches than we have in the past. Water restrictions, which have traditionally served well as a short term emergency response are no longer the panacea to the longer term challenges we now face.

⁵ Productivity Commission, 2008. Productivity Commission Research Paper: Towards Urban Water Reform: A Discussion Paper.

⁶ <http://www.garnautreview.org.au>

Governments, to their credit, 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 years⁷ to restore urban supply reliability through projects such as desalination, stormwater harvesting and recycling.

However, urban water use efficiency should also be an integral and permanent part of any long term demand-supply balance to:

- i) maximise the economic efficiency of the public investment in supply infrastructure;
- ii) reduce the probability and frequency at which short term restrictions are needed, and thereby avert both the social costs of restrictions previously outlined and the business uncertainty for the lifestyle horticultural sector;
- iii) deliver low cost water savings as an alternative to large scale infrastructure, especially where governments actively harness the expertise of the lifestyle horticultural sector in frameworks for outdoor water conservation; and
- iv) preserve water savings in the longer term.

This project has enabled IAL to work with jurisdictions across Australia to promote the need for permanent outdoor urban water use efficiency programs which will not only directly support the lifestyle horticultural sector through enabling a shift away from water restrictions, but also position the horticultural sector as part of the solution to Australia's urban water supply and demand balance. Project management arrangements and the strategies and activities undertaken for this project are outlined in the following sections.

2.2 Project Management

The project was managed by IAL. An Industry Development Manager was appointed in July 2008 to manage the project. The Industry Development Manager reported directly to the IAL's CEO, and the IAL and Industry development Manager were guided on the project from time to time by an IAL Industry Supplier Group.

2.3 Strategies and Activities

The overall strategy was:

1. develop a well considered IAL position on permanent outdoor water conservation measures that will drive increased outdoor urban water use efficiency and therefore improve confidence in the community and the lifestyle horticultural sector for continued access to urban water sources;
2. assess current State frameworks for outdoor water conservation and prioritise willing State jurisdictions to examine and/or implement alternatives to traditional water restrictions;
3. undertake opportunistic work with state jurisdictions in urban and peri-urban locations where there is benefit to the lifestyle horticultural sector or the wider horticultural industry; and
4. work at a national level in relation to urban water reform and funding programs, to promote IAL's position on permanent outdoor water conservation measures to influence macro policies to ultimately support access to urban water for the urban based horticultural industries.

The activities for each of these strategies is discussed in more detail below.

⁷ Water Services Association of Australia. 2008. *WSAA Report Card 2007/2008: Performance of the Australian Water Industry and projections for the future.*

2.3.1 IAL Position on Permanent Outdoor Water Conservation Measures

The Industry Development Manager developed an IAL message on a preferred permanent outdoor urban water conservation framework, to provide a starting point for IAL's communications with jurisdictions about urban water policy.

The position was developed by preparing a Discussion Paper for consideration internally within IAL and with IAL's Industry Supplier Group, through analysing the advantages and disadvantages of three options, namely:

- i) market approach, such as water pricing models and rebate programs;
- ii) performance based approach, such as urban water allocations; and
- iii) prescriptive approach, essentially some type of restrictions on behaviours.

The outcome of this approach was that, while IAL supports the free market approach in the longer term, where water pricing reflects the true value of water and its management. However, to be pragmatic for the present, IAL will support frameworks that include a suite of measures such as:

- market based mechanisms such as pricing and rebates;
- regulatory measures such as default restrictions for people not meeting efficiency benchmarks;
- education and information programs, including technical irrigation information and clear enunciation by governments of the expected frequency and duration of temporary water restrictions to be achieved by new urban water plans and infrastructure investment.

A copy of the IAL's Discussion Paper used to develop this position on permanent water conservation measures is at Attachment A.

2.3.2 State Water Conservation Frameworks

The state jurisdictions have introduced an array of urban water conservation measures in response to drought, climate change and population growth across most of Australia since the early 2000's seeking to reduce both indoor and outdoor water use. IAL prioritised the jurisdictions to work with as part of this Project based on a combination of:

- the scope in each jurisdiction for an improved approach to make and sustain outdoor urban water savings; and
- initial discussions/contact with jurisdictions to assess willingness to work with IAL in examining alternatives to their current approach.

The scope for an improved approach in each jurisdiction was assessed (as at March 2009) by examining the regulatory, market and education mechanisms used by each jurisdiction to drive both domestic outdoor water use and irrigated open space water conservation. In particular this assessment of each jurisdiction examined:

- i) the details of the domestic and open space restriction regime;
- ii) the type and magnitude of domestic rebates for outdoor water use equipment;
- iii) the type and use of education programs;
- iv) the use of pricing;
- v) any evidence of water savings resulting from the approach; and
- vi) a subjective assessment of the extent to which the water savings are likely/able to be sustained in the longer term by the current approaches if restrictions are removed.

The assessment of each jurisdiction, other than Darwin and Tasmania where there are no water restrictions, is presented in Attachments B to G.

Based on this prioritisation process:

- HIGH priority areas for Project involvement included:
 - SE Queensland for both domestic and open space irrigation;
 - Sydney for both domestic and open space irrigation;
 - Adelaide for domestic irrigation only;
- MEDIUM priority areas for Project involvement included:
 - Melbourne for both domestic and open space irrigation;
 - Canberra for both domestic and open space irrigation; and
 - Perth for open space irrigation.
- LOW priority areas for Project involvement were where there is already a sophisticated program to enable access to the water supply for the lifestyle horticultural sector and programs to enhance irrigation best practice, or there are no water restrictions that inhibit the horticultural lifestyle sector. These areas are:
 - Perth domestic irrigation as there is a sophisticated Waterwise Garden Irrigator Program already in place;
 - Adelaide open space where there is a sophisticated IPOS program; and
 - Hobart and Darwin where there are no water restrictions.

Table 1 on page 13 summarises the output from this prioritisation process.

IAL then worked with high priority jurisdictions to secure commitment to examine alternative water conservation frameworks with IAL for both domestic watering of gardens and lawns and for public open space irrigation, and IAL also worked with medium priority jurisdictions where other opportunities arose throughout the project period. The precise nature of the approach in each jurisdiction was different depending on the process agreed with the jurisdiction, and the nature of the issues and the opportunity in each jurisdiction.

The approach and activities in relation to each high and medium priority jurisdiction is described in the following sections of this report.

2.3.2.1 SE Queensland

Domestic Irrigation

SE Queensland had a prohibition on all outdoor watering at the commencement of this project. The restrictions had been in place since 2005.

The IAL project manager worked with the local IAL IDO and with the Queensland Water Commission (QWC) on an alternative framework for domestic irrigation, including:

- i) an inaugural meeting on 22 August 2008 to discuss a framework for permitting “efficient irrigation systems” throughout SE Queensland. A copy of the outcome from the 22 August 2008 meeting is at Attachment H;
- ii) a workshop with QWC staff, the irrigation industry and Smart Approved Water Mark in February 2009;

- iii) review of QWC's draft guidelines for "efficient irrigation systems" and collation of IAL position on the guidelines. A copy of IAL's submission on the draft guidelines is at Attachment I; and
- iv) working with the local IAL IDO to assist QWC to accurately communicate the finalised *Water Efficiency Guideline: Efficient Irrigation for Water Conservation Guideline* and the new framework for the use of "efficient irrigation systems".

Public Open Space Irrigation

QWC determined that there are two different categories of public open space irrigation, namely:

- businesses with irrigated areas in excess of 500m², such as irrigated garden areas in resorts; and
- active playing surfaces, essentially turf on playing fields.

The IAL project manager worked jointly with the local SE Queensland IDO from May 2009 to December 2009 to help guide QWC in its development of approaches for these two categories of public open space irrigation and to communicate these approaches to the irrigation industry.

Table 1: Prioritisation of Jurisdictions to Examine Alternative Approaches

	Criteria	Perth	Adelaide	Melbourne	Canberra	Sydney	SE Queensland
Domestic Irrigation	Scope and need for alternatives	Little Need	High Need	High Need	High Need	High Need	High Need
	Willingness of Jurisdiction	High Engagement	High Willingness	Low Willingness but some potential	Some Potential following URS consultancy	Some Potential	High Potential
	Priority for Project Involvement	Low	High	Medium	Medium	High	High
Open Space Irrigation	Scope and need for alternatives	Some Need	No Need	High	High	High Need	High Need
	Willingness of jurisdiction	Some Potential	No Need	Some Potential	Unknown	High Potential	High Potential
	Priority for Project Involvement	Medium	Low	Medium	Medium	High	High

2.3.2.2 Sydney

Domestic Irrigation

Sydney had water restrictions in place from 2003 and at the commencement of this project, with prohibitions on irrigation systems (except drip irrigation) and on time and days that watering could be undertaken.

The activities the IAL project manager has undertaken in Sydney are:

- meeting with the NSW Water Minister in November 2008 to outline the benefits of alternative approaches to water restrictions. A copy of a letter from IAL to NSW Minister confirming the outcomes of this meeting is at Attachment J;
- working with Sydney Water on its subsequent proposal in March 2010 to implement a pilot alternative framework to the existing water restrictions in Sydney. The alternative proposed by Sydney Water would have been administered by IAL and essentially enabled exemptions from the existing water restrictions provided the customer had:
 - an irrigation schedule from a Sydney Water *Love Your Garden* assessment; and
 - the irrigation system was checked by an accredited professional to meet efficiency benchmarks prescribed in an *Irrigation System Check* tool developed by Sydney Water in consultation with the irrigation industry.

An outline of the proposed pilot *Irrigation System Check* program provided by Sydney Water Corporation is at Attachment K.

- developing the processes for administering the pilot *Irrigation System Check* program including:
 - running an irrigation industry workshop in May 2009 to explain the proposed framework to prospective Irrigation System Check assessors, and to seek their support to participate in the scheme;
 - developing a business case to administer the scheme based on feedback at this workshop, including customer pricing schedules. A copy of this business case is at Attachment L.

Unfortunately, the NSW Water Minister lifted water restrictions in June 2009 which effectively spoilt the proposed pilot of *Irrigation System Check* in Sydney as there was no longer any incentive for customer participation through an exemptions process. However, the IAL project manager continued to work with Sydney Water to seek a pilot *Irrigation System Check* using rebates (in lieu of exemptions) as the incentive for community participation. Sydney Water did agree to a two stage approach to a pilot (see Sydney Water letter at Attachment M). However, Sydney Water has since examined the business case for implementing the pilot using a rebate, and determined that the costs of running the program would exceed the benchmark it has set for new demand management programs, namely the long run marginal costs of investing in the next module of the Sydney desalination plant.

The IAL project manager has also attended Sydney Metropolitan Water Plan community forums run by the NSW Government in May 2009 and December 2009, and made a submission to the draft Metropolitan Water Plan requesting clear statements in the finalised Plan about the expected frequency and duration of future water restrictions to enable the lifestyle horticultural sector greater certainty for business planning. A copy of this submission is at Attachment N.

Public Open Space Irrigation

The strategy in Sydney has been to seek a framework that systematically increases open space irrigation water use efficiency across Sydney. IAL has been working with Sydney Water through a working group comprised of representatives from Sydney Water, IAL, Ryde TAFE, NSW DECCW and consultants to:

- i) draft a Best Practice Guideline for open space management which sets performance benchmarks for open space managers. The Guideline is owned by Sydney Water. The IAL project manager has co-authored a chapter on irrigation systems for the guideline with Sydney Water's technical author and an IAL member;
- ii) develop a strategy for the launch and implementation of the Guidelines to ensure that its widespread adoption, including seeking that there be:
 - a high profile launch of the Guideline by Sydney Water, especially with local government;
 - appropriate training be developed and available to support open space managers to implement the guideline; and
 - a policy framework to require or encourage adoption of the guideline by open space managers.

The Guidelines were expected to be published in February 2010 but have been delayed due to Sydney Water editing and internal procedures. The Guidelines are expected to be published soon.

The IAL project manager also met with the NSW Department of Environment Climate Change and Water (DECCW) in June 2010 to explore opportunities to link the launch of the Best Practice Guidelines with regulatory requirements or funding incentives for adopting the benchmarks specified in the Guideline. A copy of an Email from IAL to DECCW following that meeting outlining how the Guidelines could be integrated into a funding opportunity is at Attachment O, together with a later Email confirming the outcome.

2.3.2.3 Adelaide

Domestic Irrigation

SA has had water restrictions since 2004, with prohibitions on watering method, time, day and duration.

IAL's project manager has:

- i) met with the SA Water CEO in November 2008 to explain the case for an alternative outdoor urban water conservation framework in Adelaide. A copy of IAL's letter to SA Water confirming the outcomes of this meeting is at Attachment P. SA Water subsequently established a Project Advisory Committee to examine alternatives.
- ii) assisted IAL's local IDO to participate on the Project Advisory Committee which is comprised of representatives from IAL, NGISA, Landscape Assoc. SA, University of Adelaide, Local Government Assoc., IPOS Consulting - Gerry Charlton, Horticulture Media Association and SA Water. This Committee established a work program to examine alternatives to the existing water restrictions including:
 - surveying domestic irrigators to establish the range of practices, disposition to change, likely response to regulation and incentives and likely methods that will best improve irrigation practice.
 - obtaining local Adelaide data on outdoor water use. To do this, 150 remotely read meters were to be installed across a range of domestic irrigation settings to gather data on patterns and amounts of outdoor water use over 2009/10 summer. 50 meters were to be installed at homes fitted with best available technology (sprinklers with high DU performance, soil moisture sensors, ET devices and controllers), 50 meters were to be installed at homes with minor upgrades to irrigation systems and a short education session with the householder, and 50 meters were to be installed at homes with no changes to irrigation system, but an extensive education of the householder. This data would enable an informed

development of alternatives following 2009/10 summer, based on better knowledge of the effect of equipment and education on water use outcomes.

- examining the tools required to improve domestic irrigation practice.

Having generated momentum for this approach, IAL then worked with SA Water through the Project Advisory Committee to assist it to implement the work program.

The preferred policy framework was scheduled to be selected by SA Water in June 2010, ready for implementation for the spring 2010 season.

2.3.2.4 Melbourne

Melbourne has been subject to water restrictions since 2002, with restrictions becoming more severe over time to prohibit lawn watering, and restrict the type of irrigation method to hand held hosing and drip systems, and to place restrictions on days and times at which garden watering can be undertaken. Open space irrigation could only be undertaken at one in four locations in each local government area.

The Victorian Environment and Natural Resources Committee held a Parliamentary Inquiry into Melbourne's Future Water Supply in 2008/09. IAL's strategy in Melbourne, and Victoria more broadly, was to work through this inquiry process seeking for the inquiry to make relevant policy recommendations, and then to work with government agencies to develop practical on-ground responses to these recommendations. The IAL project manager therefore:

- i) made a submission to the Parliamentary Inquiry into Melbourne's Future Water Supply, prosecuting the case for change from the current water restrictions approach and advocating IAL's preferred outdoor water conservation framework. A copy of IAL's submission is at Attachment Q;
- ii) met with the VicWater Water Efficiency Task Group in September 2008 to outline the case for examining alternatives to water restrictions;
- iii) reviewed the Parliamentary Inquiry report on Melbourne's Future Water Supply in June/July 2009. Amongst many other recommendations, the Inquiry report recommended that water conservation programs remain a high priority for water managers and that the equity and effectiveness of water restrictions be reviewed;
- iv) met with the Victorian Department of Sustainability and Environment (DSE) in November 2009 to offer assistance to it to prepare program responses to the Inquiry recommendations. A copy of the key points raised by IAL at this meeting is at Attachment R;
- v) wrote to the Victorian Water Minister in April 2010 requesting that government agencies work with IAL to respond to the Inquiry report, and outlining the potential sustainable water savings available in Melbourne. A copy of this letter is at Attachment S.

Public Open Space Irrigation

IAL has developed and commenced an open space irrigation management program in Melbourne tentatively titled the *Victorian Playing Fields Water Savings Program*, in conjunction with the Institute of Public Works Engineers Australia (Vic) (IPWEA). The actions undertaken by IAL on this matter have been:

- preparing a Discussion Paper proposal for consideration by IPWEA and some select Victorian local governments. A copy of that Discussion paper is at Attachment T;
- preparing a flyer to call for expressions of interest to Victorian open space managers through IPWEA (Vic) to participate in the program;

- holding a workshop in Melbourne on 4 August 2010 with 12 interested local governments to explain IAL's proposal for the program, and to seek feedback from prospective participants about their specific needs and expectations for the program.

2.3.2.5 Canberra and Perth

Despite having a moderate priority, IAL has not undertaken any solid activities as part of this Project in either Canberra in relation to domestic or open space irrigation or in Perth in relation to open space irrigation programs.

The reason for no significant Project activities by IAL in Canberra has been that there was already research commissioned by the ACT Government to examine whether a more sophisticated use of irrigation system controllers could make sustained water savings in the ACT. The IAL project manager has assisted the consultant undertaking this work, URS, to use IAL Certified Irrigation Professionals to undertake site assessments and meter readings. This research was completed by URS in early 2010, and IAL is awaiting the publication of this research prior to determining an appropriate course of action in Canberra.

2.3.3 Sydney Peri-Urban Horticulture Opportunity

In May 2009 the Federal Government announced \$17.7million for a NSW Government implemented *Water Smart Farms* project to improve irrigation efficiency at irrigated agriculture across the Hawkesbury-Nepean basin, including at peri-urban horticulture such as nurseries, fruit and vegetable and turf farms. This project represented a significant opportunity to improve irrigation performance and productivity for these peri-urban horticultural and wider agricultural industries in western Sydney.

The then NSW Department of Primary Industries (DPI) invited IAL to submit a Discussion Paper about how it could assist to implement the project. A copy of the IAL's Discussion Paper is at Attachment U. The important element of this Discussion Paper is that IAL is seeking to embed Certified Irrigation Professionals into the funding program to ensure that both government and participating horticultural operators get access to competent irrigation advice, design and installation services as part of this public expenditure.

From this Discussion Paper, DPI agreed that site assessments for funding under the program should be undertaken by competent irrigation professionals which may include IAL Certified Irrigation Designers or Certified Irrigation Agronomists, or hold accreditation from an Australian University in Civil or Irrigation Engineering, or hold an accreditation otherwise deemed acceptable by DPI.

IAL then assisted DPI to arrange and jointly run a workshop for prospective site assessors at Richmond on 6 October 2009 to:

- i) explain *Water Smart Farms* project and the opportunities to prospective site assessors;
- ii) explain how IAL Certification works, and to guide attendees how to seek out skills assessment services to help them obtain IAL Certification; and
- iii) to help DPI identify site assessors.

The workshop was attended by approximately 40 people, which provided further confidence to DPI (and to IAL) that adequate numbers of Certified Irrigation Professionals could be available to underpin the *Water Smart Farms* project.

Site assessors then needed to attend an induction workshop run by DPI before they are placed on a "suitable auditors" list held by DPI. The IAL project officer attended the first site assessor induction workshop held at Richmond on 19 November 2009. The induction workshop was attended by approximately 20 prospective site assessors.

DPI has also invited a proposal from IAL to implement an audit program of site assessors to ensure the quality and integrity of site assessments is maintained. The IAL project manager has submitted this proposal for DPI's consideration in July 2010. This quality assurance is vital for the accountability of the expenditure in *Water Smart Farms*, but is also equally important to horticultural operators to ensure the high quality of site assessment information upon which they will be making business decisions to participate in the funding program.

2.3.4 National Level Work

The national water reform process will be vitally important over the longer term for driving urban water efficiency, through reform measures such as consistent water share planning principles, and independent pricing to reflect the true value and costs of water supply and management. These reforms may, in the longer term, obviate the need for specific and traditional demand management programs that are supported by regulated and rebated frameworks, such that the behaviour and investment choices of urban water consumers will ultimately be driven by a free market which reflects the true value of the water supply and its management. This macro policy reform is therefore vitally important for the lifestyle horticultural sector to be aware of, to progressively understand and to influence.

There were two primary activities undertaken at a national level which were relevant and important to this HAL/IAL project, namely:

- development of funding guidelines for urban water programs such as the Commonwealth's \$1 billion National Urban and Desalination Plan; and
- development of a Council of Australian Government (COAG) workplan for urban water reform priorities, including water planning and management principles and water pricing principles.

Activities undertaken by IAL on these matters were:

- making a submission on the Commonwealth's draft Urban Water and Desalination Plan draft Funding Guidelines, recommending linking of funding to adequate urban water reform, and requiring state jurisdictions to have adequate water conservation frameworks in place to be eligible for funding. A copy of IAL's submission is at Attachment V;
- meeting with the Commonwealth Department of Environment Heritage and the Arts (DEWHA) and the NSW Independent Pricing and Regulatory Tribunal (IPART) in November 2008 in relation to proposed water pricing principles in an urban addendum to the National Water Initiative, and making an IAL submission on these principles at Attachment W;
- making a submission to the NSW Department of Water and Energy which co-ordinated the development of a series of water management and planning principles for consideration by the COAG as part of an urban addendum to the National Water Initiative in late 2008. This submission is at Attachment X.

3. Evaluation

3.1 Domestic Urban Water Conservation Frameworks

This project has enabled significant progress to be made in several jurisdictions toward alternative frameworks for outdoor domestic water conservation programs that:

- provide immediate relief to the community and lifestyle horticultural sector from water restrictions; and/or
- ultimately improve confidence in the community and the irrigation and urban based lifestyle horticultural industries of continued access to urban water sources in the longer term.

Figure 1 below illustrates the jurisdictions in which there were water restrictions at the commencement of this project in June 2008, and Figure 2 shows the status of water restrictions and sophisticated outdoor water conservation programs at the completion of this project.

An evaluation of the progress made with each jurisdiction addressed by this Project is provided in the following sections. Importantly, IAL's work in Perth under HAL Project 06014 to administer the domestic *Waterwise Garden Irrigator Program* in Perth has complemented the progress made in other jurisdictions under this Project.

3.1.1 South East Queensland Domestic Programs

The alternative framework came into effect in SE Queensland in early May 2009 enabling "efficient irrigation systems" to be used for garden watering only. Permanent Water Conservation Measures were then introduced from 1 December 2009 which enabled "efficient irrigation systems" to be used to water gardens and lawns before 10am and after 4pm on any day except Mondays. This outcome is positive for the lifestyle horticultural sector relative to the previous water restrictions approach.

Importantly, the *Water Efficiency Guideline: Efficient Irrigation for Water Conservation Guideline* permit irrigation systems that are not compliant with the prescription of an "efficient irrigation system" to be otherwise certified as efficient by an IAL Certified Irrigation Professional. This is the first time that IAL Certified Irrigation Professionals have been formally recognised in a regulatory framework.

Further information about this alternative framework in Queensland can be found on the QWC website at <http://www.qwc.qld.gov.au/Efficient+irrigation>.

The framework was subsequently adopted within the Queensland Plumbing and Wastewater Code, which means that irrigation systems installed at all new houses across the whole of Queensland will need to comply with the *Water Efficiency Guideline: Efficient Irrigation for Water Conservation Guideline*.

This has been a positive outcome from this Project for the lifestyle horticultural sector in SE Queensland as it:

- provided immediate relief from water restrictions which had adversely affected these industries since 2005;
- introduced a permanent framework to drive efficient outdoor water use, thereby providing the community with greater long term confidence about investing in horticultural products;
- demonstrably made sustained water savings relative to pre-restrictions (see Case Study in Figure 1 below); and
- created a commercial market for outdoor water efficiency expertise through the option to engage a Certified Irrigation Professional to certify domestic irrigation systems as "efficient" under the Guideline.

Notwithstanding the overall positive outcome for the lifestyle horticultural sector, IAL retains some concerns about the technical veracity of what constitutes an efficient irrigation system under QWC's *Water Efficiency Guideline: Efficient Irrigation for Water Conservation Guideline*. IAL will continue to seek a review point for these guidelines, with a view to addressing these shortcomings.

Case Study 1
Analysis of SE Queensland Water Savings from Permanent Outdoor Water Conservation Program

Prior to the introduction of water restrictions in 2005, domestic water use in SE Queensland averaged approximately 300 litres per person per day, with approximately 35 percent of that water use (or 110 litres per person per day) estimated to be used for outdoor use⁸. For the 12 month period prior to the introduction of the Target 200 program, when much of SE Queensland was subject to high level water restrictions which prohibited the use of irrigation systems, average consumption was 129 litres per person per day⁹. The average domestic consumption throughout the last five weeks of summer 2009/2010 (five weeks from 15 January 2010 to 19 February 2010) was 205 litres per person per day (QWC website, 23 February 2010). This sequence of water use is summarised below.

Pre Restrictions (2005)	High Level Water Restrictions (2008/09)	Permanent Water Conservation (summer 2009/10)
300 litres/person/day	129 litres/person/day	205 litres/person/day

Some context needs to be provided in the interpretation of this data, namely:

- the 2009/10 water use data covers only a five week summer period;
- the average domestic consumption figures for pre-restrictions and restrictions includes a longer time period average (ie at least one year) relative to the two weeks average used for Permanent Water Conservation summer 2009/10; and
- Permanent Water Conservation summer averages will reflect higher outdoor water use than the longer period averages due to higher summer temperatures experienced over this period.

Caution must therefore be applied to any interpretation of the data.

Presuming that high level water restrictions includes essential human uses only (ie 129 litres/person/day) and that these uses have not increased substantially following the introduction of Permanent Water Conservation measures, then the maximum outdoor water use under Permanent Water Conservation measures for the first two weeks of summer 2009/10 has been approximately 75 litres/person/day (ie 205 – 129). This compares with the estimate of 120 litres/person/day outdoor water use prior to restrictions in 2005.

Based on this brief analysis, a cautious interpretation is that the Permanent Water Conservation framework has resulted in a maximum outdoor water use reduction of 75 litres/person/day or that it has reduced domestic outdoor water consumption by 37.5% relative to pre-restrictions water use in SE Queensland (ie 120litres/person/day to 75 litres/person/day).

This outcome is important for enabling the lifestyle horticultural sector to demonstrate and to legitimately claim a real contribution to long term water use savings and sustainability in SE Queensland.

⁸ Queensland Water Commission. 2008. *Water for Today, water for tomorrow: South East Queensland Water Strategy Draft, Information Kit* – page 11.

⁹ Queensland Water Commission. 2009. *South East Queensland Water Strategy – Revised Draft* November 2009 – page 81.

Figure 1: Domestic Water Restrictions at commencement of the Project

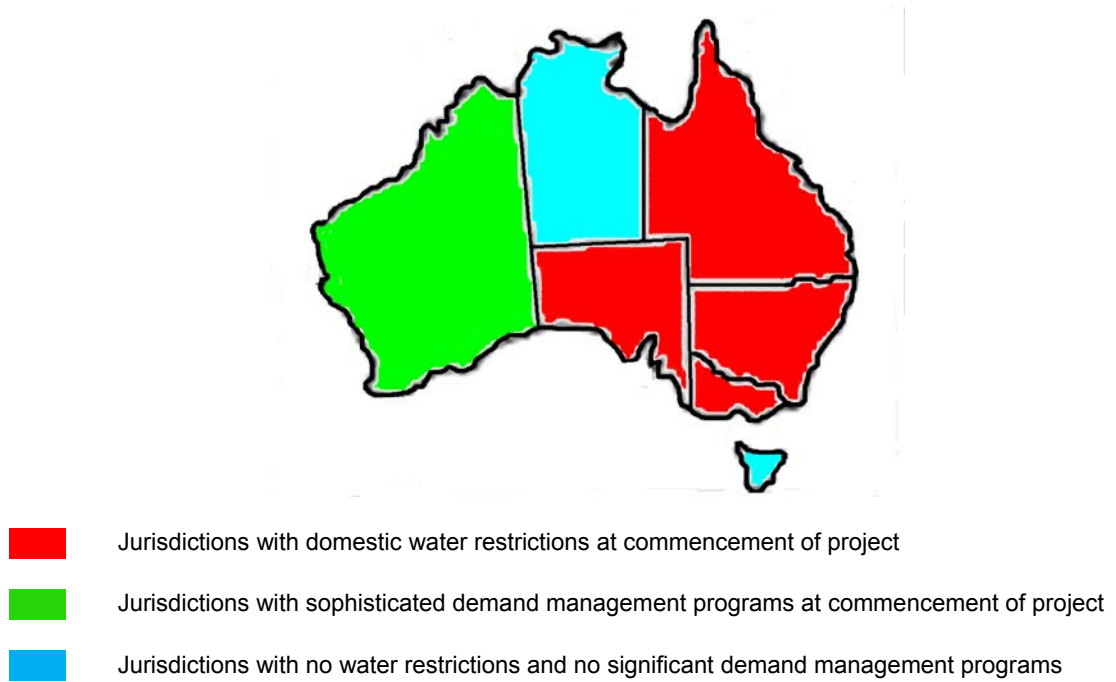
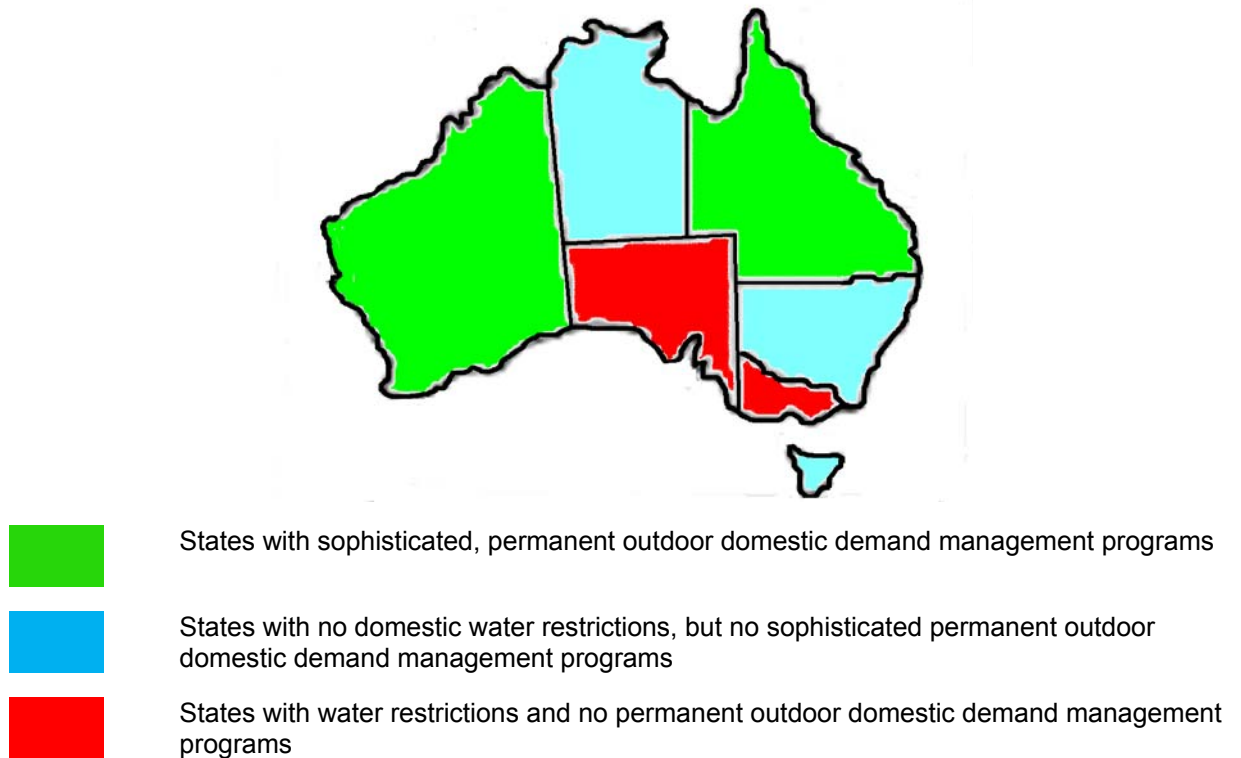


Figure 2: Permanent Domestic Outdoor Water Conservation Programs at Project Completion



3.1.2 Sydney Domestic Programs

Despite Sydney Water having agreed to work with IAL to introduce an Irrigation system Check scheme to enable exemptions from restrictions, the NSW Water Minister lifted water restrictions in Sydney in June 2009, enabling irrigation systems to be used for watering for the first time since 2003.

While the lifting of water restrictions is a positive outcome for the lifestyle horticultural sector in Sydney as is the fact that Sydney Water sought out IAL assistance to administer a pilot alternative to water restrictions, IAL remains concerned that:

- i) there is no clear published information about the expected frequency and duration of future water restrictions under the Metropolitan Water Plans; and
- ii) there is no tested or accepted alternative to water restrictions in Sydney.

This potentially leaves the lifestyle horticultural sector with continued uncertainty about how and when governments may use water restrictions in the future.

Consequently, IAL remains keen to pilot the *Irrigation System Check* program to prove that water savings can be made, that IAL can administer the scheme, and that *Irrigation System Check* can be a viable alternative to the use of domestic water restrictions in the future. IAL's project manager has therefore been in contact with the Central Coast Water Authority (CCWA) to seek its support to pilot an *Irrigation System Check* program. Under the circumstances, the CCWA may be an appropriate location to pilot *Irrigation System Check* as it still has water restrictions in place, and the water savings data could be useful both for the Central Coast and for later use in Sydney as it is located immediately adjacent to Sydney Water's area of operation and so has similar climate and potential water savings. An inaugural meeting with the CCWA is scheduled for 24 August 2010 to discuss this potential.

3.1.3 Adelaide Domestic Programs

The decision on an alternative outdoor urban water conservation framework for Adelaide which had been scheduled for June 2010 has been delayed due to SA Water issues associated with procuring the meters in time to collect data throughout the 2009/10 summer. SA Water has therefore deferred the adoption of an alternative framework at this stage. IAL is extremely disappointed in this outcome as the lifestyle horticultural sector has been severely affected by water restrictions in Adelaide for a prolonged period since 2004, and had worked genuinely and co-operatively to develop and participate in an agreed work program to examine and select an alternative, on the understanding this process would be concluded by June 2010.

IAL's project manager subsequently assisted the local IAL SA Region to write to the SA Water Minister in May 2010 requesting that the SA Government consider an interim alternative framework until the meter data becomes available and a permanent preferred option selected. The interim alternative advocated by IAL in this letter is to operate an *Irrigation System Check* style process that enables exemptions for households with irrigation systems that meet prescribed benchmarks. A copy of that letter is at Attachment Y.

The SA Water Minister has advised that restrictions are unlikely to be lifted for this summer because of equity concerns for both SA rural irrigators that remain on reduced allocations and for urban communities where some households could not afford to improve irrigation systems to meet prescribed benchmarks. Nonetheless, the intent of the original work program to examine alternatives to the current water restrictions remains intact, albeit with a delayed timeframe.

IAL will therefore continue to:

- seek an interim alternative to water restrictions in Adelaide; and
- work with SA Water through the project Advisory Committee to examine alternative outdoor urban water conservation frameworks once the meter data becomes available after the 2010/11 summer.

3.1.4 Melbourne Domestic Programs

The Environment and Natural Resource Committee's report on Melbourne's Future Water Supply was tabled in June 2009, with several references made in the report to IAL's submission and 28 recommendations in relation to water use efficiency and conservation.

The Victorian Government's response to the Inquiry report was tabled in March 2010, and essentially supported, or supported in-principle, the majority of the Inquiry recommendations. However, the response also did not outline detailed new technical programs at this stage. IAL was disappointed in the Government's response given that we had presented robust technical arguments to relevant people and organisations in Victoria, from the Victorian Water Minister to the VicWater Water Efficiency Task Group comprised of representatives from Victorian water retailers, and through to the DSE as Victoria's main water efficiency policy agency. While these stakeholders were supportive of the concepts being promoted by IAL for alternatives to water restrictions, they were not prepared to practically engage in development of alternative programs. Rather it appears these stakeholders are willing only to continue existing water efficiency programs, and to await the commissioning of new water supply infrastructure in Melbourne to increase water supply prior to lifting water restrictions.

Unfortunately there are no further, obvious viable avenues available to develop an effective domestic outdoor water conservation program in Melbourne. IAL therefore considers that further actions to develop alternative programs in Melbourne does not represent value for money at this stage.

However, this results in no permanent domestic outdoor water conservation programs in Melbourne, leaving the lifestyle horticultural sector industries exposed to continued uncertainty about how and when government may lift water restrictions or again use them in the future.

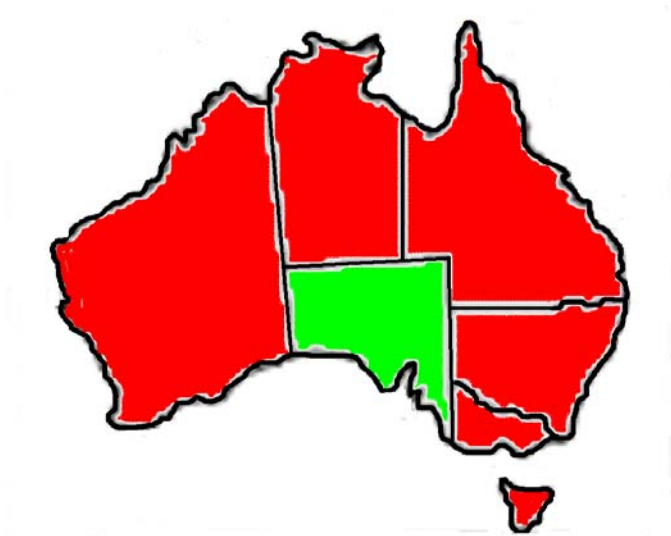
3.2 States Open Space Irrigation Management Programs

This project has enabled significant progress to be made in several jurisdictions toward alternative frameworks to drive improved water use efficiency from irrigated open space.

Figure 3 below illustrates the jurisdictions in which there were open space irrigation programs at the commencement of this project in June 2008, and Figure 4 shows the status of jurisdictions with sophisticated or emerging open space water efficiency programs at the completion of this project.

An evaluation of the progress made with jurisdictions addressed by this Project is provided in the following sections.

Figure 3: Summary of Open Space Irrigation Programs at Commencement of Project



Note: SA was the only State with a sophisticated open space water management program at the commencement of the program. The SA program is titled the *Irrigated Public Open Space (IPOS)* program. SA Water commissioned the development of IPOS as part of its *Waterproofing Adelaide Strategy*. Prior to the commencement of this Project, IAL participated on a reference group that helped developed IPOS.



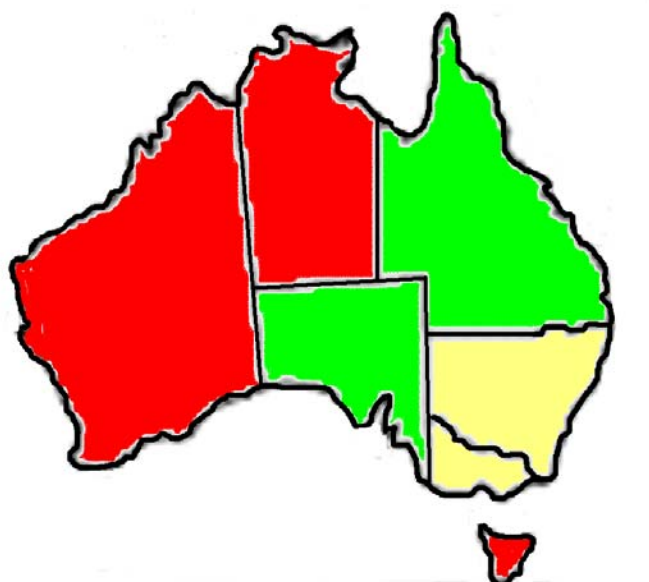



-  Jurisdictions with sophisticated, permanent open space irrigation programs
-  Jurisdictions with no open space irrigation programs

Figure 4: Summary of Open Space Irrigation Programs at Completion of Project



-  Jurisdictions with sophisticated, permanent open space irrigation programs
-  Jurisdictions with emerging open space irrigation programs
-  Jurisdictions with no open space irrigation programs

3.2.1 South East Queensland Irrigated Open Space Programs

The IAL project manager assisted the local SE Queensland IDO to guide QWC in the development of programs to drive irrigated open spaces in Queensland. The consequence of this work is that:

- managers of irrigated areas (not active playing surfaces) in excess of 500m² are now required to prepare an iWEMP (Irrigation Water Efficiency Management Plan), and to comply with QWC's *Water Efficiency Guideline: Efficient Irrigation for Water Conservation Guideline*. The iWEMP must be signed off by a Certified Irrigation Professional. Businesses are required to submit the iWEMP to their water service provider, and then to submit an annual report on implementation of the iWEMP; and
- managers of active playing surfaces are subject to different requirements, with specific requirements for major sports fields, local sports fields, cricket wickets, golf greens, bowling greens, schools and child care centres. However, general requirements for active playing surfaces are that the active playing surface must be registered with the water service provider who will make a water allocation. The operator of most categories of active playing surfaces must prepare an irrigation management plan and also install a sub-meter for the irrigated area, and maintain log books of water use – although there are exemptions for some categories of active playing surfaces.

IAL is satisfied that both approaches:

- have enabled a lifting of water restrictions so that irrigated open spaces can again be managed properly;
- adequately promote continued efficiency measures that will better protect access to the water supply in the longer term, and therefore support and provide greater certainty to the open space managers to invest in horticultural products, particularly turf; and
- in the case of commercial open space has embedded the need for Certified Irrigation professional to sign off on iWEMPs therefore ensuring plans for investment in irrigation and horticultural products is underpinned by recognised competency.

However, IAL also considers the approach for active playing surfaces is convoluted by the number of different categories, causing confusion in requirements for both irrigation service providers and the open space manager. IAL is therefore continuing to work with QWC to seek simplification of the framework, to something similar to that for irrigated areas in excess of 500m².

3.2.2 Sydney Irrigated Open Space Programs

The elements of an effective, integrated strategy have been identified and agreed between the IAL project manager and Sydney Water, including:

- i) preparation of draft Best Practice Guidelines which specify clear performance benchmarks for irrigation of open space;
- ii) the identification of training as an essential tool to support the launch of the Guidelines; and
- iii) a policy framework that encourages the adoption of the best practice Guidelines by open space managers in Sydney.

The draft Guidelines are now awaiting publication by Sydney Water and DECCW recently advised that it has agreed in-principle to include benchmarks from the Best

Practice Guideline into eligibility requirements for local government funding from the NSW Government's Waste and Sustainability Improvement Payments (WaSIP) program. The WaSIP program is a \$256 million funding program over the next seven years to 2015/16, and so provides significant encouragement for the adoption of Sydney Water's Best Practice Guidelines by local government open space managers.

The IAL project manager now needs to develop and co-ordinate the provision of training to match and support the implementation of the Guidelines when published. IAL is considering revising its existing Irrigation Efficiency Course to provide this broader training in Sydney, and perhaps beyond Sydney.

A well structured irrigated open space program for Sydney is emerging nicely, and will support and provide greater certainty to open space managers to invest in improved irrigation practice and horticultural products, particularly turf. IAL will, however, need to continue a co-ordinating role on this work to maintain the momentum from stakeholders and ensure the integrated nature of the strategy remains intact.

3.2.3 Melbourne Irrigated Open Space Programs

The *Victorian Playing Fields Water Savings* workshop held by the IAL project manager and IPWEA in Melbourne in August 2010 identified support from the 12 participating local governments for an irrigated open space program that:

- has a broader vision of sustainable open space management;
- focuses initially on water savings through improved irrigation management;
- sets benchmarks for expected performance; and
- establishes a star rating system to recognise levels of achievement in water management at irrigated open space in Victoria.

To further progress this program IAL will now:

- be preparing a detailed Discussion paper outlining the types of benchmarks we would like to set for irrigation management at public open space, the benefits and use of those benchmarks, and the implications of those benchmarks for participants in terms of measuring and reporting; and
- seeking the support of the star ratings by Melbourne water retailers to add impromata and authority to the scheme.

Increased urban water prices are partly driving the interest from local government in Victoria (see theoretical Victorian case study below). The interesting and significant learnings from this observation are that:

- the national urban water reform processes, while appearing removed from day-to-day lifestyle horticultural sector issues, are starting to drive decisions about improved irrigation practice, confirming:
 - national water reform will ultimately underpin sustained investment in horticultural products for urban open spaces; and
 - IAL therefore needs to be involved in national water reform matters.
- there is an emerging commercial business case for programs such as this *Victorian Playing Fields Water Savings* program, which do not require the direct involvement of further state jurisdiction policy intervention;
- consequently the Victorian program could be packaged as a national program and implemented in any other location where water pricing is driving clear business cases for improved open space irrigation practice (see change in water prices in Table 2 below).

3.3 Sydney Peri-Urban Horticulture Opportunity

DPI advises that it now has 10 approved site assessors working on its *Water Smart Farms* project for improving peri-urban horticultural irrigation in western Sydney (Brett Upjohn, pers. comm.. August 2010). This is an important outcome from this project as it:

- ensures competence in irrigation services being provided to the horticultural sector in western Sydney under this project, including to turf, nursery and fruit and vegetable industries;
- generates a genuine market for competent irrigation services, thereby increasing the professionalism of the irrigation services industry in Sydney; and
- demonstrates an increasing profile and credibility for IAL in assisting governments to implement funding programs to improve the sustainability of horticultural industries.

3.4 National Matters

The Council of Australian Governments (COAG) agreed in November 2008 on a series of work priorities for progressing water reform, including actions to improve the security of urban water through measures such as:

- adopting national urban water planning principles;
- establishing and publishing the levels of service for metropolitan water supplies;
- publishing guidance to facilitate best practice scenario planning for climate variability;
- finalising and adopting consistent pricing principles;
- reviewing consumer protection arrangements in relation to services provided by water utilities;
- investigating possible enhancements to pricing reform, including scarcity value of water and the valuation and recovery of environmental externalities;
- exploring the issue of establishing entitlements for recycling, stormwater and managed aquifer recharge;

- promoting the use of competition through an examination of barriers to third party access and the costs and benefits of establishing a nationally consistent regime;
- examining the case for a micro-economic reform agenda in the urban water sector;
- examining the role of improved urban water metering and billing practices in the allocation, use and management of water;
- finalising a review of water restrictions in Australia;
- investigating the establishment of a national clearing house for best practice urban water management; and
- investigating the development of a national system for reporting urban water consumption.

As can be seen from Table 2, the national work on establishing pricing principles is very important as it is driving significant water price increases. These water price increases will provide financial incentive to pursue water use efficiency, including for outdoor urban activities such as domestic gardening and for open space and turf managers.

Table 2: Urban Water Price Changes for Select Jurisdictions over the Project Period

Water Provider	Price at March 2009	Price at August 2010	Percentage Change
Sydney Water	\$1.93/kL	\$2.012/kL	4.2
Melbourne – City West Water	\$1.7766/kL above 880L/day	\$2.67/kL	50.3
SE Queensland*	\$1.20 above 301kL/yr (Brisbane Water*)	\$2.68/kL (Allconnex Water – Gold Coast*)	123.3
Adelaide	\$1.65/KL above 520kL/yr	\$2.98/kL above 130kL/quarter	80.6
Perth	\$1.714/kL above 990kL/yr	\$1.779/kL above 950kL/yr	3.8

*Water supply arrangements were changed in SE Queensland after March 2009, so no direct pricing comparison can be made.

Case Study 2

Theoretical Water Cost Savings from Improved Open Space Irrigation Practice in Melbourne

Distribution Uniformity (DU) is a key measure of the efficiency at which water is applied to an irrigation area. The higher the DU the less total water that is required to provide minimum adequate water to the worst performing parts of an irrigation system.

IAL is aware from open space irrigation audits around Australia that the average DU of open space irrigation is approximately 55%. The Water Services Association of Australia (WSAA) and IAL's *Urban Irrigation: Best Management Practices* advocates a minimum DU of 75%. An improvement from 55% to 75% DU is equivalent to a 26.7% water saving (a mathematical relationship). This improvement can be achieved in most cases by ensuring water pressure is as per the original design, ensure sprinkler heads are properly maintained and are consistent with the original design (ie correct emission rate), or retrofitting or re-design and install.

Average irrigated open space irrigation in Melbourne uses approximately 4 ML/ha/year (Connellan, pers. comm.. 2010). An improvement from 55% to 75% DU therefore equates to approximately 1ML/ha/year water saving.

City West Water prices as at 4 August 2010 are \$2.67/kL over 880 litres per day.

The equivalent cost saving of improving DU from 55% to 75% is therefore \$2670/ha/year.

An open space manager can therefore make a cost neutral business case for
\$13,350/hectare investment over a 5 year return period.

4. Implications

4.1 Overall Project Implications

The project has had several, significant on-ground implications for the lifestyle horticultural sector in select jurisdictions, including:

- immediate relief from domestic water restrictions in SE Queensland and Sydney, both substantial markets for both the lifestyle horticultural sector;
- introduction of a policy framework in SE Queensland which permanently drives improved domestic irrigation practice and outdoor urban water use efficiency in the longer term thereby providing confidence to the community to invest in irrigation and horticultural products and minimising the potential for future water restrictions that would otherwise impact the irrigation and horticultural industries again;
- processes for examining alternative permanent, domestic urban outdoor water conservation frameworks in Sydney and Melbourne;
- a sophisticated policy framework to drive best practice open space irrigation in SE Queensland;
- enabling IAL to develop emerging frameworks to drive best practice open space irrigation in Sydney and Melbourne; and
- generating formal, commercial opportunities for Certified Irrigation Professionals in the domestic and open space markets in SE Queensland, and in horticultural industries in Western Sydney through NSW Government's *Water Smart Farms* which provides competent services to support the community and horticultural industries in these locations.

The project has also been very important for the lifestyle horticultural sector into the longer term as it has:

- assisted IAL to establish credibility with urban water policy makers and to help them better understand the complexity of best practice irrigation, the science behind best practice and the need for professional irrigation services to be available to the community; and
- established IAL as a stakeholder in urban water policy at a national level, where macro-policy decisions are being made about water planning and pricing, which will ultimately drive urban water conservation in the future.

Despite these significant successes, an important implication of this project for the lifestyle horticultural sector is to recognise that urban irrigation is a complex area for policy makers and the general community alike. While there is clearly significant water savings to be made through improved irrigation practice in domestic and open space settings, the path to widespread behavioural change is relatively slow. There are many and varied reasons why change in urban irrigation practice is slow, including the following intersecting reasons:

- the community is relatively accepting of water restrictions as a government response to drought and a means by which they can contribute to water conservation, as evidenced by Smart Approved Water Mark newpoll in December 2009 which shows an average of 22% of people across all five major Australian capital cities believe water restrictions are not harsh enough¹⁰;
- governments overall objective during drought is about water supply-demand balance and not specifically water use efficiency, resulting in a preference by some governments for simpler water restrictions because they demonstrably

¹⁰ Smart Approved Water Mark. *Newpoll water saving survey 2009*. www.smartwatermark.info

make immediate water savings, are low cost to government and are relatively accepted by the community;

- programs for improved irrigation practice are competing with other more popular water savings initiatives for both government funds, policy development work and for community attention eg rebates for washing machines and rainwater tanks, large scale investments in desalination, water pricing etc;
- best practice irrigation is a complex science, which can be difficult for policy makers and the community to grasp and translate into water conservation programs that are understood and acceptable in the community; and
- the lifestyle horticultural sector needs to earn profile, credibility and trust from policy makers and the community before they will listen and respond to information about the science behind good irrigation practice and the opportunities for water savings, so there is often a lead in time before there is productive engagement of some jurisdictions.

Consequently, the lifestyle horticultural sector needs to perceive behavioural change to improved urban irrigation practice as an evolutionary process, not as a revolution to be accomplished with one project. There is far more work to be done by IAL, in closer conjunction and co-operation with the peak horticultural industry bodies to secure this change, especially for domestic markets in Sydney, Melbourne and Adelaide and in open space markets in Sydney, Melbourne and Perth.

However, one of the major observations and learnings from this project is the manner in which IAL continues this work may need to be quite different than in past projects, as discussed in the following sections.

4.2 Other Implications

4.2.1 Water Pricing

IAL has relied in the past on the willingness of government's to work with IAL to develop regulatory, rebated or education interventions to directly motivate the community to improve urban irrigation practice through programs such as Waterwise Garden Irrigator programs in Western Australia, the "efficient irrigation guidelines" in SE Queensland and Irrigated Public Open Space (IPOS) program in South Australia. However, urban water prices in most jurisdictions are increasing sharply as shown in Table 2. These water price increases may provide financial incentive to pursue water use efficiency, including for outdoor urban activities such as domestic gardening and for open space and turf managers. This raises two implications from this project, namely:

- i) the importance of influencing national urban water reform processes (see section 4.2.3 below); and
- ii) the need to re-examine our expectations for additional, future government involvement in urban outdoor water conservation frameworks on a case-by-case basis.

As evidenced by Case Study 2 presented in Section 3 of this report, because public open space uses significant water volumes and tiered pricing structures penalise high water users, clear commercial business cases can now be readily made for improved open space irrigation practice in many jurisdictions. Consequently, the policy framework for improved irrigation practice has already been set by governments as a consequence of the national pricing principles.

IAL and the horticultural industries now need to refine the manner in which they seek to implement open space irrigation programs. Future programs are likely to be more independent of governments in most jurisdictions, using commercial business cases as the motivation for participation by open space managers rather than a regulation or rebate. Consequently, the nature of future IAL projects on open space management needs to be quite different to past projects. New programs need to include activities to:

1. demonstrate and sell the commercial benefit of improving irrigation practice to prospective program participants i.e a significant marketing component;
2. outline reasonable industry benchmarks or standards for open space irrigation that are technically and commercially viable so that open space managers can better assess the scope and value for improvement at their sites; and
3. provide and co-ordinate the tools needed by open space managers to make these improvements including:
 - guidance on developing business cases for changed irrigation practice;
 - training and information on:
 - standards;
 - measuring current performance against standards;
 - implementing changed practices; and
 - reporting on performance and cost savings.

Recommendation 1

IAL continue work on establishment of programs to drive improved open space irrigation practice in Sydney, Melbourne and Perth in close partnership with relevant peak horticultural industry bodies. See also recommendation 2 below.

Recommendation 2

IAL develop the materials in consultation with relevant peak horticultural industry bodies to run open space irrigation improvement programs across all jurisdictions, including:

- marketing the commercial benefits of improved practice;
- developing a guidance manual for open space managers for developing business cases for improved irrigation practice, and
- revise IAL's current Irrigation Efficiency Course to ensure it targets business managers within open space management organisations to sell commercial benefit and management tools, as well as provides open space managers with technical skills to implement, measure and report improvements to irrigation management.

In contrast, for domestic outdoor urban water conservation programs, programs such as Irrigation System Check in Sydney and Waterwise Garden Irrigator programs in Perth are estimated to make 45kL/year and 40kL/year¹¹ savings respectively in each participating household. The financial benefit is less than \$100/annum per household and is therefore unlikely to be sufficient on its own to motivate household decisions about investment in outdoor water efficient irrigation or horticultural

¹¹ J Brennan, WA Water Corporation. May 2008. *Improving the Efficiency of Domestic Irrigation Systems*. 2008 IAL Conference Paper

products. Consequently, it is more likely that IAL and the urban horticultural industries need to continue to work with government to develop, implement and periodically review regulatory, rebated or education initiatives as the basis for domestic outdoor water conservation programs.

Recommendation 3

IAL continue work on establishment of domestic outdoor water conservation frameworks in Sydney and Adelaide, and maintain existing programs in other jurisdictions under periodic review to ensure they continue to appropriately support the lifestyle horticultural sector.

4.2.2 Standards

The IAL's Strategic Plan identifies standards, benchmarks and guidelines as a key strategic priority for the organisation (Strategic Area 5). The strategic importance of this area is becoming increasingly apparent and urgent with the need for standards and benchmarks to:

- fill a niche that will, and is being, otherwise filled by different organisations to fit their own needs. For example:
 - in domestic irrigation:
 - QWC has specified benchmarks for “efficient irrigation systems” which IAL does not entirely endorse,
 - WA Waterwise Garden Irrigator has a separate set of standards for design and installation,
 - in open space irrigation:
 - SA Water has its own Code of Practice under IPOS;
 - Sydney Water has developed its own Best Practice Guidelines (albeit in consultation with IAL and others), whilst
 - the Institute of Public Works and Engineers Australia (with primarily local government membership) administers a “Yardstick” program which includes KPIs and reporting arrangements for parks irrigation. ensure there is one consistent set of standards and expectations for both irrigation designers and installers.
- underpin consistent national performance levels expected by IAL Certification holders;
- underpin the objectives of government irrigation related funding and policy initiatives such as performance outcomes of funded works for peri-urban horticulture in western Sydney under the WaterSmart Farms project described in this report.

Clearly, in the absence of industry endorsed and championed national irrigation standards, there is likely to be a range of program and geographically specific standards developed resulting in disparate and confusing expectations for industry practitioners and the urban horticultural industries. IAL, as the national peak irrigation industry body, needs to develop and champion these standards for inclusion in all urban policy and funding initiatives. The standards need to be both technically and commercially viable standards.

Recommendation 4

IAL develop and promote urban irrigation standards for design, installation, operation and performance outcome.

4.2.3 COAG Work program

As evidenced by water pricing, the COAG work program on urban water reform does have fundamental implications for the lifestyle horticultural sector, and also specifically for IAL in the manner in which it needs to market and undertake programs for improving urban irrigation practice. The COAG work program on urban water reform still has many important relevant actions which IAL needs to be aware of, assess and influence to ensure they positively support the lifestyle horticultural sector into the future. In particular, the following actions on the COAG 2008 work program are worthy of further IAL work:

Establishing and publishing the levels of service for metropolitan water supplies

This is important because the levels of service should include clear published statement about the expected frequency and duration of water restrictions for each jurisdiction, so that customers are aware of the level of water security for which they are paying.

Reviewing consumer protection arrangements in relation to services provided by water utilities

For the reason stated above in relation to “levels of service”.

Investigating possible enhancements to pricing reform, including scarcity value of water and the valuation and recovery of environmental externalities

Pricing frameworks currently seek to recover costs of water supply and management. The inclusion of the costs of environmental externalities may have significant implications for future water pricing, and have a significant impact on the lifestyle horticultural sector, especially in the domestic market where large price increases may not drive efficiency, but rather diminish overall investment in horticultural product.

Examining the case for a micro-economic reform agenda in the urban water sector

May influence the number and ownership patterns of water suppliers, and therefore also influence water pricing.

Examining the role of improved urban water metering and billing practices in the allocation, use and management of water

May lead to urban customer allocation models, which would be important for how an outdoor urban water allocation component may be reasonably determined.

Investigating the establishment of a national clearing house for best practice urban water management

This may provide an avenue for nationally consistent standards for lifestyle horticultural irrigation.

Recommendation 5

IAL needs to remain aware of, and active in influencing, the national urban water reform processes to ensure reforms support access to water for the lifestyle horticultural sector and for outdoor community uses.

5. Summary of Recommendations

Recommendation 1

IAL continue work on establishment of programs to drive improved open space irrigation practice in Sydney, Melbourne and Perth in close partnership with relevant peak horticultural industry bodies. See also recommendation 2 below.

Recommendation 2

IAL develop the materials in consultation with relevant peak horticultural industry bodies to run open space irrigation improvement programs across all jurisdictions, including:

- marketing the commercial benefits of improved practice;
- developing a guidance manual for open space managers for developing business cases for improved irrigation practice, and
- revise IAL's current Irrigation Efficiency Course to ensure it targets business managers within open space management organisations to sell commercial benefit and management tools, as well as provides open space managers with technical skills to implement, measure and report improvements to irrigation management.

Recommendation 3

IAL continue work on establishment of domestic outdoor water conservation frameworks in Sydney and Adelaide, and maintain existing programs in other jurisdictions under periodic review to ensure they continue to appropriately support the lifestyle horticultural sector.

Recommendation 4

IAL develop and promote urban irrigation standards for design, installation, operation and performance outcome.

Recommendation 5

IAL needs to remain aware of, and active in influencing, the national urban water reform processes to ensure reforms support access to water for the lifestyle horticultural sector and for outdoor community uses.

Acknowledgements

The IAL would like to acknowledge all persons and organisations that have been involved in this project *A Smarter Approach to urban irrigation*. In particular, IAL would like to thank:

- HAL for providing funds to undertake this project to work with willing jurisdictions to develop technically sound urban water conservation programs that support a vibrant urban lifestyle horticulture sector.
- Queensland Water Commission, Sydney Water, NSW DECCW, NSW DPI, SA Water and Victorian local governments for being willing to work with IAL on elements of this project; and
- IAL staff for their diligent and committed work on this project.
- IAL Regions who worked co-operatively on this national project; and
- IAL's Industry Supplier Group that provided IAL's capacity for voluntary contribution to this project and for its continued guidance and feedback about IAL work with each jurisdiction.

ATTACHMENT A

IAL's Discussion Paper on a Preferred Permanent Outdoor Urban Water Conservation Framework

Proposed IAL Position on a Permanent Outdoor Water Conservation Framework

Summary

The attached paper examines options for an IAL position on a permanent outdoor water conservation framework, and recommends a preferred position for consideration by the Industry Supplier Group (ISG). The paper also makes a series of recommendations for further IAL work that would be required to support this position.

The recommended position was arrived at following consideration of three purist models to drive outdoor urban water conservation, namely water pricing, allocations and restrictions. A short summary of these three purist models is presented in Attachments A-C, and it is recommended that the Attachments be read first, to provide some context to the paper.

The primary recommendation in the paper is that the IAL support a framework that includes a suite of measures that includes market mechanisms such as pricing and rebates, regulatory tools such as default restrictions, community and industry education tools and public information tools about the water supply security to enable the community and industry to make investment decisions on urban irrigation and water conservation. A suite of measures, rather than a purist model is required because:

- i) we need widespread behavioural change in the community to increase efficiency of outdoor water use, so that it is not perceived as discretionary in the longer term, and people respond to different signals – some to financial signals, some to education, and some to regulation;
- ii) we need to be adaptable because of ever increasing understanding of our water supply and climatic patterns and we also need to work with a wide array of water supply jurisdictions across Australia – we therefore need to be developing supporting tools to support an array of approaches. We should be able to support different approaches across Australia, provided they are built on same or similar building blocks;
- iii) most literature on purist models openly acknowledge that a combination of measure is required to drive water conservation.

Submitted for ISG discussion and consideration of the recommendations.

ATTACHMENT A CONT'D

Proposed IAL Position on a Permanent Outdoor Water Conservation Framework

Issue

Recommended IAL position on permanent outdoor water conservation measures, and a series of recommendations for IAL actions to support this position.

Background

An action arising from the Industry Supplier Group (ISG) meeting on 30 July 2008 was for Tim Gilbert to arrange a workshop to develop an IAL position on a preferred model for permanent outdoor water conservation measures. This workshop was cancelled due to low numbers of attendees. However, the need to have a preferred IAL position on this matter remains. Consequently, in lieu of workshop presentations, a brief review of literature has been undertaken of three potential purist approaches, namely water pricing; allocations and restrictions. These reviews are presented in Attachments A, B, and C to this paper.

Some background thoughts to provide context to ISG discussion on this matter is that:

- The National Water Initiative (NWI) may provide a nationally consistent, but broad, framework

Draft NWI urban water planning principles being considered by COAG include, but are not limited to: delivering urban water supplies with agreed levels of service, and specified levels of reliability and safety; basing urban water planning on best available information and continuously improve this knowledge base; consider the full port folio of water supply and demand options; using price and market mechanisms to help achieve supply-demand balance. There is much opportunity for IAL through these principles.

- Notwithstanding the NWI, the States still retain authority for water conservation measures

IAL would ideally support a single, consistent national approach to outdoor urban water conservation. However, we must recognise that the authority for these decisions remains at State level, and sometimes at a regional or even local government level pending the water supply administrative arrangements.

- The urban irrigation industry therefore needs to be flexible and pragmatic

We need to work with State governments (as the accountable party for policy decisions) to explore options which improve the status quo. **Our job is to prompt this type of review, and to contribute constructively and objectively with accurate, credible information to support such a review process to shift from the short term use of restrictions to a permanent, longer term approach to outdoor water conservation.** We are already doing this in WA and SE Queensland, and are making inroads for a review of options in SA.

The ISG vision is, inter alia, that Australia has a viable and sustainable urban water industry to support community interests and activities. In considering the options for a preferred permanent water conservation framework for this paper, it has become apparent that our strategies are all solely geared to seeking amendments to government's policy frameworks in relation to traditional public water supplies. And while this remains a core task for the ISG, there is also scope for the urban irrigation industry to expand its own capabilities to identify, design and access alternative water sources (groundwater, sewer mining, stormwater harvesting, private desalination) which may enable outdoor use free from water restrictions. This paper makes a recommendation on this matter also for ISG consideration.

ATTACHMENT A CONT'D

Discussion of the Three Models

The IAL's broad principles for any alternative framework for outdoor urban water conservation should be that it:

- makes water savings that are sustained over time, to reduce the prospects of reintroduction of short term outdoor water restrictions;
- maximises efficiency of outdoor water use for the same reason;
- enables individual choice about essential and discretionary water uses (within reason); and
- facilitates the involvement of the urban irrigation industry, as the beholder of much expertise in outdoor water savings and water use efficiency.

To address government issues, any approach that we advocate will also likely need to be low or no cost to government, and will need to address the social issues of base access for human needs and matters of equity.

The water pricing, allocations and restriction models examined in Attachments A-C are all valid models which would deliver these principles. In particular, the water pricing model appears to have significant merit in the longer term as the most efficient mechanism, once water supply competition is better established and the community better understands the true costs of urban water supply. However, it is a quantum leap for both governments and the community from the existing highly price regulated and low cost water supplies that we enjoy. Consequently, water pricing is unlikely to be adopted on its own by governments at this stage. Further, until there is greater independent, private sector involvement and competition in water supply, water pricing will not eventuate from a free market, but will continue to be artificially set by government institutions with all the price distortions generated by media, lobby group and electoral pressures.

Recommendation 1

The IAL keep water pricing as its preferred long term vision for urban water conservation frameworks, but take a more pragmatic interim approach as set out in Recommendation 4.

Recommendation 2

IAL assist to deepen the water supply market by developing training and information services for IAL members in identifying, assessing, gaining approvals/permits, designing, and installing alternative water supplies such as groundwater, sewer mining and stormwater harvesting to service urban irrigation.

Allocation models, discussed in Attachment B, are very complex in terms of the policy hurdles that need to be addressed, the administrative arrangements that would need to be in place to manage trading, and the communities willingness to involve themselves in this complexity for a base commodity such as water. It is therefore unlikely to be adopted readily by most jurisdictions. We are therefore likely to have more success in achieving our objectives through other options, although we should keep a watching brief on the research in Victoria on allocations.

Recommendation 3

IAL keep a watching brief (and an open mind) on the Victorian research into urban allocation approaches.

Ironically, a more structured outdoor water restriction regime appears to be the most pragmatic option available for IAL in the near term, because water restrictions are known, and largely accepted, by government and the community, force direct behavioural change and have proven to be able to make significant water savings. The challenge is to set up a restrictions regime that enables more flexibility through regulated exemptions for outdoor water use that demonstrably saves water, and where the regime does not cause additional cost to governments. This is explored in more detail in the next section.

ATTACHMENT A CONT'D

Preferred Framework

It is recommended that IAL support a suite of measures for permanent water conservation. These measures should include:

- i) **market based tools**, both carrots and sticks, namely:
 - a. a pricing regime, where one component of the usage charge is scarcity based to drive conservation, and where the influence of the scarcity component is progressively increased in the longer term as a water conservation tool as the community and governments accept this tool, and once supply markets are deepened¹² to enable competitive scarcity pricing; and
 - b. rebates linked to national product recognition schemes like Smart Approved Water Mark (SAWM).
- ii) **regulatory tools**, namely:
 - a. restrictions that provide a default set of permissible irrigation methods, and a series of potential conditional exemptions that would be industry regulated – see more in the next section on what IAL can do to support this;
 - b. restrictions on wantonly wasteful outdoor water use (hosing hard surfaces, irrigating at high evaporative times of day etc);
- iii) **education tools**, including:
 - a. community education tools such as:
 - i. targets (rather than allocations) to educate the community about reasonable levels of water use – as allocations are complex, and unlikely to be enforced by governments anyway;
 - ii. community education about efficient irrigation practice – see more below about what the IAL can do to support this;
 - iii. water efficient product recognition tools such as the national SAWM scheme and product labelling such as proposed in Queensland
 - b. industry training to:
 - i. service the conditional exemptions from restrictions – see more below about what the IAL can do to support this; and
 - ii. ensure availability of expertise to the community
- iv) **public information tools** consistent with the draft NWI principles, to inform the community and enable it to understand and compare performance of its supply system, including:
 - a. definitions of each water restriction level;
 - b. specification of the reliability of the water supply system, including the probability and expected frequency of each level of water restrictions;
 - c. comparison of the supply reliability with other supply systems;
 - d. reasons for demand-supply framework adopted; and
 - e. timeframes for review of the adopted framework.

Recommendation 4:

IAL support a framework with a suite of measures that includes market mechanisms, regulatory tools, community and industry education tools and public information tools about the water supply security.

The IAL should support a suite of measures, or a combination of this suite of measures, rather than one purist model because:

1. Widespread community behavioural change is required, and individuals respond to different prompts – some will respond simply to water conservation education messages, some will respond to an economic incentive, while others will only respond to disincentives such as price or direct regulation.

¹² See recommendation 2 that IAL initiate training to assist its members to access alternative water supplies more readily.

ATTACHMENT A CONT'D

2. We do not understand our water resources adequately across Australia, and have significant uncertainty and variability in our climatic patterns. These uncertainties are combined with the current pace of change in economic conditions and imperatives. Consequently, IAL should seek a dynamic, adaptable position, that can be moulded to respond to new information and circumstances in each jurisdiction, rather than try and pick a winner at this stage. As pointed out by Smith¹³, positions and policy on drought or water related matters in Australia need to create an enabling environment for learning about the consequences of our actions and policies, but should also contain the seeds of its own change to achieve an ultimate vision. We can achieve this best through a suite of measures, as listed above.
3. Most literature recognises that purist models such as those presented in Attachments A-C, are not mutually exclusive and can, and should be operated, as part of a suite of measures. For example, Frontier Economics¹⁴ considers that a water scarcity model, as described in Attachment A, would need to be operated within an overall pricing regime, within a regulatory framework to manage the market, and also as part of a broader institutional reform that includes increased competition for water supply.

The elements, or building blocks, can then be put together in an order that meets the needs of each local circumstance. That is, we should assist to provide the tools, but not prescribe the exact way these tools are put together ie leave ourselves some room to move.

Proposed Role for IAL in this Framework

Managing Exemptions from Restrictions

Restrictions are designed to reduce outdoor water use, on the presumption that they are discretionary.

While the IAL fundamentally disagrees with this premise, it is the reality behind the use of restrictions by governments. Therefore, we need to demonstrate to governments that a well designed, properly installed, and properly operated and maintained irrigation system can save water relative to a benchmark volume of water used by handwatering – note that this is different to demonstrating that an irrigation system increases efficiency of application. Provided a system demonstrably uses less volume of water than a benchmark volume used by handwatering then a conditional exemption should be provided. The conditions of the exemption should include that:

- i) the irrigation system design not be tampered with;
- ii) the irrigation system be designed to meet defined benchmarks; and
- iii) the irrigation system be operated and maintained in a proper and efficient manner.

The primary issues for government in this approach are likely to be:

- i) that there is little evidence that irrigation systems save water – as opposed to apply water more efficiently. The IAL, through the ISG, needs to invest in this base research if we are to convince governments of the fundamental premise of our case that well designed, installed, operated and maintained irrigation systems saves water. Should we be unable to demonstrate this, then we need a different premise for our position. See attached paper outlining proposed data/research project;
- ii) the exemptions should not cause additional government expense – which could be addressed by an industry operated exemption system, such as by irrigation practitioners certified by IAL, where governments only role is to sample audit exempted irrigation systems and/or the IAL's management of the Certification process. Indeed, there are similar schemes already in operation eg WA Waterwise program, electrical work, private building certifiers in NSW, and Certified Practising Accountants, NATA registered analytical laboratories. Clearly IAL has the tools to assist government with a low cost exemption regime that is operated by industry;

¹³ Smith, Mark Stafford. 2003. Chapter 7, Beyond Drought: Policy, People and Perspectives, CSIRO Publishing, Australia

¹⁴ National Water Commission and Frontier Economics. 2008. *Approaches to Urban Water Pricing: Waterlines Occasional Paper No 7, July 2008.*

ATTACHMENT A CONT'D

- iii) the exemptions, and the conditions of the exemptions, need to be monitored to ensure water savings are sustained. IAL Certified practitioners could provide this monitoring at agreed intervals – say 5 years and/or upon sale of the property, similar to the car safety checks in NSW carried out by certified mechanics each year prior to car registration;
- iv) the system design benchmarks need to be specified. The IAL will need to develop and publish these design benchmarks;
- v) that an audit process to check that the system is operated and maintained in a proper and efficient manner be designed. The IAL will need to develop and publish such an audit process; and
- vi) evidence of community support that this will be accepted, and change behaviour.

Recommendation 5:

IAL seek funding partners to undertake fundamental research about the relative water savings and efficiency of different urban irrigation methods, as set out in the attached paper.

Recommendation 6:

Subject to agreement of jurisdictions to adopt an exemptions framework, the IAL develop and publish urban design benchmarks.

Recommendation 7:

Subject to agreement of jurisdictions to adopt an exemptions framework, the IAL develop an audit process for urban and benchmarks for proper and efficient operation and maintenance of irrigation systems.

Community Education

Community education is the tool that will deliver long term increases in outdoor urban water use efficiency and water savings. While this is a long term prospect, we should be seeking to educate the community so that in a generations time, good watering practice is just an obvious, fundamental action in our community – similar to the anti smoking campaign and waste recycling. There are an array of options for running community education campaigns. The most cost viable approach for the IAL, and its members, is to partner with other associations such as Nursery and Garden Associations and Turf Growers Associations to run short education seminars/information sessions in high volume retail outlets such as nurseries, irrigation retail outlets and hardware stores. IAL already does this in Sydney and Brisbane, and we need to extend to other jurisdictions.

These types of programs can be mutually beneficial to getting a good message to the community, as well as being market promotions for retail outlets, enabling IAL and other association members demonstrate their products, and expert services, and providing, and being seen to provide, support to government water conservation education programs in each water supply jurisdiction.

Recommendation 8:

IAL initiate and co-ordinate community education programs in all major Australian cities about good outdoor watering practice, seeking involvement of other relevant associations, IAL members and water supply authorities.

Industry Training

The IAL's industry training and certification program is well regarded within the industry. For it to be accepted as a legitimate supporting component of a water conservation framework the IAL needs to demonstrate to governments that the Certification process is credible and robust, and importantly that it has adequate depth (numbers) in each jurisdiction to support the proposed exemption approach.

ATTACHMENT A CONT'D

Attachment A Water Pricing – Free Market Approach

Background and Description

The market approach relies on free market principles, where the government's primary role is to set water prices that, amongst other things, seek to drive water conservation and water use efficiency. Water pricing can be supported by other market instruments such as rebate schemes and community education to send the right signals to the market place about water conservation.

The National Water Commission commissioned a paper by Frontier Economics on urban water pricing titles *Approaches to urban water pricing: Waterlines Occasional Paper No 7, July 2008* which can provide far more in depth background. In this paper Frontier Economics outlines a number of potential water pricing approaches such as building block pricing to recover water supply costs, two part tariffs with a fixed access charge to recoup supply costs with certainty and a volumetric charge, volumetric pricing based on long run marginal costs, inclining block tariffs on the volumetric component, and postage stamp pricing. Whilst slightly different between jurisdictions, the two part tariff is the typical approach used across Australia. However, this approach does not necessarily reflect the level of water scarcity at any point in time, and so water restrictions are periodically used in addition to pricing to manage demand–supply imbalances.

Frontier Economics argues that the current approach does not drive economic efficiency, and recommends several short to medium term reforms one of which is to use scarcity pricing to reflect marginal costs of consumer decisions.

A market model would need to achieve two things, namely:

- i) provide adequate base revenue to government, or water supply companies, to continue water supply services; and
- ii) send a pricing signal to conserve water and use water efficiently.

While there are many potential water pricing approaches to achieve these goals, the most plausible pricing model would therefore be to continue the two part tariff – a fixed charge for access, and a stepped volumetric charge for usage.

Grafton, Kompas and Ward (2007) perhaps suggest the most pragmatic approach, that the first step of the volumetric component should be charged at a very low price up to a volume required for basic human needs (say an average 50L/person/day for an average number in each household) and all water beyond this initial step would be charged at a price that reflects scarcity at any point in time. The scarcity unit price would be set every quarter in response to the water available in the supply system at that time.

In the absence of a deep urban water supply market where price would be determined by a competitive market, the water price would need to be set by a government institution (such as IPART in NSW, ESC in Victoria ad SA etc).

The income from this water pricing approach would be used to operate and maintain the supply system, and any excess funds accrued from these charges would be used to:

- i) provide a base welfare net for cases of hardship – to address any equity concerns; and
- ii) to fund community education about water conservation or to contribute to new supply sources.

A paper by O'Dea and Cooper (2008) commissioned by NSW IPART titled *Water scarcity: Does it exist and can price help solve the problem* suggests that residential water usage charges in Sydney would need to increase by between 62 percent and 143 percent to replicate the same demand reduction as Level 3 water restrictions. Given this research, it is unlikely that pricing as it is currently used around Australia, would achieve significant urban water conservation on its own.

ATTACHMENT A CONT'D

Market Approach	
Advantages	Disadvantages
Enables individual decisions about water use, conservation and investment in efficiency	<p>Likely to be politically unpalatable on its own as:</p> <ul style="list-style-type: none"> ○ the community is used to low cost water; ○ water prices will need to increase substantially to effect any real change in the community's water use behaviours; ○ community perceive government to be responsible for water supply provision at low cost.
Least government intervention in individual urban water use.	There is no natural market forces until there is competition in water supply. Therefore pricing will still be set by a government institution (pricing regulator)
Likely low administrative costs to government, as its role is simply to set water prices only – commercial sector will provide equipment and expert advice	Very contemporary point that there is likely to be significant community distrust in theorist market approaches at the moment, as a consequence of the global financial situation
Establishes a market in water efficiency products and expertise.	
Potentially drives investment in efficiency.	
Addresses equity.	

ATTACHMENT A CONT'D

Attachment B Allocations – Performance Based Approach

Background and Description

An allocation approach involves government specifying the water volume available on a household basis, and then permitting households to use that specified water volume at its own discretion and to trade excess water. This approach could be done through the issuing of entitlements to end users including households, open space owners, industry etc.

The Frontier Economics paper describes the allocation approach as:

“... provide tradeable entitlements and periodic allocations to market participants (various end-users of urban water), and allow a market clearing mechanism to determine the opportunity cost of the water. When water is scarce, the value of water entitlements will increase; when water is plentiful, the value will decrease”.

Essentially the approach is a cap and trade scheme similar to the proposed emissions carbon trading scheme, but where the community is issued with initial water entitlements, and are then free to trade that entitlement at whatever price the market is willing to pay.

The primary difficulty with this tool surrounds its initial implementation as customers are, for all intents and purposes, currently entitled to indefinite amounts of water. So, introducing a household entitlement, especially where the entitlement has tradeable rights, has real issues of equity eg household type – units versus land, numbers of people in each household, the nature and value of greenspace on a property, etc. Frontier Economics suggests that the simplest option would be to provide a uniform entitlement across all households.

Frontier Economics also presents a list of questions about how this type of tool would operate, some of which have been presented below to demonstrate some of the more detailed policy questions which a government would need to consider for such a scheme:

- Who owns the entitlement? Is it linked to an individual or a property, and what happens if someone moves residence?
- Is the entitlement a set volume, or a share of available water?
- Can unused portions of annual entitlement be carried over?
- What action would be taken for exceeding entitlement? Cut off the water supply, a fine, or a step pricing mechanism?

The Victorian Government, through its Water Smart Fund managed by South East Water Ltd, has recently commissioned some research on the potential use of allocations in urban Victoria. The research is in its infancy, and the degree to which the outcomes will be made available is not known by South East Water Ltd. The IAL will continue to follow up on this.

Note that new developments would need to buy entitlement from existing end users, or develop a new water supply.

Note also that, while not a cap and trade scheme as described above, the Queensland Water Commission has used well publicised household targets to promote water conservation. This approach is, to some extent, a performance based tool but is not linked in any way to a trading or enforcement scheme as proposed above.

ATTACHMENT A CONT'D

Allocation Approach	
Advantages	Disadvantages
Establishes an immediate deep market (from the demand side rather than through increased supply competition as with water pricing approach)	Potential progressive inequity - some people may sell part or all of their basic entitlement for short term reasons, eventually resulting in a community group with either no access to the water supply, or inadequate access to meet basic human needs.
Likely to drive greater consideration of actual use at many households (either because excess can be sold, or conservation efforts are required to meet allocation).	Many complex policy questions, some only of which are presented above.
Permits individual decisions about water use and conservation.	High transaction costs in establishing and operating the scheme – for both government and the market participants (community).
Is used in China, so there are working models available.	
Government's role is explicit - set the cap, enforce the entitlements, and administer (or regulate the private sector to administer) a trading scheme.	

ATTACHMENT A CONT'D

Attachment C Restrictions and Exemptions - Prescriptive Approach

Background and Description

The prescriptive approach, or use of water restrictions and exemptions, as has been the policy tool of choice by governments across most of Australia since early 2000's.

Traditionally water restrictions have been used temporarily as a means of managing supply during a drought – and to avoid the significant costs of new supply infrastructure to deal with short term supply shortfalls. However, with the protracted nature of the supply shortfall and the uncertainty about whether this is drought or climate change, many jurisdictions have recently introduced permanent restrictions which, amongst other restrictions, generally prohibit day time watering and hosing of hard surfaces.

The restrictions are prescriptive as they largely only target outdoor water use, thereby essentially deciding on behalf of the community that outdoor water use is discretionary.

While restrictions have generally been successful in reducing demand, they come at a high community cost. The implied costs of long term water restrictions in Australia have been estimated in the order of \$1.6 – 6.2 billion each year⁴. The magnitude of this estimate is confirmed by the Productivity Commission¹⁵ which listed estimates of the cost of water restrictions in various Australian cities as \$150 per annum per household in Sydney, between \$347 and \$870 per annum per household in Perth, and up to \$268 per household per annum in Canberra.

Nonetheless, a more flexible restrictions approach that enables restrictions for efficient irrigation systems could ironically provide the ideal incentive for the community to invest in efficiency to avoid restrictions. A prescriptive approach that meets the IAL's principles could be to have a default set of restrictions, with an industry operated exemptions regime as set out in the main paper.

Restrictions	
Advantages	Disadvantages
Relatively simple and low cost for government.	High costs for the community, as presented above.
Accepted by the community as a legitimate short term demand management measure.	Do not educate the community how to use water efficiently in the longer term - water savings are therefore not sustained over time.
They work, albeit at significant cost to community and the urban irrigation sector – eg Sydney and Melbourne's demand has reduced by approximately 20% since the introduction of restrictions.	Badly affects the urban irrigation industry, which ironically has the expertise to assist government's with achieving sustainable long term outdoor water use savings and efficiency.

¹⁵ Productivity Commission, 2008. Productivity Commission Research Paper: Towards Urban Water Reform: A Discussion Paper.

ATTACHMENT B

Sydney Assessment (at March 2009)

	Element	Status
Domestic Irrigation	Outdoor Water Use (% Total)	Outdoor water use is approximately 28% of total domestic water use (in the absence of water restrictions) ¹⁶
	Restriction Types	<ul style="list-style-type: none"> • Restrictions on irrigation type (hand held and drip only) • Restrictions on time and day. Anecdotal information that permanent water conservation rules will replace current restrictions when water supply returns to 70%.
	Restrictions	Commenced 1 October 2003
	Rebates	<ul style="list-style-type: none"> • Up to \$1500 for rainwater tanks (pending size and connections) • Subsidy for Love Your Garden site assessments (approx \$130 subsidy)
	Education – Community	<ul style="list-style-type: none"> • General media coverage on water conservation • Sydney Water website • Love Your Garden Direct mail and paper inserts • School education
	Education - Industry	<ul style="list-style-type: none"> • Every Drop Counts Business Program, but not specific to irrigation or horticultural sector
	Pricing Information	\$1.93/kL with no step or tier pricing
	Linking of Tools	With the exception of the subsidy provided for Love Your Garden, there is little linkage of tools. Options presented to Sydney Water to link Love Your Garden site assessment to exemptions from restrictions.
	Estimated Water Savings (since 2002-03)	56kL/year per household water saving. (Reduced from 255kL/year in 2002/03 to 199kL/year in 2006/07 - Appendix 4, Reference 1)
	Comments and Conclusion	<p>Restrictions have been in force for 6 years. Reference 1 (pg ii) states that demand in 2007/08 was 306L/day per person, and without water restrictions demand would have been 378L/day per person. Baseline was 506L/day per person in 1991. Restrictions therefore account for about 72L/day per person water savings, of a total water savings of 200L/day per person made since 1991, or approximately 36% of the total water savings made by Sydney Water since 1991.</p> <p>Sydney Water estimates that about 30% of savings from restrictions will be retained once restrictions are lifted. Should this be accurate then consumption would exceed its target of 329L/day per person (as set in Sydney Water's Operating Licence). The current water savings are therefore not sustainable without restrictions. Consequently, an alternative approach is worth exploring to maximise outdoor water conservation outcomes for the community and for the horticultural and irrigation sectors. Options for alternative approaches have been presented to Sydney Water.</p>
Open Space	Restriction Type	Different types of exemptions for sports grounds, golf courses, bowling greens etc. For sports grounds: <ul style="list-style-type: none"> • sprinkler systems only on Mondays for specified periods • trigger nozzle – at approved locations after 4pm and before 10am
	Relevant Programs	Sydney Water Every Drop Counts Business Program works directly with individual operators to develop water savings approaches at each site.
	Comments and Conclusion	A more systemic approach to driving open space irrigation efficiency and water savings is worth pursuing in Sydney to improve long term water management by open space managers in the horticultural sector.

¹⁶ Sydney Water. 2008. *Water Conservation and Recycling Implementation Report 2007-08*.

ATTACHMENT C

Perth Assessment (at March 2009)

Element		Status
Domestic Irrigation	Outdoor Water Use (% Total)	Outdoor water use is approximately 54% of total domestic consumption ¹⁷
	Restrictions Type	Permanent water conservation measures are now in effect for irrigation from potable water schemes. Domestic restrictions apply to the day and time of irrigation.
	Restrictions Commencement	Water restrictions were first introduced on 8/9/01, and permanent water efficiency measures were introduced on 1/10/07.
	Rebates	<ul style="list-style-type: none"> • Up to \$500 for greywater and treated water systems for garden irrigation; • Up to \$600 for rainwater tank and plumbing; • \$300 for Irrigation system installed by approved Waterwise Irrigation Installer; • \$300 for installation of a new garden bore; • \$30 for a Waterwise garden assessment; • \$20 for a SAWM endorsed rain sensor; • \$10 for SAWM endorsed subsurface irrigation pipework (30m) • \$2 for a flow regulator The current Waterwise rebate system concludes 30/6/09.
	Education – Community	Extensive communications and consultation processes by WA Government and WA Water Corporation and IAL.
	Education – Industry	Waterwise Garden Irrigator program trains and recognises irrigation installers to provide quality assurance of irrigation systems, with independent audit process. The Waterwise Garden Irrigator program commenced in 2003, with a revised program relaunched in July 2007.
	Pricing Information	Domestic pricing is tiered: <ul style="list-style-type: none"> • 0-150kL/yr is \$0.643/kL; • 151-350kL/yr is \$0.828/kL; • 351-550kL/yr is \$0.997/kL; • 551-950kL/yr is \$1.423/kL; • >990kL/yr is \$1.714/kL
	Linking of Tools	The whole program is well linked by the Waterwise brand, with specific links between rebates for Waterwise Garden Irrigator program and rebates for Waterwise irrigation systems.
	Estimated Water Savings	Water usage has remained relatively constant since restrictions were introduced in 2001 with water use dropping from 2001-02 high of 289kL/year per household to 260kL/year per household in 2002/03, then increasing to 281kL/year per household in 2006/07. Notably, the quantum of current household water use is higher in Perth than other cities ¹ . A study presented by John Brennan ² comparing domestic water use in 1980/81 to 2001 showed consistent indoor domestic water use for these periods, but a significant increase in outdoor water use over this time which led to the commencement of the Waterwise program.
Comments and Conclusion	Given this data, the Waterwise program appears to have provided the capacity to stabilise total per capita water use in Perth since 2001. Outdoor water conservation systems are well established in Perth, linking recognition of industry expertise and rebates, and adequately supporting the horticultural sector. Notwithstanding this, given the magnitude of outdoor water use and previous history of escalating outdoor water use, the effectiveness of the programs should be continually reviewed to ensure water efficiency is being delivered.	
Open Space Irrigation	Restriction Type	Daytime sprinkler use prohibited, unless specified by exemption.
	Relevant Programs	Water Conservation Plans required from local government for public open space management from 1/708, with plan including equipment audit and irrigation schedule.
	Comment and Conclusion	Scope for further work in capacity building of public open space managers for best practice open space irrigation and for including programs for other non-local government open spaces.

¹⁷ J. Brennan. 2008. *Improving the Efficiency of Domestic Irrigation Systems*. IAL Conference, May 2008.

ATTACHMENT D SE Queensland Assessment (at March 2009)

	Element	Status
Domestic Irrigation	Outdoor Water Use (% Total)	Outdoor water use prior to restrictions was approximately 35% of residential water use ¹⁸ (110L/person/day of total 300L/person/day).
	Restrictions Type	High Level restrictions under Target 170 which includes a prohibition on lawn watering, and for gardens includes a restriction on type of irrigation, time and day of irrigation.
	Restrictions Commencement	Target 170 commenced 31/7/08. Restrictions were first introduced on 13 May 2005
	Rebates	<ul style="list-style-type: none"> • up to \$1500 from the Queensland government and \$1150 from Brisbane City Council for a rainwater tank pending size and plumbing • up to \$200 for an above ground greywater system • up to \$500 for a below ground greywater system
	Education - Community	Conducted by IAL in the form of public seminars and QWC in the form of their website links and presence at gardening functions
	Education - Industry	QWC Website
	Pricing Information	<p>Varies quite markedly between water supply authority. Brisbane Water has an inclining tariff (tiered) approach, with an access charge of \$113 and a unit price for domestic households of:</p> <ul style="list-style-type: none"> • \$0.91 for 0-201kL/yr; • \$0.94 for 201-301 kL/yr; and • \$1.20 >301kL/yr <p>Note that Fitzroy River Water has substantially cheaper water prices.</p>
	Estimated Water Savings (since 2001/02)	67kL/year per household water saving in Gold Coast Water area of operation. (Reduced from 250kL/year in 2001/02 to 183kL/year in 2006/07 - Appendix 4, Reference 1)
	Comments and Conclusion	While there has been substantial water savings in SE Queensland, this has been achieved through stringent prohibitions on garden and lawn watering. There is now a need and significant scope to replace these restrictions with programs that drive improved domestic irrigation practice and achieve sustainable outdoor domestic water savings. IAL is already working with QWC on this to introduce a regulatory framework to enable the use of "efficient irrigation systems" at existing residential premises in SE Queensland and to require "efficient irrigation systems" at new residences throughout Queensland.
Open Space Irrigation	Restriction Type	Watering prohibited except for playing surfaces where the location is registered with the local water provider, has a meter installed, and operates the meter in accordance with Active Playing Surface Guidelines and displays a sign.
	Relevant Programs	Nil
	Comments and Conclusion	Scope to develop a program for best practice open space irrigation.

¹⁸ Queensland Water Commission. 2008. *Water for today, water for tomorrow: South East Queensland Water Strategy Draft: Information Kit.*

ATTACHMENT E Adelaide Assessment (at March 2009)

Element		Status
Domestic Irrigation	Outdoor Water Use (% Total)	Outdoor water use is approximately 40% of total household use ¹⁹
	Restrictions Type	Restrictions on irrigation type (drip and hand held only), day, time and total weekly duration (3hrs/week).
	Restrictions	Commenced 2004
	Rebates	<ul style="list-style-type: none"> • Between \$200 and \$1000 for rainwater tanks and plumbing • \$50 for specified garden products with minimum purchase value. • Rebates for tap timers, soil moisture sensors, rain sensors, irrigation controllers and drip irrigation system components
	Education - Community	Various approaches such as SA Water website, SA Water Learning Centre, media and SA Water community forums, Smart water bills, and advertising of SA Water rebate program.
	Education - Industry	SA Water web site. SA Government run public seminars for industry. SA Water Learning Centre. Uni SA, TAFE, NRM Boards and NGI SA all run water related courses for professionals
	Pricing Information	For residential an annual fixed charge of \$39.35 with tiered residential usage charges at: <ul style="list-style-type: none"> • 0-120 KL= \$0.71/KL; • >120 KL = \$1.38/KL; • >520 KL = \$1.65/KL
	Linking of Tools	Some linkage between education and rebates
	Estimated Water Savings (since 2001/02)	Total water consumption has decreased significantly in Adelaide since 2002 with total water use in 2002 at 194,666ML, reducing to 169,848ML in 2003 and at 136,904ML in 2008 ²⁰ (or approx 30%). However, Reference 1 shows that residential consumption in 2001/02 was 252kL/property with consumption reducing marginally after restrictions were introduced in 2003/04 and remaining reasonably steady to 2006/07 at 235kL/property.
	Comments and Conclusion	Based on this information, substantial water savings have not eventuated from domestic restrictions. Consequently, the existing restrictions are serving very little water savings purpose, and there remains significant scope for a more active domestic outdoor water savings framework to drive these water savings.
Open Space Irrigation	Restriction Type	<ul style="list-style-type: none"> • Trigger nozzle may be used on any day but restrictions on hours (only before 8am or after 8pm). • Watering cans and buckets (filled directly from a tap) may be used at any time. • Sprinkler systems may only be used once a week for a period between the hours of 8pm and 8am. The day of the week and time of operation for each of the sprinkler stations is to be determined in conjunction with SA Water and subject to a permit <p>However, open space managers can obtain an exemption from restrictions through the IPOS scheme which essentially provides a water allocation coupled with water/irrigation management plans.</p>
	Relevant Programs	Irrigation Public Open Space Scheme (IPOS).
	Comments and Conclusion	SA has a sophisticated approach to open space irrigation through its IPOS program. No further action is warranted in SA to support the horticultural and irrigation sectors for open space management.

¹⁹ SA Government. 2005. *Waterproofing Adelaide: A thirst for change – 2005-2025*.

²⁰ Presentation by SA Water Minister. February 2009.

ATTACHMENT F Melbourne Assessment (at March 2009)

	Element	Status
Domestic Irrigation	Outdoor Water Use (% Total)	Outdoor water use estimated at 20% of Melbourne's total household water use ²¹
	Restrictions Type	No watering lawns. For garden watering, restriction on day and time, and restricted irrigation types to hand held. Drippers on gardens are also permitted between midnight and 2am on permissible day.
	Restrictions	Restrictions introduced in 2002 ⁶ , and 3A restrictions commenced on 1/4/07.
	Rebates	<ul style="list-style-type: none"> • Up to \$1000 for rainwater tank and appropriate plumbing • Up to \$500 for an eligible greywater system to garden • \$30 for garden products
	Education - Community	Website, brochures, water savings guides, and WaterSmart Program in 100,000 homes for 12 months specialist advice about saving water.
	Education – Industry	Nil.
	Pricing Information	\$126.48 annual fixed water charge plus tiered prices: <ul style="list-style-type: none"> • \$1.0248/kL up to 440L/day • \$1.2025/kL from 440-880L/day • \$1.7766/kL above 880L/day
	Estimated Water Savings	Estimates of water savings vary from 22% reduction per capita compared to 1990's consumption levels ⁶ to 16% reduction since restrictions were introduced (Melbourne Water website). City West Water has had a reduction from 212kL/property per year in 2001/02 prior to restrictions to 163kL/property per year in 2006/07 ¹ , and this trend is evident for other water retailers in Melbourne also.
Comments and Conclusion	<p>Water savings are clearly being made since the introduction of water restrictions. However, the evidence with restrictions in Melbourne in 1967/68, 1972/73 and 1982/83 is that once lifted there is an immediate, steady increase in water use (Reference 6, Figure 6, page 21).</p> <p>In addition, Melbourne's water strategy sets a per capita target of 317L per day for 2015 and 296L/day by 2020, compared to 2005/06 per capita consumption of 331L/day²² (Reference 7, Figure 2.4, page 13). Clearly there is more water savings required in Melbourne to reach this target. With outdoor water use estimated at 20% of total consumption, and little apart from restrictions having been implemented to reduce outdoor demand, there is much scope for an alternative framework for:</p> <ul style="list-style-type: none"> • making the additional savings required to meet the targets; • sustaining water savings once restrictions are removed, or relaxed; and • utilising water efficiency expertise in horticultural and irrigation sectors. 	
Open Space Irrigation	Restriction Type	One in 4 nominated sports grounds can be watered in each local government area in accordance with a water conservation plan. Other exempt surfaces include gold greens/tees, bowling greens etc.
	Relevant Programs	Nil
	Comments and Conclusion	Based on discussions with the Victorian Water Efficiency TaskGroup in 2008, some water providers in Melbourne are trialling an allocations approach for open space irrigation. However, there is much opportunity for a consistent approach to open space irrigation efficiency programs across Melbourne – as opposed to disparate programs run by each water utility.

²¹ Victorian Government. 2006. *Water Supply-Demand Strategy for Melbourne 2006-2055*

²² State of Victoria. Department of Sustainability and Environment. 2007. *Our Water Our Future. The next stage of the Government's Water Plan.*

ATTACHMENT G Canberra Assessment (at March 2009)

Element		Status
Domestic Irrigation	Outdoor Water Use (% Total)	No statistics located.
	Restrictions Type	Restrictions on irrigation type (drip and hand held only), day and time. Garden watering only permitted.
	Restrictions	Commenced 1/1/2007
	Rebates	<ul style="list-style-type: none"> • \$150 GardenSmart Service to advise on garden water savings. • Up to \$1000 for rainwater tank and appropriate plumbing.
	Education – Community	ACTEW has a Save Water for Life community education program
	Education – Industry	Nil
	Pricing Information	For residential an annual fixed charge of \$75 with tiered residential usage charges at: <ul style="list-style-type: none"> • 0-100 KL= \$0.66/KL; • 100-300 KL = \$1.29/KL; • >300 KL = \$1.74/KL
	Linking of Tools	Apart from linking of education and rebates for GardenSmart advisory service, there is little linking of tools.
	Estimated Water Savings (since 2001/02)	There has been a significant reduction in water use in ACT from 325kL/property in 2001/02 to 240kL/property in 2006/07, with the decrease occurring between 2002/03 and 2004/05 prior to the introduction of water restrictions in 2005/06. Chris Webb from ACTEW stated that there has been 16% reduction in per capita consumption since the introduction of water restrictions ¹¹ .
	Comments and Conclusion	ACTEW has a target reduction in per capita consumption of 12% by 2013 and 25% by 2023 (no reference point stated, but ThinkWater ²³ document was published in 2004 when average per capita use in ACT was 360L/person/day ²⁴ which would then equate to a target of 270L/person/day). Based on the available data, it is not possible to assess how close ACT is to meeting this target. Notwithstanding this, 25% of Canberra residences have a programmable garden irrigation system ²⁵ . There is clearly some scope for programs that sustain water savings once restrictions on outdoor water use are removed or relaxed. ACT Government is doing some work with URS to develop a program to assist the community to use and program their irrigation systems according to seasonality.
Open Space Irrigation	Restriction Type	No specific restrictions, but a 35% water use reduction target set for all open spaces.
	Relevant Programs	As above.
	Comment	Scope to establish open space irrigation programs that drive efficient use as well as water savings.

²³ <http://www.thinkwater.act.gov.au/documents/Summarydoc.pdf>

²⁴ <http://www.nwc.gov.au/resources/documents/0607-National-Performance-Report-Urban-B1-ACT-PUB.pdf>

²⁵ ACT Government Survey – July/August 2007

¹¹ Chris Webb. 2009. Presenting Paper at AWA Conference titled Responding to Climate Change: The ACT way

ATTACHMENT H

IAL LETTER TO QUEENSLAND WATER COMMISSION

Ms Gayle Leaver
Manager Demand and Efficiency
Queensland Water Commission
PO Box 15087
City East QLD 4002

26 August 2008

Dear Gayle

Re: Proposed Irrigation Equipment Labelling

Thank you for the opportunity to meet with you and your staff on 22 August 2008 regarding the prospects of an irrigation equipment labelling scheme to support the implementation of "efficient irrigation systems" under medium level water restrictions. We are very grateful for the genuine industry consultation on this important matter.

Irrigation Australia Limited (IAL) is supportive of a labelling scheme provided:

- a) its further development is based on continued industry input and consultation;
- b) that it is adaptable to fit within a national labelling framework if and when adopted; and
- c) that it demonstrably forms part of a broader strategy to drive maximum outdoor water use efficiency of our urban communities.

IAL will provide practical assistance to the Queensland Water Commission (QWC) to implement a labelling scheme by compiling a list of existing testing protocols for demonstrating manufacturing standards of irrigation equipment to meet the requirements of an "efficient irrigation system" (subject to scoping) and developing a public education brochure to assist the public to calculate whether irrigation equipment meets the requirements for "efficient irrigation systems". Both these commitments may need some level of financial support from the QWC.

As discussed at the meeting, the proposed framework for efficient irrigation systems is primarily an education exercise. From our discussions, the broad strategy for implementing efficient irrigation systems appears to be to:

- i) undertake a centralised community education campaign around efficient irrigation systems, with a particular focus on the less than 9 litres per minute message;
- ii) support this education campaign with shelf labelling at retail outlets to assist the community to link the message s about efficient irrigation systems with purchasing decisions.

IAL considers that this strategy could be enhanced with demonstrations at retail outlets about how to install and operate an efficient irrigation system in compliance with QWC requirements. We are willing and able to work with the QWC to roll out a program of this nature and would be pleased to discuss this further with you at your convenience.

Once again thank you for the opportunity to openly discuss this matter with the IAL and its members. Should you wish to discuss any of these matters further please feel free to contact me on (02) 9476 0142 or Mark Quayle on 0400 580 147.

Yours sincerely



TIM GILBERT
Industry Development Manager
Irrigation Australia Limited

ATTACHMENT I

Submission to Queensland Water Commission on Efficient Irrigation Guidelines

Proposed Amendments to the Queensland Water Commission's *Efficient Irrigation for Water Conservation Guideline* (version dated 13 March 2009)

Background

Irrigation Australia Limited (IAL) has previously made submissions to the Queensland Water Commission (QWC) in respect of its proposed definition for "efficient irrigation systems" and in respect to its *Efficient Irrigation for Water Conservation Guideline* (the Guideline) in February 2009.

QWC subsequently made amendments to the Guideline and the definition of "efficient irrigation systems" in March 2009 (version dated 13 March 2009). This IAL paper responds to those QWC amendments, seeking further immediate refinements to ensure the Target 200 program can be rolled out simply as possible and that it achieves maximum water efficiency from the date of its commencement.

Please also note, as per our previous submission, IAL seeks a formal review point for the definition and Guideline within two years of commencement of Target 200.

This IAL paper is separated into:

- i) recommendations specific to the definition of "efficient irrigation systems" as presented at section 5 of the Guideline version dated 13 March 2009; and
- ii) recommendations about the overall Guideline dated March 2009 to improve its technical accuracy and contribution to driving efficient irrigation practice.

Definition of Efficient Irrigation Systems

IAL supports the recognition of Certified Irrigation Professionals in the Definition

IAL is very supportive of QWC's addition to the definition enabling Certified Irrigation Professionals to certify an irrigation system as an "efficient irrigation system" and thereby effectively provides an alternative pathway to compliance with "efficient irrigation systems". The IAL is particularly pleased with this amendment as it explicitly recognises the knowledge and skills that the irrigation industry can bring to urban water conservation.

IAL does not support 9 litres/minute as a water efficiency benchmark for emitters

IAL maintains and emphasises that the 9 litres/minute benchmark for emitters has no foundation in science or irrigation engineering, nor any specific relevance to other factors affecting efficient irrigation practice such as soil types, plant needs and irrigation scheduling. In this context, IAL is concerned that the current definition will drive a primary market for emitters less than 9 litres/minute (owing to added costs of certification for any other type of emitters), but with no specific, additional benefits for increased irrigation efficiency or water conservation i.e. the definition should be driving investment in water efficiency.

ATTACHMENT I CONT'D

SAWM approved emitters should be permitted by the definition

Notwithstanding this, given that QWC appears to be wedded to 9 litres/minute as a benchmark of emitter efficiency, IAL considers the unnecessary market bias could be averted by including a third pathway to compliance in the definition. The third pathway, as included in our previous submission, would be that SAWM approved irrigation equipment/systems also be included as "efficient irrigation systems". The reasons given in our previous submission for this requested amendment remain valid, namely:

- i) the true efficiency of irrigation equipment entails far more complexity and permutations than flow rate. SAWM licensing provides an opportunity for other efficiency considerations to be taken into account by a credible, expert panel on a case-by-case basis; and
- ii) supports and strengthens QWC's SAWM endorsed guidelines for efficient irrigation systems, and would be consistent with the proposed shelf labelling scheme.

In addition to these reasons, it has become apparent from the QWC labelling workshop on 17 February 2009 that SAWM labelled equipment (rather than just SAWM shelf labelling as originally proposed by QWC in August 2008) is now a major part of QWC's Target 200 program and marketing focus. While IAL also supports the use of the SAWM brand for enabling customer recognition of water conservation products and services, there are existing SAWM licensed irrigation products that do not comply with the existing QWC definition of "efficient irrigation systems". This may cause significant customer confusion and/or complexity for the Target 200 marketing arrangements. The inclusion of SAWM licensed products in the definition would therefore neatly and simply address this issue.

In the interim, IAL would also accept the addition of SAWM recognition in lieu of the precipitation rate recommended in our previous submission.

Certification of Lawn Watering Systems

IAL is also supportive of QWC's amendment requiring certification by Certified Irrigation Professionals of drippers for lawn watering. However, IAL recommends that the definition be amended to require Certification for all lawn watering systems. The reason for this is that lawn watering is likely to use more water than garden watering, and there is therefore greater potential for water savings through ensuring the irrigation systems for lawns (irrespective of whether they are spray or dripper) are designed, installed and operated to achieve the highest possible efficiency levels.

Given these comments IAL recommends the revised definition of "efficient irrigation systems" at Box 1 - as an initial approach until a formal review point within the next two years:

ATTACHMENT I CONT'D

Box 1 – IAL Proposed Interim Definition of “Efficient Irrigation Systems” (proposed amendments in italics)

An efficient irrigation system must have the following features:

- a. a network of permanent piping connected to emitters which has been designed and installed to water a specific landscape area;
- b. the maximum output capacity of each emitter within the irrigation system must not exceed 9 litres/minute*; and
- c. the irrigation system must be fitted with either:
 - i) a manual timer with a maximum range of two hours; or
 - ii) an automated timer. Where an automated timer is used, a soil moisture sensor or rain sensor must be connected to the system to prevent the system operating during rain or where the soil already holds adequate moisture to sustain plant growth; and
- d. where drip-line is used it must be pressure-compensated and const of permanent plastic tubing which has in-line or internal emitters (inside the hose) spaced at regular intervals of at least 30cm; and
- e. ***irrigation systems may only be used for lawn irrigation where certified by a Certified Irrigation Professional***; and
- f. the use of an efficient irrigation system must be in accordance with the operating requirements and watering times determined by the QWC (for SEQ) or by your local council (for residents outside SEQ).

* emitters with a flow rate exceeding 9 litres/minute can be used provided the system is fit for purpose and delivers the same or better water efficiency outcomes when used in accordance with this Irrigation Guideline AND:

- o a Certified Irrigation Professional has certified the irrigation system as an efficient irrigation system;
OR
- o ***the emitters and/or equipment to which the emitters are fitted are licensed under the Smart Approved Watermark (SAWM) scheme.***

Comments/Recommendation on the Guideline

IAL offers the following recommendations to improve the technical rigour and accuracy of the information contained in the Guideline. Some of the recommended amendments assume QWC accepts the IAL's proposed interim definition included in Box 1 above.

1. Section 6.0 - First paragraph on the range of emitters needs to amended to more accurately reflect the array of emitters, and should read:
There is a wide range of emitters (including drippers, mixed sprinkler heads) which will achieve 9 litres or less per minute. For example:
 - a. *Most drippers use between 2 and 8 litres per hour. This means they only between 0.03 litres per minute and 0.13 litres per minute.*
 - b. *Micro-sprayers generally use between 0.4 – 2.5 litres per minute.*
 - c. *Pop-up fixed sprinklers/ sprayers generally use around 7 or 8 litres per minute.**Note that medium to large gear drive pop-up sprinklers use above 9 litres per minute.*
2. Section 6.0 - Second paragraph on emitters with a flow rate greater than 9 litres/minute should acknowledge the alternative pathways to compliance, and therefore read:
... you will need to replace the emitters so that they discharge less than the required 9 litres per minute OR have the system certified by a Certified Irrigation Professional OR ensure the emitters are licensed under SAWM.
3. Section 6.0 – The Water Meter Test. The output from this calculation is an “average” emitter flow rate and not a measure of compliance with QWC's requirement for all emitters to be less than 9 litres per minute (clause 5b. of the existing definition of “efficient irrigation systems”). IAL recommends that the Guidelines be amended to include a caveat that the Water Meter Test is simply an indicator about whether you may need to inspect each emitter more closely to assess whether they meet the 9 litres per minute benchmark.

ATTACHMENT I CONT'D

4. Section 7.0. IAL considers portable sprinklers are unlikely to be “efficient” within a technical meaning, and therefore recommend “efficient sprinklers” be replaced throughout the document with “portable sprinklers”.
5. Section 7.0 – First sentence should read:
Sprinklers which can be attached to the end of a garden hose
6. Section 7.0 – paragraph d. IAL notes that the manual timer to be used with portable sprinklers must have a maximum 30 minute timing capability, and that this differs from the definition of “efficient irrigation systems” in section 5 which requires a maximum two hour timer where a manual timer is used. IAL is not sure whether this is a deliberate difference, but in any case suggests that QWC may give further consideration to permitting a one maximum hour timer under the definitions for both “efficient irrigation system” and for portable sprinklers, especially given the following.
Gardens or lawns may require a maximum of 5mm precipitation on any one day during summer (worst case) in Queensland. A fixed sprinkler system is likely to apply in the order of 15-20mm/hour. Therefore a 60 minute timer would enable 15mm-20mm to be applied during an irrigation event which would be ample water for 3 to 4 days and would limit water losses through run-off and percolation.
7. Section 9.0 – The Precipitation Rate of your Irrigation System. The box titled Precipitation Rate Calculation is not accurate. The precipitation rate is the total volume of water (L) applied by the irrigation system to a defined area (m²) over a specified period of time (hours). IAL suggests that this definition be provided at section 9.0 of the Guidelines and refer the reader to case studies at Appendix A to see how to calculate the precipitation rate.
8. Appendix B – Example of How to Achieve Target 200. The water needs of the garden or lawn, and the efficient practice to provide that water, will remain the same irrespective of whether there are 2, 4 or 20 persons per household. However, the columns in Appendix B give the impression that the more people per household, the more water is needed for your garden and lawns. While IAL acknowledges that these Guidelines will operate within the context of the Target 200 program, we also respectively suggest the columns in Appendix B on how to achieve Target 200 are counterproductive to the intent of the Guideline – namely efficient irrigation practice. IAL therefore recommends these columns be removed from Appendix B.

ATTACHMENT J

LETTER TO NSW WATER MINISTER CONFIRMING OUTCOMES OF NOVEMBER 2008 MEETING

26 November 2008

Mr Phillip Costa MP
Minister for Water
PO Box 1007
TAHMOOR NSW 2573
Phillip.Costa@parliament.nsw.gov.au

Dear Mr Costa

Re: Sydney's Water Restrictions

Thank you for meeting with me and other Irrigation Australia Ltd (IAL) representatives on 26 November 2008 concerning alternatives to Sydney's water restrictions. The prolonged duration of water restrictions remains a critical issue for our membership. We very therefore much appreciate you taking the time out to meet with us about this important matter.

As presented at the meeting, IAL considers there is a clear case for adopting an alternative to Sydney's current water restrictions, and that there are several simple options which could be implemented to drive increased and sustainable outdoor water use efficiency and water savings. I have attached a copy of the material which we presented to you at the meeting for your reference. Please note that IAL is not wedded to any one of these options in particular, and we also recognise there may be other options, and permutations, which are acceptable to drive increased outdoor water use efficiency.

We understand from the meeting that:

- you are interested in exploring alternative longer term approaches to outdoor water conservation;
- that you will be seeking comment from Sydney Water Corporation on the options which are presented in the attached material;
- you have already committed to retain the current water restrictions until Christmas 2008; and
- you intend to undertake a longer term review of Sydney's water restrictions in autumn 2009.

Give these meeting outcomes **we suggest that a constructive way forward is that you immediately endorse a trial of one of the options**, where water use at participating properties is closely monitored between now and the review in autumn 2009. This trial could be jointly managed by Sydney Water Corporation and IAL, with input from independent institutions such as the Cooperative Research Centre for Irrigation Futures (subject to its willingness). The IAL would be willing to assist with the design, implementation and follow up to this trial.

A trial of this nature would be consistent with your commitment to retain water restrictions until Christmas 2008, and would provide some useful, additional evidence in the proposed autumn review process. Of the three options presented in the attached material, option 2 is the most suitable for an immediate commencement of a trial period since it is based on and links together available tools, namely the existing restrictions, the proposed permanent water conservation rules and Sydney Water's *Love Your Garden* program. Option 2 would also be most readily communicable and would not compromise the outcome of the review as it utilises tools already in the public domain.

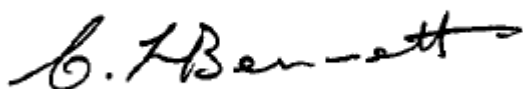
ATTACHMENT J CONT'D

As indicated at the meeting, IAL and its members are keen and willing to work with government to develop and implement an agreed long term option for outdoor urban water conservation. In this regards, IAL has staff available to work directly with you or your representatives to examine options, and extensive experience with urban outdoor water conservation frameworks operating and being developed in other jurisdictions around Australia. We are also a registered training organisation and offer a robust and credible industry certification scheme which could also be useful to assist government with implementation of a preferred option.

IAL is also very keen to be involved and consulted during the proposed autumn review of Sydney's water restrictions. We would appreciate your advice about the process for this review, and opportunities for IAL involvement.

I would be pleased to meet with you again, or your representatives, to discuss this matter in more detail and to address any impediments to commencing a trial option. I look forward to your timely response to our suggestion for the immediate commencement of a trial option, and to your advice about opportunities for IAL involvement in the review of water restrictions. Feel free to contact me on 9476 0142 or 0439 997 491.

Yours sincerely

A handwritten signature in black ink, appearing to read 'C. Bennett' with a stylized flourish at the end.

CHRIS BENNETT
Chief Executive Officer

Attachment: IAL case for alternatives to water restrictions.

ATTACHMENT J CONT'D

What We Seek from the Minister

We are seeking the Minister's agreement to implement an alternative to the current water restrictions for urban irrigation in Sydney. Some simple, alternative approaches are presented overleaf.

- IAL is equipped and willing to work with Government to develop and implement an alternative approach to current water restrictions.
- We are NOT seeking increase water use. We are seeking increased efficiency of outdoor water use to preserve social benefit derived from urban green space which is dependent on irrigation.

Background

- NSW has 750 urban irrigation businesses, with 3,000 employees, \$450million p.a. estimated turnover.
- The urban irrigation industry has been significantly affected by water restrictions since 2003.
- Irrigation Australia Ltd (IAL) is a not-for-profit organisation representing both the urban and rural irrigation industry, and has significant expertise and information to assist government.

Need for Change from Current Water Restrictions

- Social benefits of urban greenspace are significant eg preventative health care, social cohesion through sports clubs, increased property values and tax revenues.
- Water restrictions are designed as a temporary response for short term supply-demand imbalance.
- We are now facing a different, longer term, more permanent water resource management challenge caused by population growth and climate change.
- Water restrictions are costly to the community and to the urban irrigation industry.
- Implied costs of long term water restrictions in Australia estimated at \$1.6 – 6.2 billion p.a.²⁶.
- Estimated costs of water restrictions in Sydney are \$150 p.a per household²⁷.
- Water restrictions raise the profile of urban water conservation but do not educate the community about outdoor water use efficiency. So water savings unlikely to be sustained if restrictions totally removed.
- Water restrictions prohibit investment in certain irrigation types that could save additional water.

We recommend a different, longer term response to outdoor water conservation that:
- actively educates and encourages increased efficiency of outdoor water use,
- avoids the inherent costs of water restrictions to the community and to industry, and
- preserves the social value of urban greenspace.

Irrigation and Water Savings

- CRC Irrigation Futures has undertaken the most extensive research in Australia of domestic irrigation water use.
- CRC research in 2004/2005 of 50 Sydney homes found irrigation of lawns by hand watering, portable sprinklers and fixed sprinkler fitted with an automated controller used similar volumes of water and that irrigation of gardens by either fixed or portable sprinklers uses less than 50% of the water used for hand watering gardens.
- Conclusion can only be that irrigation method is not critical to water savings achieved by water restrictions. The water savings are more likely to have resulted from restrictions on time of day.

The evidence from CRC research is that there are a range of irrigation methods and equipment that can SAVE additional water than what is permitted by the current water restrictions.

- A summary of the CRC research water use data (kL/100m²/month) is presented below:

Irrigation Type	Lawns		Gardens	
	No Controller	Automated Controlle	No Controller	Automated Controlle
Hand Watering	2.1	-	5.0	-
Drip	-	-	5.0	-
Portable Sprinkler	2.5	-	1.8	-
Fixed Sprinkler	5.4	1.7	2.3	2.3

- IAL believes additional water savings than is presented above can be achieved if measures are adopted to ensure irrigation systems are properly designed, installed, operated and maintained.

²⁶ CRCIF Technical Report No.04/08. *Irrigation of Urban Green Spaces: a Review of the Environmental, Social and Economic benefits*, April 2008

²⁷ Productivity Commission, 2008. Productivity Commission Research Paper: Towards Urban Water Reform: A Discussion Paper.

ATTACHMENT J CONT'D

Broad Framework and Principles for Change

The new framework should seek to meet the following objectives:

- be evidenced based;
- match or exceed current water savings;
- promote and reward long term behavioural change and actively encourage innovation and investment in improved irrigation and horticultural practice; and
- be developed and implemented in close and full consultation with the community, industry, and appropriate urban water conservation experts.

Possible Approaches

There are infinite approaches that could be readily adopted. Three of these approaches are presented below. These approaches could be used in a hybrid approach too.

Option 1 – Introduce the Long Term Water Savings Rules for all Sydney Households

- The long term water savings rules outlined on Sydney Water's website include sensible measures to avoid wanton water wastage, without prohibiting irrigation methods that can save water.
- IAL understanding is that Government intends to introduce these long term water savings rules when supply levels reach 70 percent, although this remains at the Minister's discretion.
- The Minister could justify the immediate introduction of the long term water savings rules based on:
 - the water supply levels are approaching 70 percent (approx 64.5%);
 - IPART removal of two part tariff in 2008 because "concerns about water scarcity have receded".
 - the desalination plant will provide additional supply security from 2009/10 summer;
 - in any case the CRC research suggests the introduction of the long term water savings rules could make more water savings than the current water restrictions; and
 - current economic circumstances require decisions to be made to bring greater certainty for all industry, including the lifestyle horticultural and urban irrigation sectors.

Option 1 is evidence based and would exceed current water savings. However, while IAL is not opposed to Option 1, this option is quite passive as it does not actively encourage the community to learn more about outdoor water use efficiency, and therefore would not meet the principles of promoting long term behavioural change and rewarding investment in improved irrigation and horticultural practice. The next two options seek to drive investment in outdoor water use efficiency.

Option 2 – Exemptions following Sydney Water's Love Your Garden site assessments

- The introduction of the permanent water conservation measures could be brought forward for Sydney households that have a Sydney Water *Love Your Garden* assessment, provided the recommendations of that assessment are adopted.
- This option:
 - uses existing tools, and could be implemented immediately and at little or no administrative cost to government.
 - would be evidence based, down to the specific level of individual households.
 - provides an incentive for the community to invest in increased knowledge about water needs (schedule) and irrigation practice for their garden.
 - encourages long term behavioural change.
 - would create a market for *Love Your Garden* assessments and could be used to recover some of Sydney Water's costs of developing the *Love Your Garden* model.

Option 3 – Exemptions based on site assessments by Certified Urban Irrigation Specialists

- Certified irrigation specialists could provide exemptions from water restrictions for domestic irrigation systems that demonstrably achieve prescribed water conservation outcomes, and where the operator of the system demonstrates to the Certified irrigation specialist a base minimum knowledge level about efficient irrigation scheduling and practice. The exemption would need to be renewed at set intervals (eg 5 years).
- This type of scheme is similar to a vehicle safety check by a certified mechanic to register your car each year, or to plumbing connections to potable supply by licensed plumbers and to Certified Practising Accountant needing to do certain financial audits.
- Government's role would be to enforce exemptions (as it currently does) and audit the certification and exemption process to satisfy itself that the framework remains robust.
- This option meets all the principles outlined above.
- IAL already administers a credible industry Certification program within the national training framework, to recognise specialist irrigation skills in design, audit, installation and management.

Recommendation

That the Minister urgently select and implement a preferred alternative to the current water restrictions.

IAL is willing to assist Government to address any implementation matters that may be raised.

ATTACHMENT K
SYDNEY WATER OFFER TO WORK WITH IAL ON
PILOT IRRIGATION SYSTEM CHECK PROGRAM

From: TONY ROBINSON
To: Tim Gilbert
Subject: IAL letter to the Minister Options
Date: Wednesday, 11 March 2009 9:17:00 AM
Attachments: Draft OptionIAL.doc

Hi Tim,

I would like to organise a meeting with you regarding the possible approach options in the letter to

Minister from late last year.

Taking your options into consideration, Sydney Water have come up with a draft proposal on how we can work with the IAL.

Attached is a one pager of the draft proposal.

Could you please let me know when you are available to meet and discuss this proposal.

Regards

Tony Robinson

Project Officer, WC&R

Water Conservation and Recycling

Sydney Water

Lv16, 115-123 Bathurst st Sydney 2000

mobile 0419 478 008

ph (02)9350 5119 fax (02)9350 5942

tony.robinson@sydneywater.com.au

Sydney Water delivers essential and sustainable water services for the benefit of the community.

Dams + Recycling + Desalination + Water Efficiency = Water 4 Life

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ATTACHMENT K CONT'D

Draft Option

Response to IAL letter dated 2 September 2008

Draft Option to utilise the irrigation industry expertise to assist the government in its object to reduce water demand.

Background

Sydney Water have worked with the IAL over several years in developing our outdoor water conservation programs. Initially the IAL were invited to have an overview in the development of the Love Your Garden Program.

Following the introduction of water restriction we entered into a tri partisan agreement with the IAL and the CRC for irrigation futures to run an urban irrigation efficiency study. More recently in 2008 they were part of a working group that had regular input into our Irrigation Maintenance and Design pilot (Irrigation System Check).

Love Your Garden

Sydney Water's "Love Your Garden" service, which costs \$33, involves a trained horticulturist assessing the plants soil and microclimate of individual households gardens, the information is entered into a mobile application computer program. The program provides the customer with a detailed watering schedule for each area of their garden along with advice on how to improve their garden.

Irrigation System Check

The Irrigation System Check pilot program was completed in 2008. The pilot developed of a tool to rank irrigation systems between 1-6 stars. Approx 100 systems were assessed as part of the pilot. Customers who participated in the pilot received a report listing any problems with their systems and how they could improve them to receive a higher rating.

Option

Sydney Water would like to propose an option that would benefit the IAL, Sydney Water and our customers. The option entails customers who have received the "Love Your Garden" service be eligible for a System Check assessment of their spray irrigation system. If their irrigation system is rated for example at 5 stars or higher the customer could apply for an exemption to use their systems before 10am and after 4pm two days per week.

How it would Work

Sydney Water would licence IAL members to use the Irrigation System Check program. Suitable qualified irrigation professionals would be trained in the use of the System Check tool. The IAL member would provide the results of each assessment to the IAL the IAL would then aggregate the data and provide electronic records of all complete assessments to Sydney Water. These would then be checked prior to issuing an exemption application. Each exemption application could then be accompanied with a signed commitment to follow the LYG water schedule.

Training

Sydney Water would develop and deliver the first 2 – 3 training sessions though a suitable accredit training provided eg NSW TAFE. After which any further irrigation professionals wishing to be trained would do so at their own cost.

Auditing

Sydney Water would engage an auditor to do random audits of irrigation systems to ensure compliance. Any person found defaulting the system would be deregistered as Irrigation System Check assessors.

ATTACHMENT L

IAL's Business Case for Industry Run Water Restrictions Exemption Framework

Sydney Irrigation System Check Program

Preliminary Information for Prospective Assessors

1. Introduction

Sydney Water has proposed a two year pilot scheme for enabling household exemptions from water restrictions. The pilot will link the Love Your Garden service that Sydney Water has offered since 2006 with an Irrigation System Check as described below.

The option offered by Sydney Water would enable customers who have received the Love Your Garden site assessment to have an Irrigation System Check assessment of their spray irrigation system²⁸. Where the irrigation system meets minimum rating levels, the customer would be eligible for an exemption to use their irrigation systems before 10am and after 4pm two days per week as per current water restrictions for drip systems.

Sydney Water will licence the Irrigation System Check program to IAL. IAL will refer assessment work to Assessors that are registered with IAL for this program. The Assessors will undertake the site assessments, and record details of that assessment, and provide the results of each assessment to the IAL. The IAL will then aggregate the data and provide electronic records of all complete assessments to Sydney Water. These records would then be checked by Sydney Water prior to issuing an exemption application to the customer.

Sydney Water will engage an auditor to do random audits of irrigation systems checked by Assessors to ensure compliance and quality of assessment by Assessors. Any Assessor found to be defaulting the system will be deregistered as an Irrigation System Check Assessor.

There will be four steps to becoming an Assessor:

1. Meeting IAL specified prerequisites;
2. Undertaking and passing the Sydney Water approved Irrigation System Check training;
3. Applying to IAL to be an Assessor;
4. Signing an agreement with IAL to register and participate as an Assessor.

This document has been prepared on the basis of a description of the pilot scheme provided by Sydney Water, on input received from potential Assessors at a meeting with IAL on 26 May 2009, and based on IAL consideration of this input and its own organisational operations. The document briefly outlines relevant information about the steps to becoming an Assessor, and provides basic information to prospective Assessors about the administrative arrangements, Site Assessment Fee Schedule (including Assessor fees), and roles and responsibilities of Assessors operating within this pilot scheme.

²⁸ The Irrigation System Check pilot program was completed in 2008 and produced a tool to rank irrigation systems between 1-6 stars. Approximately 100 systems were assessed as part of the pilot. Customers who participated in the pilot received a report listing any problems with their systems and how they could improve them to receive a higher rating.

ATTACHMENT L CONT'D

Note that some of the details for the pilot program are still being determined.

IAL is keen for the scheme to be professional, transparent and to retain and build the integrity, trust and profile of the irrigation industry with the public and Sydney Water, while at the same time being open to the broader irrigation industry and operated in an equitable and efficient manner for Assessors. The processes outlined in this document for managing this pilot scheme have been developed with these principles in mind.

2. Prerequisites and Training for Assessors

To be eligible to be an Assessor in this pilot scheme a person will need:

- i) either IAL Certification (Certified Irrigation Designer, Installer, Agronomist, Contractor) or Certificate III or higher in Irrigation; AND
- ii) have undertaken and passed the Irrigation System Check training course.

People without these two requirements will not be eligible to be an Assessor within this pilot scheme.

Prerequisites

IAL recognises that the prerequisite certifications and qualifications listed above may need to be revised throughout the pilot pending numbers and availability of willing Assessors and quantum of customers seeking site assessments under this pilot program. In the first instance though IAL will endeavour to provide/co-ordinate appropriate training and encourage members to seek Certification to increase the pool of Assessors available to this pilot program.

Note that IAL is a Registered Training Organisation under the national training framework and can arrange Recognition of Prior Learning (RPL) for people with extensive irrigation industry experience but no formal qualifications.

Training

Sydney Water will develop and deliver the first 2 – 3 training sessions through a suitable registered training provider eg NSW TAFE. After these initial sessions any further irrigation professionals seeking to be admitted as an Assessor will need to undertake the training through a registered training organisation at their own cost.

Training details are currently being developed by Sydney Water. Training is expected to take 1 to 2 days, is likely to be run through a TAFE, and will include an assessment component which Assessors will need to pass in order to participate in this pilot scheme.

3. Assessor Agreement with IAL

Assessors will need to sign an agreement with IAL to participate as Assessors in this program. The agreement will set out the relative roles and responsibilities of the IAL and Assessors and will include, but not be limited to, requirements for Assessor:

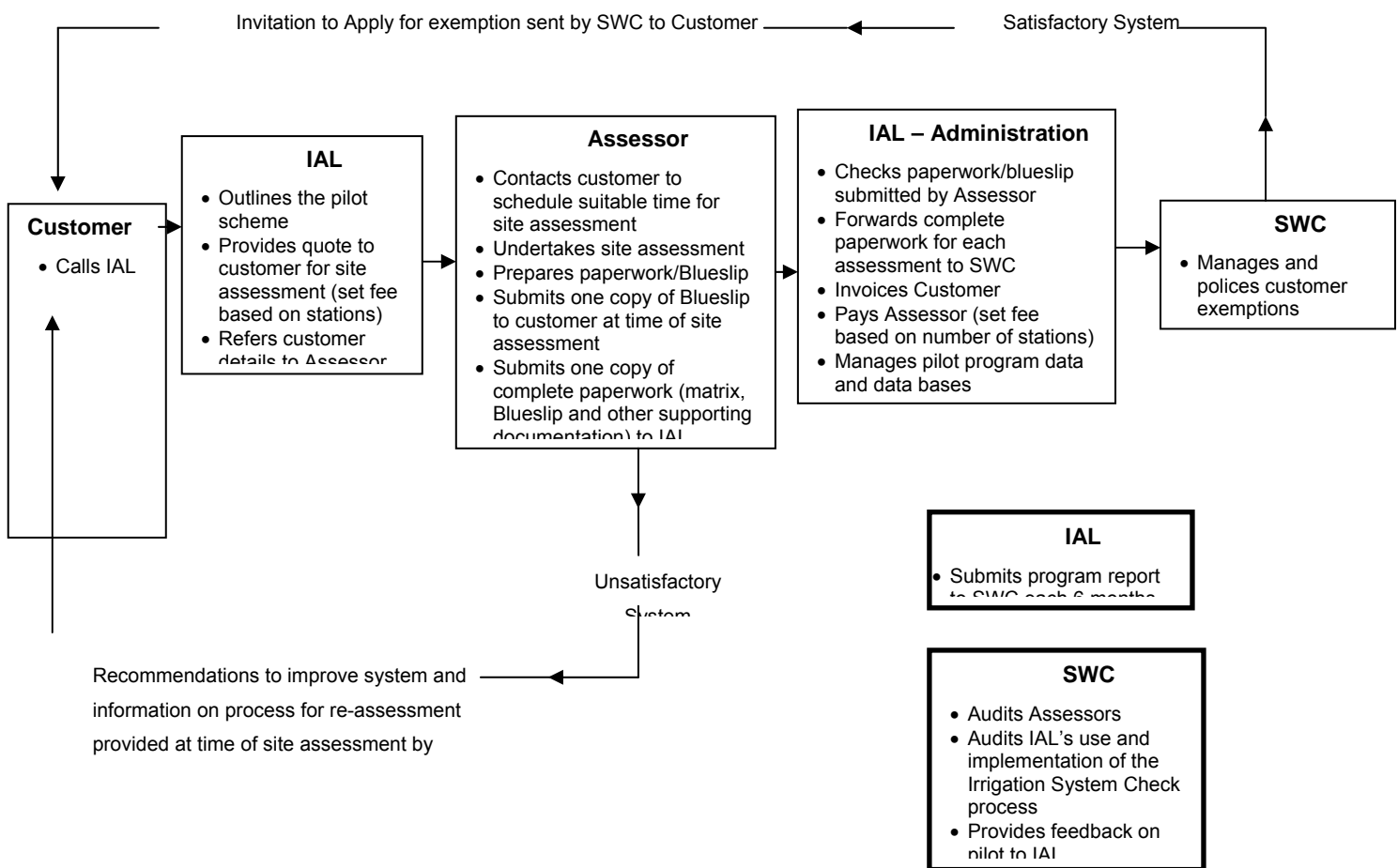
- availability to the pilot scheme;
- professionalism in conducting site assessments under the pilot scheme;
- use of the Irrigation System Check processes;
- maintaining records/paperwork in a legible form, and providing this paperwork to IAL;
- meeting set timeframes for customer service and interactions with IAL;
- maintaining IAL pre-requisites to be an Assessor;
- maintenance of appropriate insurances and levels of insurance;
- to assume legal responsibilities and liabilities for actions/advice provided on site and for any claims made by the customer in relation to the Assessors activities and advice provided during the site assessment.

ATTACHMENT L CONT'D

4. Administrative Process

The pilot will involve four types of stakeholders, namely the customer, Irrigation Australia Limited (IAL), the Irrigation System Check Assessor and Sydney Water Corporation (SWC). The relationship between these stakeholders, and the process for management of each site assessment, is shown in Figure 1 below.

Figure 1: Proposed Administrative Process



ATTACHMENT L CONT'D

4.1 Invoicing and Financial Risk of Non-Payment

An important element in the proposed administrative process is that IAL will resource the invoicing of customers **and IAL will assume the financial risk for non-payment of customer invoices**. IAL did consider either seeking SWC assistance to manage this financial risk through its normal billing processes or requiring up-front full payment from the customer prior to site assessment. However, in the interests of:

- demonstrating to SWC and Government the irrigation industry commitment and capacity to manage this pilot;
- generating trust with the customer base; and
- simplification of the process;

IAL has agreed to assume this financial risk. This is a substantial contribution by IAL to this pilot program and to its members.

4.2 Zones

IAL will divide the Sydney Water area of operation into zones so as to minimise the Assessor travel times and thereby reduce the site assessment costs to the customer, which in turn increases the marketability and accessibility of the pilot program to the general public.

Assessors will need to nominate preferred zone(s) at the time of applying to IAL to become an Assessor. Assessors will then be included in a rolling list of Assessors operating in each zone.

It is anticipated that SWC area of operation will be divided into approximately five nominal zones roughly equating to north, south, west and east Metro zones, and an Illawarra zone. The boundaries of the zones will be based on Local Government areas. No zone boundaries have been determined by IAL at this stage.

Site assessments will be allocated from a rolling list of all Assessors operating within each zone.

4.3 Batching of Customer Referrals to Assessors

IAL will refer customer details to Assessors on a rolling list of available Assessors within the relevant zone. To further minimise site assessment costs and travel times and maximise potential Assessor cost efficiencies, IAL will refer 4 consecutive customers to the next Assessor on each zone list. This "batching" will maximise the potential for the Assessors to schedule the batch of site assessments in the most cost-efficient manner. Four site assessments is considered a reasonable batch, as it equates to approximately one day of work for the Assessor.

Notwithstanding this, IAL has no control over the timing of the customer calls. So, in the interests of customer satisfaction and overall professionalism of the pilot program, Assessors will need to have undertaken the site assessment within a maximum of 3 weeks of referral of customer details by IAL. i.e. IAL will seek to operate the scheme as far as reasonable to maximise the efficiency of the scheme for Assessors, but ultimately will not compromise customer satisfaction. See limits on Process Time in Section 4.4 below.

Note, that to ensure customer waiting times are minimised, Assessors will also need to indicate to IAL within one working day whether it accepts a site assessment referral. Should an Assessor decline a referral then the batching sequence to this Assessor will cease and this Assessor will go to the end of the rolling list for the zone. The next Assessor on the rolling list for that zone will be offered the next batch of customer referrals.

ATTACHMENT L CONT'D

4.4 Limits on Process Times

The professionalism and level of community service offered by this program will be a key factor in any decision by Sydney Water and Government about progressing beyond a pilot stage of this program. Professionalism and community service will best be demonstrated in maintaining minimum standards for implementation of the pilot, including integrity of the site assessment process and timeliness of service to the customer.

The integrity of the site assessment process will be maintained through training of Assessors and Sydney Water's independent Assessor audit process.

Timeliness of customer service will be managed through Assessors signing an Agreement with IAL to become an Assessor, where the Agreement (amongst other things) stipulates the maximum time limits on each of the Administrative processes for which IAL or the Assessor has control. These processes and timeframes are:

- IAL referral of customer details to Assessor: within 3 working days of Customer call;
- Assess accepts referral: within one working day of IAL referral to Assessor;
- Assessor contacts customer to arrange site assessment: within 2 working days of IAL referral to Assessor;
- Assessor undertakes site assessment: within 3 calendar weeks of IAL referral to Assessor;
- Assessor submits completed paperwork/BlueSlip to IAL: within 3 working days of site assessment;
- IAL sends complete site assessment paperwork to Sydney Water: within 3 working days of receipt of complete paperwork.

Provided complete paperwork is submitted by the Assessor to IAL and the assessment indicates the irrigation system meets satisfactory rating levels, then the maximum timeframe:

- for the whole process will not exceed approximately 5 calendar weeks – which compares with many public sector guidelines for agency response to written matters within 6 weeks;
- from the time of site assessment to referral of paperwork to Sydney Water will not exceed 6 working days.

Importantly:

- the timeframes given above are maximum timeframes, and it is expected that in most cases the timeframes will be substantially less; and
- the process and maximum timeframes will be stated by IAL to the customer at the outset.

ATTACHMENT L CONT'D

4.5 Standard Forms

Standard forms will be developed by Sydney Water and IAL for Assessors to fill out in relation to each site assessment. The forms have not yet been developed, but it is expected there will be:

- i) a Customer Agreement to be signed by the customer prior to the commencement of the site assessment to demonstrate an understanding of the service being provided, and to enable Assessor access to the property;
- ii) a standard Irrigation System Check matrix form to enable recording of system details and calculation of the star rating level of the irrigation system at each site;
- iii) a Blue Slip that will be similar to a motor vehicle pink slip – with summary of the findings of the Irrigation System Check site assessment including:
 - a. an unequivocal statement about whether or not the irrigation system meets minimum rating levels to be eligible for an exemption from water restrictions; and
 - b. in the event the system does not meet minimum standards, some brief recommendations for improving the system to meet the minimum rating level for exemption
- iv) a form for brief statements of any abnormal methodology or approach used by the Assessor to measure any Irrigation System Check parameter eg uneven distribution accepted because of nature of the garden space etc.

The standard forms will need to be used by Assessors, and all records will need to be maintained in a legible manner and forwarded to IAL within 3 working days of the site assessment being undertaken.

The customer will be provided only with the Blueslip and the signed Customer Agreement.

5. Fee Schedule and Assessor Payments

IAL has developed a Fee Schedule at Table 1 which is largely based on a recovery cost model. The component costs of each Fee Type are discussed in more detail below.

Table 1: Proposed Site Assessment Fee Schedule and Allocation of Fees

Fee Type	Total Cost to Customer	Allocation to Assessor/IAL	
		Assessor	IAL
Base Fee (0 to 6 stations)	\$194*	\$122.50	\$71.50
Follow Up Site Assessment (0 to 6 stations)	\$150**	\$78.50	\$71.50
Default (No Show) Fee	\$95	\$45	\$50

*an additional \$17.50 fee will be payable for each station above the base 6 stations – with this fee allocated to the Assessor.

** an additional \$8.75 fee will be payable for each station above the base 6 stations – with this fee allocated to the Assessor.

ATTACHMENT L CONT'D

Base Fee

Potential Assessors at the 26 May 2009 meeting advised that a site assessment for 0-6 stations would take approximately 1.25 hours, including completion of paperwork, with an additional 15 minutes for each additional station.

A base hourly rate of \$70 per hour has been used to calculate the Assessor components of this fee structure. This hourly Assessor rate has been selected to maintain the overall marketability of the pilot program as well as enable reasonable cost recovery for Assessors. It should be noted that:

- the Assessor has reduced business costs and financial risk because of IAL's willingness to assume the role of invoicing and risk of non-payment of those invoices;
- there are broader benefits that may be generated for the irrigation industry through the successful implementation of the pilot program, including in some cases new design or supply of equipment and installation or repair services; and ultimately
- participation as an Assessor is purely voluntary.

The base Assessor site assessment component (0 to 6 stations) therefore equates to \$87.50, with an additional \$17.50 per station for each station above the first 6 stations.

The Assessor travel time component will be minimised by the use of zones as specified in section 2.2., and also by referral of "batches" or consecutive customers to Assessors as specified in section 2.3. The travel time is therefore assumed at 0.5 hours per site assessment. Travel time therefore equates to a cost of \$35 per assessment.

The aggregate base fee for the Assessor is therefore \$122.50 (comprised of \$87.50 site assessment and \$35 travel time), with an additional fee of \$17.50 per station also allocated to the Assessor.

IAL Administration and Business Costs

IAL administration and business costs includes time taken to administer each assessment including call centre, invoicing and follow up, payment of assessors, management of paperwork to Sydney Water, maintaining overall records of the pilot program and reporting to Sydney Water, plus costs to manage the financial liability associated with non-payment of invoices. The recovery cost for these IAL services has been calculated at \$71.50 per site assessment.

Note that the management of financial liability is a large proportion of these IAL costs, but is critical to a small, not-for-profit organisation such as IAL, and is important for managing the risks to the broader IAL membership across the country.

Minimum "No Show" Fee

The customer will need to be in attendance at the time of the site assessment, and will need to sign a standard form enabling access to the property by the Assessor. IAL will inform the customer during the initial customer call of the need to be in attendance at the time of the site assessment.

IAL will invoice a "no show" fee to the customer in the event that customer is not available at the time scheduled and agreed between the Assessor and the customer for the site assessment.

The "no show" fee will be \$95. The Assessor will receive \$45 of this fee, which is equivalent to the 0.5 hours travel time for the Assessor plus \$10 for the nominal time for arranging the site assessment and completing "no show" audit trail requirements for IAL. The remainder of this fee will cover IAL administration time, and serve as a deterrent for "no show". This fee will be explained to the customer by IAL during the initial customer call to IAL.

Note that the payment of "no show" fees to Assessors will be subject to rules which will enable IAL to confirm "no shows" directly with the customer and to generate an audit trail on "no shows".

ATTACHMENT L CONT'D

Note also that it is highly likely that “no show” will also equate to a high proportion of non-payments of invoice, with this financial risk falling to IAL.

Follow-Up Site Assessment Fee

The follow up site assessment fee (for systems that did not meet a specified minimum rating level on the first site assessment) will be set at 50% of the Assessor assessment costs for the first site assessment (because there is less assessment to be done), plus Assessor travel time of 0.5 hours, plus the IAL administration fee which does not change irrespective of whether this is a second assessment. The follow-up site assessment fee will therefore be \$150 for 0 to 6 stations, plus \$8.75 for each additional station.

6. Marketing

Marketing details are still being arranged. However, it is expected that at a minimum:

- Sydney Water will do a direct mail out to its Love Your Garden customers;
- both Sydney Water and IAL will include information and guidance about the program on their websites; and
- IAL will make press releases about the program.

It is really important that the public information about this program is accurate and consistent. To assist Assessors and retailers in this regard, IAL will also work with Sydney Water to prepare a common flyer which will be made available to anyone who wishes to use it, with room available on the flyer for individual company logos.

Other marketing opportunities will also be examined.

Attachment M
Sydney Water Letter Offering to Continue Working with IAL
Following Lifting of Water Restrictions

WATER

30 July 2009

Tim Gilbert
Irrigation Australia Limited
Industry Development Officer
PO Box 1804,
Hornsby NSW 1635

Dear Tim

Thank you for meeting with Tony Robinson and myself on the 30 May 2009 to discuss the way forward working with Sydney Water to improve irrigation efficiency in light of the introduction of Water Wise rules.

As you are aware Sydney Water have been working closely with the IAL to develop the 'System Check' pilot program with the aim to provide exemptions for efficient spray irrigation systems to be used during water restrictions. However the lifting of restrictions has taken away the customer incentive to participate in the program as it was initially proposed and a new incentive needs to be sourced for the pilot to proceed.

At our meeting in May we discussed Sydney Water's goal is to drought proof our area of operation to avoid the need for future water restrictions. In aiming to achieve this we have made substantial investment in water supply infrastructure and will continue to deliver and develop water efficiency programs where they are cost competitive against supply options and where they fill gaps in existing initiatives, for example; regulatory frameworks such as BASIX, WELS, WES and Water Wise Rules).

At the meeting you indicated that the IAL are in favour of the lifting of restrictions but considers there is more work that can and should be done to sustain outdoor water savings in the longer term. The IAL are motivated to work with Sydney Water to participate in a pilot program such as System Check or similar to achieve outdoor water savings that could either be:

- i) Implemented as a permanent program now to minimise the potential for the reintroduction of restrictions in the future, or
- ii) Could be re-introduced in lieu of restrictions if the need arises in the future – which would enable the industry and the community to avoid the substantial costs of water restrictions.

ATTACHMENT N

IAL LETTER ON DRAFT SYDNEY METROPOLITAN WATER PLAN

28 June 2010

Draft GMR WSP
NSW Office of Water
PO Box 2213
DANGAR NSW 2309

Dear Sir/Madam

Re: Draft Greater Metropolitan Region Water Sharing Plans

Thank you for the opportunity to comment on the Draft Greater Metropolitan Region Water Sharing Plans (WSPs) for unregulated rivers and groundwater.

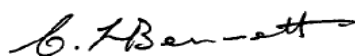
Irrigation Australia Ltd (IAL) is a national, not-for-profit organisation representing the whole of Australia's irrigation industry, including both rural and urban irrigation. IAL has a broad membership base such as major water providers, corporations that supply irrigation equipment and organisations, consultancies and individuals who design, install, maintain and use irrigation systems, and educational and research institutions. IAL seeks to lead the development of a professional irrigation industry chain that embraces best practice to underpin healthy, sustainable urban and rural communities and lifestyles. IAL's primary services are the provision of technical irrigation training, certification and information services. We are not political lobbyists, but advocates of technical information on best practice irrigation.

Sydney's water restrictions between 2003 and 2009 came at significant cost to the community and industry alike, with the Productivity Commission citing estimated costs from \$150 p.a per household in Sydney. The urban irrigation industry consequently needs greater transparency in the assumptions related to water reliability that underpin the WSPs so that it can better understand the real need for restrictions, the processes and triggers for their implementation and to enable better information upon which to make strategic business planning decisions to cope and manage through restriction periods. Rural irrigators also need information about supply reliability to enable them to make informed business decisions about crop planning, water trading and long term business investments.

The National Water Initiative guidelines for water plans and planning processes suggest that water plans include descriptions of the estimated reliability of water access entitlements. However, IAL is not able to find information about reliability in the draft WSPs and background documents, or at least information that is in a form that can be readily used by the irrigation industry to assist with business planning. IAL therefore requests that the background information on the final WSPs include a statement of all assumptions that have been used in modelling to support the WSP, including those regarding the expected type, frequency and duration of urban water restrictions and the reliability of supply that would be expected for all other water access entitlement holders.

Should you wish to discuss this submission please feel free to contact Tim Gilbert on (02) 9476 0142.

Yours sincerely



CHRIS BENNETT
Chief Executive Officer

ATTACHMENT O
EMAIL FROM IAL TO NSW DECCW CONFIRMING
INTEGRATION OF SYDNEY WATER BEST PRACTICE
GUIDELINE AND SUSTAINABILITY FUNDING

From: Tim Gilbert
Sent: Tuesday, 15 June 2010 4:41 PM
To: 'Luke Taylor'
Cc: Andrea Pape
Subject: RE: Central Coast Water Savings Fund Round 4

Luke

Thanks for taking the time to meet with me last week regarding the CC Water Savings Fund, and also the Waste and Sustainability Improvement Payment program (WaSIPP).

As discussed, IAL has been working with Sydney Water to assist it to prepare a draft *Best Practice Guidelines (BPG): Improving the Sustainability and Playability of Open Space Turf Areas* in Sydney. The BPG's include an irrigation chapter which contain some proposed benchmarks for open space irrigation performance in Sydney (expressed in terms of Distribution Uniformity, leakage and water reaching target area).

As discussed, while it would be "neat" to be able to use volumetric water use benchmarks, this is not practical for multiple sites across the area covered by WaSIPP as the water volume required to manage open space is dependent on a range of factors such as climate (rainfall, evaporation etc which is quite variable across the area covered by WaSIPP), soil and turf types at each irrigation area, and of course the desired quality of playing surface (eg SCG vs a local amateur sporting field).

As you are aware, Local Government is a major water user through its public open space management functions, and there is great scope to substantially increase water use efficiency of local government through co-ordinated action. For example, we know from open space irrigation audits undertaken across Australia that the average DU is about 55%, compared to best practice which is 75%, and that if DU were improved from 55% average to say a modest 70% DU then this represents a 21.4% water saving. Given this, IAL would like to see a link between the benchmarks to be advocated in Sydney Water's BPG and the WaSIPP, through WaSIPP specifying irrigation standards to guide and encourage local government to progress toward water efficient management of irrigated public open spaces. These WaSIPP irrigation standards could be something like:

By 30 June 2011, SMA and ERA councils must have:

1. an irrigation improvement plan in place to meet irrigation system benchmarks prescribed in Sydney Waters BPGs by (say) 30 June 2014, where the plan is validated by a certified irrigation professional as being practically feasible.
2. an irrigation operation and maintenance plan which includes:
 - a. an irrigation schedule determined by a certified irrigation professional;
 - b. maintenance schedule to ensure irrigation system is maintained in a proper and efficient condition; and
 - c. schedules for bi-annual auditing and reporting of irrigation performance against the BPG benchmarks.
3. At least one staff member that holds relevant irrigation qualifications or is a current IAL Certified Irrigation Professional, to oversight the implementation of the irrigation improvement plan and operation and maintenance plans.

I would be happy to discuss this further with you upon your return, and in conjunction with Sydney Water (as the owners of the BPG) if that would help.

Regards
Tim Gilbert

ATTACHMENT O CONT'D

From: Tim Gilbert

To: "Luke Taylor"

Subject: WASIP

Date: Thursday, 12 August 2010 2:10:00 PM

Luke

Thanks for taking my call. My understanding from our conversation is that you have agreed to amend the 2011/12 WaSIP Guideline to encourage Councils to adopt the Sydney Water Best practice Guideline benchmarks through the following:

1. to be eligible to apply for funding Councils are required to have a Water Savings initiative relating to their top 10 water use sites;
2. Where any of these top 10 sites are irrigated public open space, the WaSIP Guidelines would recommend that Councils meet or approach the benchmarks set out in Sydney Water's Best Practice Guideline or have plans in place to meet these benchmarks, to have an operation and maintenance plan and irrigation schedule and to undertake regular system auditing.

I am very pleased and grateful that you have agreed to include irrigation performance expectations – there is much water savings to be made from improved irrigation practice at public open space, and a more structured approach such as you are adopting is sensible in driving these water savings.

As discussed:

1. should the Sydney Water Best Practice Guidelines not be published by 8 September, then you could instead reference *Urban Irrigation: Best Management Practices. May 2006* which was jointly published by Water Services Association of Australia and Irrigation Association of Australia (now IAL) which says many of the things included in Sydney Water's document anyway.
2. I would also like to see the precise wording of the irrigation parts of the revised WaSIP guideline when appropriate.

Anyhow, much appreciated, and as I say, very pleased to see the adoption of this sensible way forward.

regards

Tim Gilbert

Industry Development Manager

Irrigation Australia Ltd

PO Box 1804, HORNSBY NSW 1635

T: (02) 9476 0142 | M: 0432 339 145 | F: (02) 9476 0792

**ATTACHMENT P
IAL LETTER TO SA WATER CEO CONFIRMING
OUTCOMES FROM
MEETING OF 3 NOVEMBER 2008**



Ms Anne Howe
Chief Executive Officer
SA Water Corporation
GPO Box 1751
Adelaide SA 5001

4 November 2008

Dear Anne

Re: Meeting with Irrigation Australia Ltd

Thank you for taking the time to meet with me and Irrigation Australia Ltd (IAL) representatives on 3 November 2008.

Our understanding from this meeting is that SA Water:

- agrees there is a need to examine options to drive and maximise outdoor urban water use efficiency;
- will review the IAL discussion paper tabled at the meeting; and
- will respond to IAL with a proposed process and timeframe for working with relevant industry organisations to examine and select a preferred option for longer term alternatives to outdoor water restrictions.

As discussed, IAL is willing and able to work with SA Water to address any implementation issues that may be raised during the examination of options.

We are very grateful for your willingness to meet with us. We look forward to your earliest response to this matter.

Please send your response to David Chester PO Box 75 West Richmond SA 5033.

Yours sincerely

A handwritten signature in black ink, appearing to read "Max Curnow".

MAX CURNOW
South Australian Regional Chairperson
Irrigation Australia Limited

Irrigation Australia Limited
ABN 41 002 567 633
PO Box 1804, Hornsby
NSW 1635 Australia
P 02 9476 0142
F 02 9476 0792
E info@irrigation.org.au
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ATTACHMENT Q
IAL SUBMISSION TO THE VICTORIAN PARLIAMENTARY
INQUIRY INTO
MELBOURNE'S FUTURE WATER SUPPLY

The Hon John Pandazopoulos MP
Chair
Environment and Natural Resources Committee
Parliament of Victoria
Parliament House
Spring Street
EAST MELBOURNE VIC 3002

27 August 2008

Dear Mr Pandazopoulos

Re: Inquiry into Melbourne's Future Water Supply

Thank you for the invitation to Irrigation Australia Limited (IAL) to make a submission to the inquiry into Melbourne's future water supply.

IAL is a national organisation representing the whole of Australia's irrigation industry, including both rural and urban irrigation. IAL has a broad membership base such as major water providers, corporations that supply irrigation equipment and organisations, consultancies and individuals who design, install, maintain and use irrigation systems, and educational and research institutions. We are therefore well placed, and have a significant interest, to make a submission to this inquiry.

IAL supports the development of a long term, or more permanent framework for water management that provides greater certainty to the community and to industry in both rural and urban contexts. In particular IAL is supportive of a permanent policy and regulatory frameworks that enable the extensive social benefits underpinned by food and fibre production and outdoor urban water use to be maintained.

Our submission assumes that rural irrigators will benefit from the proposed arrangements for the sharing of water savings from the Food Bowl Modernisation Project, and therefore primarily focuses on urban outdoor water use where there remains significant water savings potential from improved policy settings. Our submission is at Attachment A.

Should you wish to discuss this submission or to arrange for a time to meet with IAL representatives, please contact Des Horton on 03 9313 8508 or Tim Gilbert from IAL on (02) 9476 0142.

Yours sincerely



Des Horton
Irrigation Australia Limited
Melbourne and Southern Victoria Chairperson

ATTACHMENT Q CONT'D

INQUIRY INTO MELBOURNE'S FUTURE WATER SUPPLY

SUBMISSION FROM IRRIGATION AUSTRALIA LIMITED

AUGUST 2008

Important Points

Urban green space should be maintained at a minimum acceptable standard to preserve the significant social benefits that they generate. The water needed to preserve these benefits should not be considered as discretionary except in the extreme circumstances where basic human needs are at risk.

Water restrictions presume outdoor water use is discretionary, and ignore both the significant social benefits derived from urban green space and significant cost to the community. While temporary water restrictions may be a useful and acceptable tool for infrequent, short duration use, the long term application of water restrictions has significant costs for the community.

Any permanent policy change should be evidence based, take into account community perspectives including those of industry, and importantly be based on an objective benefit cost analysis to ensure the optimal net social benefit from decisions.

Water efficient technology, products and practice can achieve significant additional water savings. The additional water savings could be in the order of 30% of outdoor water use. The challenge is to set policy frameworks that encourage investment in technology and improved practice to meet a minimum benchmark of performance, and to design systems to check and enforce the maintenance of minimum benchmarks. Several policy options are outlined in this submission.

Introduction

IAL welcomes the inquiry into Melbourne's future water supply as an opportunity to present evidence based approaches to water policy, especially in relation to urban water restrictions.

IAL is generally supportive of long term water supply strategies that balance water supply and demand, and where demand is managed by policy settings that drive the maximum water use efficiencies.

IAL notes there are five elements to the Victorian Government's long term water plan strategies for securing future water supply set out in the document *Our Water, Our Future*. These elements connect rural water and Melbourne's water supply, and so the strategy has implications for both rural and urban IAL members.

The main contention in our submission is that:

- rural irrigators not be adversely affected by the connection of Melbourne's water supply to traditional rural systems and that water remains in rural catchments in times of rural water scarcity; and
- increased structure be given to a permanent water conservation framework for urban irrigation to support community assets and social benefits derived from outdoor urban water use.

IAL also notes the Terms of Reference for the inquiry, and supports the diversification of water sources for both the rural and urban sectors where cost effective options are available. However, our main focus is on the first of the terms of reference, namely *further water savings that can be achieved by increased conservation and efficiency efforts*.

ATTACHMENT Q CONT'D

IAL Position on Rural Irrigators

IAL is supportive of a long term strategy that provides certainty without its members being worse off as a result. In this context we note that the proposed arrangement for the Modernising Victoria's Food Bowl element is to equally share the estimated 225 gigalitre water savings between irrigators, Melbourne and the environment. IAL is supportive of the Food Bowl element, and of the proposed linking of the Goulburn River to Melbourne's water supply provided that irrespective of actual water savings from the project that:

- i) no individual rural irrigator is worse off; and
- ii) the proposed sharing arrangement is maintained over time, except in times of rural water scarcity when the water savings should remain in the catchment from which it is derived to preserve rural productivity and environmental values of the catchment.

The remainder of this submission deals with urban water matters, presuming that the above conditions for rural irrigators will be met.

IAL Position on Urban Irrigation

Urban Context

The value of green open space

The lifestyle horticulture sector is an enormous industry across Australia employing an estimated 110,000 people and generating at least \$9.39billion per annum in economic activity²⁹. The urban irrigation industry is a significant component of this sector with over 2,500 businesses employing over 13,700 people and turning over more than \$3billion each year³⁰. In Victoria the urban irrigation industry is comprised of 500 businesses with 3,500 employees with \$600million of annual economic activity².

The lifestyle horticultural sector also contributes to, and supports broader social benefits for the urban community, including environmental, health and economic benefits. For example, the benefits of green open space were recently valued in two Sydney local government areas as having an annual net social benefit of \$1.2million and \$1.4million for the Ashfield and Mosman local government areas respectively, from environmental services, increased capital property values, and reduced health issues such as obesity and depression³¹. This research is confirmed by the Co-operative Research Centre for Irrigation Futures (CRCIF) Technical Report No04/08³² which presented a catalogue of research on the value of green open space to show, inter alia:

- environmental benefits such as:
 - cooling effects on buildings to reduce energy consumption by between 7 and 47%;
 - improving urban stormwater management by reducing peak flows and runoff pollutant loads;
 - maintaining soil structure and preventing erosion; and
 - maintaining biodiversity in urban areas.
- social benefits such as:
 - preventative health care including stress reduction, depression management and avoidance of obesity;
 - childhood development in parks and open space;
 - commons for social interaction and cohesion; and
 - benefits associated with organised sport.
- economic benefits such as increased property values and tax revenue.

²⁹ *Smarter Water Conservation: The Value of the Lifestyle Horticulture Sector (LHS) in Australia*, Irrigation Association of Australia campaign 2007.

³⁰ *The value of urban irrigation in Australia* – a pamphlet published by the Irrigation of Australia 2007.

³¹ J. Morison, L. Mathieson, 2008 EconSearch Pty Ltd 2008, Scoping Study: Economic Value of Irrigation in Urban Green Open Space

³² CRCIF Technical Report No.04/08. *Irrigation of Urban Green Spaces: a Review of the Environmental, Social and Economic benefits*, April 2008

ATTACHMENT Q CONT'D

Clearly, green space in our urban environments provides important and valuable social benefits, and these benefits are fundamentally supported by irrigation. The urban irrigation industry is therefore an important sector for consideration in increasing conservation and efficiency efforts. The social benefits of urban green space, and the effects of new policy settings on the irrigation sector needed to support increased efficiency, should therefore be seriously considered in the benefit cost analysis of any permanent policy framework for urban water conservation to be considered by the Victorian Government.

Urban green space should be maintained at a minimum acceptable standard to preserve the significant social benefits that they generate. The water needed to preserve these benefits should not be considered as discretionary except in the extreme circumstances where basic human needs are at risk.

The impacts of drought

Most governments across Australia responded to the onset of drought in the early 2000's with the introduction of water restrictions on outdoor water use, including in Melbourne. While water restrictions have generally reduced water consumption, including by 22% in Melbourne since the introduction of restrictions in 2002, they have generally come at significant community cost, do not secure sustainable savings and are not designed for long term measures to achieve a supply demand balance. These matters are discussed below.

The cost of restrictions

The implied costs of long term water restrictions in Australia have been estimated in the order of \$1.6 – 6.2 billion each year. Urban green spaces are estimated to account for 27% of these costs⁴. The magnitude of this estimate is confirmed by the Productivity Commission³³ which listed estimates of the cost of water restrictions in various Australian cities as:

- \$150 per annum per household in Sydney, as the additional costs to using higher water prices to achieve behavioural change;
 - between \$347 and \$870 per annum per household in Perth if sprinklers were to be banned, using opportunity cost of time based on mean wage; and
 - a willingness to pay up to \$268 per household per annum in Canberra to avoid Level 5 water restrictions.
- While there is no equivalent information for Melbourne, the costs of water restrictions can be assumed to be within the same magnitude as other Australian capital cities.

Water restrictions presume outdoor water use is discretionary, and ignore both the significant social benefits derived from urban green space and significant cost to the community. While temporary water restrictions may be a useful and acceptable tool for infrequent, short duration use, the long term application of water restrictions has significant costs for the community.

The Case for a Permanent Water Conservation Framework

Across Australia, we are no longer facing short term drought. We are clearly facing a different, significant and longer term urban water supply-demand imbalance brought about by a combination and overlap of:

- climate change rather than just drought, with the Garnaut Climate Change review: Draft Report (Ch 7) suggesting that Victorian water supply infrastructure will be subjected to a high magnitude of impact by 2030 with or without strong global mitigation measures³⁴;
- significant population growth that has eroded supply security; and
- a failure over many decades to adequately invest in either new water supplies or to effect significant and lasting demand management measures.

³³ Productivity Commission, 2008. Productivity Commission Research Paper: Towards Urban Water Reform: A Discussion Paper.

³⁴ <http://www.garnautreview.org.au>

ATTACHMENT Q CONT'D

A survey of 1400 Melbourne customers co-ordinated by City West Water in 2002 for Melbourne's Strategy Directions Report shows that while 73% of respondents supported water restrictions as being socially responsible, that there was overwhelming support for restrictions once every ten years (on average) and that 73% of respondents considered that restrictions should be for six months at a time³⁵. Based on this research, the Melbourne community clearly perceives water restrictions as a useful temporary measure, but not a long term response.

Given these changed circumstances, the costs of existing water restrictions and the prevailing community view outlined above, we must clearly respond with different policy approaches than we have in the past. Water restrictions, which have traditionally served well as a short term emergency response are no longer the policy answer to longer term challenges we now face.

Water use efficiency should be an integral and permanent part of any long term demand-supply balance to:

- maximise the economic efficiency of any investment in existing and new supply infrastructure;
- reduce the probability and frequency at which short term restrictions are needed, and thereby avoid the social costs of restrictions previously outlined;
- deliver low cost water savings as an alternative to large scale infrastructure, especially where governments actively harness industry expertise in the framework for outdoor water conservation; and
- preserve water savings in the longer term.

Any permanent policy change should be evidence based, take into account community perspectives including those of industry, and importantly be based on an objective benefit cost analysis to ensure the optimal net social benefit from decisions.

Potential Water Savings from Efficient Technology and Practice

There is various data to substantiate that irrigation technology can be used to achieve water use efficiency and water savings, and that the irrigation type or method is very important to the magnitude of water savings. Table 4.1 shows Sydney Water estimates of garden water use rates from different watering methods (cited in Sydney Morning Herald, 16 August 2004). The data in Table 4.1 were confirmed by the System Check project undertaken by the Cooperative Research Centre for Irrigation Futures³⁶, and funded by the former Irrigation Association of Australia (IAA) and Sydney Water, which found that at 50 homes across Sydney garden watering using sprinkler systems uses about half that used for hand watering, and that for lawn watering an automated fixed sprinkler system uses about 80% of that used by hand watering.

Table 4.1. Water use by irrigation type

Watering method	Weekly use (L)	Summer Avge (kL)	Reduction (kL/summer)	Percent reduction
By hand	2500	33	Standard	Standard
Tap timer	2000	26	7	20
Controlled irrigation system	1250	16	16	50
Uncontrolled irrigation system	2250	29	3	10

³⁵ <http://thesource.melbournewater.com.au/content/archive/june2002/study.asp>

³⁶ Cooperative Research Centre for Irrigation Futures. 2006. *Technical Report No.01/06 The Efficiency and Audit of Residential Systems in the Sydney Metropolitan Area.*

ATTACHMENT Q CONT'D

In addition, an irrigation system that is well designed, installed, operated and maintained to meet benchmark efficiencies can save even more water. Data collected during audits completed as part of the former IAA's Certified Landscape Irrigation Auditing program shows that open space irrigation systems across Australia are not properly maintained and operate at an average efficiency of about 55% compared to a benchmark uniformity efficiency of 75% (lowest quarter uniformity) specified in the IAA's and Water Service Association of Australia publication on Urban Irrigation Best Management Practices³⁷. The rectification of these efficiencies could lead to an additional water saving from open space irrigation of at least 30%.

Water use efficiency and consequent water savings are therefore a function not only of efficient products and technology, but must be combined with human knowledge and correct behaviour in the use and maintenance of that equipment and product. A useful and simple analogy is that AAA rated shower heads will save water provided the operator also knows not to remain in the shower for a protracted duration and to turn the tap fully off when leaving the shower recess. So it is for outdoor water use, such as garden and lawn watering, where there is an incredible array of irrigation technology (controllers, rain sensors, soil moisture probes, efficient sprinkler heads, drip systems etc) and garden products (water tolerant plants, soil wetting agents etc) which need to be coupled with a knowledge of how to use the products to maximise the water use efficiency and water savings on offer.

Clearly, there are additional water savings to be made through policy settings that:

- i) encourage investment in water use efficiency, such as water efficient gardening products and watering technologies;
- ii) provide and support an adequate knowledge base for the community and open space managers; and
- iii) ensure benchmarks for design, installation and operation of watering systems are maintained over time.

Water efficient technology, products and practice can achieve significant additional water savings. The additional water savings could be in the order of 30% of outdoor water use. The challenge is to set policy frameworks that encourage investment in technology and improved practice to meet a minimum benchmark of performance, and to design systems to check and enforce the maintenance of minimum benchmarks.

Components of a Permanent Urban Outdoor Water Conservation Framework

Policy frameworks should be designed to change or improve behaviour and practice in our community. While water restrictions have reduced water consumption in most urban centres the water savings will not be sustained once restrictions are removed because the community has not increased its knowledge of good water practice. Sustainable improvements in outdoor water use behaviour will be achieved by greater community knowledge and understanding about how to achieve efficient water use combined with their investment and use of water efficient products and technologies.

However, because different people are motivated to change behaviour for different reasons, a permanent water conservation framework needs to have a range of drivers including market settings to encourage investment in efficiency, education to empower people to use water more efficiently and a base regulatory framework to prohibit wanton water wastage. There are a broad range of tools available in these categories including:

- Market Tools:
 - Pricing - to reflect scarcity and/or inefficient use;
 - Rebates - where rebated products are recognised by credible water efficiency recognition schemes such as the Smart Approved Watermark (SAWM) scheme;

³⁷ Irrigation Association of Australia Ltd. 2006. *Urban Irrigation Best Management Practices*.

ATTACHMENT Q CONT'D

- Education:
 - Targets - to provide a guide or benchmark to the community and open space managers about reasonable water use levels and where the targets reflect volumes that can be achieved through best practice water use efficiency, including indoor and outdoor water use
 - Community Education – to empower the community with real knowledge about good watering practice, or where to obtain expert advice, such as IAL's community education program at Sydney nurseries, and the web based tool currently being developed by URS under Commonwealth funding to provide tailored watering advice to keep residential landscapes healthy, and provide information on appropriate water conservation strategies for each landscape.
 - Industry Education and Recognition – such as IAL's industry certification program, to support best practice and wise investment decisions in water efficiency.
- Regulation:
 - Prohibition of wasteful practices – and flexibility to recognise efficient practice as a non-discretionary use.
 - Caps or allocations.

Some of these elements are already in place in Melbourne with price increases from 1 July 2008, the introduction of a step pricing mechanism, rebate schemes for measures such as rainwater tanks, greywater systems, garden products and site audits for outdoor water use efficiency, education programs with various guides to saving water at home, and a set of permanent water savings rules. The Victorian Government should be congratulated on these measures. However, IAL is of the view that these measures are quite passive and uncertain in their long term water savings potential.

IAL suggests that the elements need to be used in combination in a more structured manner to actively drive greater outdoor water use efficiency to specified levels of efficiency or total use, and importantly to clarify the relative roles of government, industry and the community in conservation efforts. In particular, the existing water restrictions are counter-productive to the achievement of additional water savings as they prohibit investment in water efficiency and damage an industry that is well placed and competent to assist with increasing water use efficiency.

While there are infinite options for the structure of a permanent outdoor water conservation framework, several conceptual options are briefly outlined below for consideration of the inquiry and to demonstrate how an urban water conservation program could more actively drive additional water savings.

Options for Implementing a Permanent Water Conservation Framework

Combining Market and Regulatory Tools

This option would involve providing and enforcing an allocation of water to each household or business (the regulatory component), with any water use beyond the allocation subject to substantial price disincentives (the market component). The notion of urban allocations would bring urban consumers in closer parity with reforms made in the rural water sector as a consequence of the National Water Initiative.

There are a variety of ways in which this option could work, including a simple approach of forfeiting of unused allocation through to the establishment of a trading scheme.

The primary issues with this option are:

- i) the magnitude of allocation and variables between households and difference between commercial operations. The number of people in each household could be dealt with by either requiring an annual return of the average or normal number of occupants each year, similar to a tax return, or setting the allocation at an assumed high occupancy – subject to supply side implications – with special exemptions made on a case by case basis. Commercial allocations to reflect water use with best practice efficiencies for the activities undertaken on the premises, and assessed by the submission of a water management plan.
- ii) perception of equity, that richer households can simply use additional water beyond the allocation to the extent that they are prepared to pay the higher unit cost of the additional water. However, this is already the case with other commodities such as energy, petrol, health services and even food where richer people have greater access to these resources. Water should therefore not be treated in a different manner – provided the base level of allocation provides sufficient water to enable a reasonable standard of living to all the community.

ATTACHMENT Q CONT'D

The benefits of this approach are:

- governments role is clarified and limited to a regulatory and pricing role, setting and enforcing an allocation;
- industry would provide the efficiency gains by developing and bringing efficient technology to the marketplace and the allocation and pricing framework would drive a new market in education, advice and system maintenance services to sustain water efficiency and savings over time;
- there is increased certainty for supply side investment made by governments, and clear water use benchmarks for community and industry.

Combining Regulatory and Education/Knowledge Tools

This option involves maintaining the existing water restrictions which prohibit all watering methods except a handheld hose, manual drippers and buckets, but where this regulatory framework provides an exemption system for watering systems that are assessed by a recognised expert as:

- i) designed and installed to minimum benchmarks for efficiency and to deliver the right amount of water for that premises;
- ii) demonstrably using less water than would otherwise be permissible under the default water restrictions; and
- iii) where the recognised expert assesses and is satisfied that the home owner/system operator has an adequate understanding of operation and maintenance of the system to maintain minimum benchmark efficiency of the system.

The exemption would be renewed at a set interval by the recognised expert provided he/she remained satisfied that the system continues to be maintained in a proper condition and that the operator maintains a basic knowledge to operate the system efficiently.

There are many credible irrigation competency recognition schemes to support the notion of a "recognised expert", including irrigation qualifications from TAFE and IAL's national industry certification program to recognise expertise in irrigation design, installation, operation, management and efficiency auditing. IAL's certification operates within the national training framework and so is robust and credible.

Indeed, there are many similar industry regulatory systems already successfully in operation. For example:

- the Waterwise program in Perth which provides rebates for irrigation systems installed by accredited Waterwise irrigation installers;
- in NSW a vehicle safety check must be undertaken by a certified mechanic to register your car each year;
- plumbing connections to potable supply in most jurisdictions must be installed by licensed plumbers; and
- you need a Certified Practising Accountant to do certain financial audits.

The benefits of this type of framework are that:

- it can be done at little or no additional cost for Government because the industry is effectively implementing the exemption regime,
- it provides obvious community benefits of water savings and the opportunity to maintain the economic, environmental and health values of green open space,

and importantly

- places a commercial value in water efficiency expertise and therefore encourages an industry that can support government water conservation efforts.

ATTACHMENT Q CONT'D

What does IAL have to offer?

IAL and its members have the information and expertise to assist the Victorian Government to develop, assess and implement options for improved outdoor water conservation frameworks. For example, IAL:

- developed guidance on Urban Irrigation: Best Management Practices in association with the Water Services Association of Australia;
- operates a national industry certification program to recognise expertise in irrigation design, installation, operation, management and efficiency auditing;
- runs a water efficiency community education program in NSW in conjunction with nursery outlets which could be readily extended to Victoria ; and
- has members with expertise and information across all areas of irrigation practice to assist Government in its objective analysis of options..

Future Certainty for Industry and the Community

IAL will expect certainty for its members and the community, irrespective of the demand supply strategy or conservation and efficiency approach that is ultimately adopted by the Victorian Government.

In this regard, IAL recommends that the Victorian Government should publish the level of service that will be achieved by its ultimate supply-demand strategy, which must include specified levels of reliability in the overall water supply system. This would involve:

- the setting of definitions for levels of restrictions (eg Level 1 = 10% reduction in average per capita consumption, Level 2 = 15% reduction in average per capita consumption etc) and in introducing a restriction level, government should consult with industries such as the irrigation sector to identify measures that could best achieve the required demand reduction; and
- the publishing of the trigger supply levels for the introduction of each restriction level, together with the probability, or frequency, with which each level would need to be introduced taking account of supply limitations and plans, anticipated climate change and population dynamics.

At a minimum this would provide valuable information to community and industry about investment and business risks for water use efficiency measures and programs.

Finally, for transparency and the understanding of the community and industry, the rationale for the selection of a particular long term water supply and demand management framework should be published, together with an appraisal of other reasonable options that were considered and the reasons they were not adopted.

ATTACHMENT R

IAL KEY MESSAGES DISCUSSED WITH VICTORIAN DSE

NOVEMBER 2009

Background

- IAL is a national, not-for-profit organisation representing the urban and rural irrigation industries.
- IAL has 145 members and member organisations in Victoria, with 369 individuals in these member organisations.
- Victoria has 500 urban irrigation businesses, employing approximately 3500 people, which supports other substantial industries such as the horticultural and greenkeeping industries.
- IAL made a submission to the Parliamentary Inquiry into Melbourne's Future Water Supply (submission attached)
- IAL and its members have much water efficiency expertise to assist government to respond to Inquiry Recommendations (Ch 3).
- Challenge is to develop policy frameworks that link outdoor water users with this water efficiency expertise.

What We Seek

To assist and work with Government to develop policy and programs to increase outdoor water use efficiency through best practice irrigation – for use in drought exit strategy once supply augmentations come on line, and in the longer term to sustain water savings over time.

We are NOT seeking increased water use. We are seeking increased efficiency of outdoor water use to preserve social benefit derived from urban green space which is dependent on irrigation.

How to Improve Outdoor Urban Water Use Efficiency

There are two important elements to best practice, high efficiency urban irrigation:

1. an operator with knowledge of plant water needs and irrigation system; and
2. a properly designed, installed, maintained and operated irrigation system using modern technology.

Policy settings should be driving these two elements for sustainable urban outdoor water use savings.

Note that irrigation audit, design and installation is a specialist skill combining plant, soil, water and equipment (pipe and pump) knowledge.

Domestic Irrigation

- Much scope for water savings.
- CRC Irrigation Futures 2004/05 Sydney data shows there is a range of irrigation methods and equipment that can SAVE additional water than what is permitted by current water restrictions.
- A summary of the CRC research water use data (kL/100m²/month) is presented below:

Irrigation Type	Lawns		Gardens	
	No Controller	Automated Controller	No Controller	Automated Controller
Hand Watering	2.1	-	5.0	-
Drip	-	-	5.0	-
Portable Sprinkler	2.5	-	1.8	-
Fixed Sprinkler	5.4	1.7	2.3	2.3

- IAL believes additional water savings than is presented above can be achieved if measures are adopted to ensure irrigation systems are properly designed, installed, operated and maintained.

Australian examples of longer term domestic irrigation policy:

- SE Queensland Efficient Irrigation for Water Conservation Guidelines
 - irrigation systems permitted if equipment complies OR system is certified by a Certified Irrigation Professional;
 - combined with Target 200 program to educate community about reasonable total water use
- Sydney – Irrigation SystemCheck
 - combine operator knowledge – irrigation schedule and garden water saving tips; and
 - Irrigation System Check to ensure minimum benchmarks of design, installation and maintenance;
 - Sydney Water sought IAL administration of scheme prior to lifting water restrictions – business case attached.
- WA Waterwise Garden Irrigator program
 - linked rebates to installation by an accredited installer.

ATTACHMENT R CONT'D

Open Space Irrigation

- Average open space irrigation distribution uniformity across Australia is approximately 55%.
- Minimum distribution uniformity should be 75%.
- 26% water saving possible through improving from average to minimum industry standard – see attached water savings from increasing distribution uniformity.

Australian examples of longer term open space irrigation policy:

- Adelaide – IPOS allocation model
- Sydney Water Best Practice Guideline – Open Space Irrigation

What Does IAL and IAL Members have to Offer?

IAL and its members have much to offer:

Certification:

- Robust accountable framework to recognise competency in irrigation
- Competency measured through national training framework
- Renewal required with demonstration of Continuous Professional Development

Certification can be used to link community with recognised, professional outdoor water use efficiency expertise through various government policy and programs:

- rebate schemes (eg WA)
- funding programs (eg WaterSmart Farms in Sydney)
- regulation (eg SE Queensland)
- education programs (eg Sydney project)

Training

- Irrigation Efficiency Course – open space managers:
 - o audit efficiency, schedule irrigation events, trouble shoot irrigation systems
- Retailer training
 - o increase professionalism of advice from retail outlets
- Work with other Registered Training Organisations (RTO)
 - o ensure available training is accessible and meets needs of marketplace.

Information

- Guidelines
 - o Urban Irrigation: Best Management Practices
 - o Guide to Good Garden Watering
- Journal and E-newsletters
- Conferences
- Networks with irrigation professionals

Education

- Community seminar programs in Sydney, Brisbane, Adelaide

Consider These Potential Water Savings

Potential Water Savings

- 60% Melbourne's water use is domestic of which 20% is outdoor water use;
- 25% saving from outdoor water use possible through improved irrigation efficiency
- equates to a potential saving of 3% Melbourne's water use or about 10GL/yr
- this compares to 2.5% water saving achieved through Stage 1 restrictions and approaches the same magnitude of water supply through the Tarago Reservoir water supply project (15GL/yr)

Conclusion

- IAL and members has unbiased, credible expertise to help Government build responses to the Inquiry recommendations;
- Policy responses need to link government needs, community needs and professional, credible water expertise;
- There is huge scope for substantial and sustainable water savings;
- Preserve economic efficiency of public investment in water supply (>\$4billion);
- Create market for water efficiency expertise – create jobs in water efficiency;
 - Little or no cost to government if established to involve urban irrigation industry.

ATTACHMENT S LETTER TO VICTORIAN WATER MINISTER

8 April 2010

The Hon. Tim Holding MP
Minister for Water
Parliament House
GPO Box 4367
MELBOURNE VIC 3002

Dear Mr Holding

Re: Irrigation Australia Ltd and Melbourne's Future Water Supply

I refer to my letter dated 23 November 2009 concerning our meeting with the Department of Environment and Sustainability (DSE) on 18 November 2009 to discuss how Irrigation Australia Limited (IAL) could assist government to respond to recommendations in the Environment and Natural Resource Committee's report on Melbourne's Future Water Supply. As indicated in my letter, there is clearly overlap and potential mutual benefit between government's role in urban water use efficiency policy and IAL's members who are on-ground, professional water efficiency practitioners.

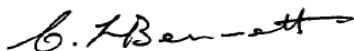
As you are aware, the Committee's report includes a number of recommendations in relation to expanding water conservation and efficiency programs. I understand that Government has not yet responded to the recommendations of the Committee's report. I therefore implore you to utilise IAL, as a technical, member based, non-profit organisation to assist you to develop workable, technically proficient policy and program responses to the Committee's report.

There appears to be significant scope to make water savings from programs that drive improved irrigation efficiency in both urban open space and domestic settings. I have enclosed a paper at Attachment A that IAL prepared and has had preliminary discussions about with the Institute of Public Works and Engineers Australia (Victoria) and several Victorian local governments to develop an open space irrigation improvement program. This program would benefit from State Government policy drivers that encourage or motivate open space managers (especially local government) to participate. I have also enclosed a brief paper at Attachment B outlining the potential water savings for a domestic irrigation improvement program, and some possible options for implementation.

I would appreciate your consideration of and response to the possible open space and domestic irrigation programs outlined in Attachments A and B, and again offer IAL assistance to further develop and implement these types of programs as government's response to the Committee's report.

Should you wish to discuss any matters raised in this letter please contact me on (02) 9476 0142. I look forward to hearing from you.

Yours sincerely



CHRIS BENNETT
Chief Executive Officer

Attachment A: IAL Discussion Paper on a Victorian Open Space Irrigation Efficiency program
Attachment B: IAL Discussion Paper on potential Victorian Domestic Irrigation Efficiency Programs

ATTACHMENT S CONT'D

ATTACHMENT A

Victorian Open Space Irrigation Discussion Paper

Purpose of this Document

This document briefly analyses the potential water savings that could be made through a co-ordinated program to improve the efficiency of open space irrigation in Victoria, and examines the services that Irrigation Australia Ltd (IAL) has to offer Victorian open space managers to make such improvements.

About IAL

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).

IAL is a national, not-for-profit organisation representing the whole of Australia's irrigation industry chain, including both rural and urban irrigation. IAL members include organisations and individuals from all aspects of the urban water industry such as major water providers, corporations that supply irrigation equipment and organisations, consultancies and individuals who design, install, maintain and use irrigation systems. IAL's membership also includes educational and research institutions, government and statutory organisations, manufacturers and retailers. This broad membership base enables IAL access to credible technical information across the irrigation industry services chain, as well as to the collective technical services of its members.

IAL's mission is to lead the development of a professional irrigation industry embracing best practice to underpin healthy, sustainable urban and rural communities and lifestyles. IAL's objectives include:

- ensuring all irrigation water is used efficiently and responsibly;
- promoting the responsible use of water through training and certification schemes; and
- promoting environmental stewardship within the irrigation industry.

IAL's core function is to provide technical, training, certification and information services to support best practice irrigation across Australia. We are not an agri-political organisation.

Victorian Open Space Water Use and Potential Savings

Victorian councils use an estimated 27.27GL/year, of which 11.75 GL/year is used for maintaining sporting facilities (GHD, 2007).

There are many factors that contribute to efficient water use on open spaces. Such factors can include sensible turf type selection, proper soil conditioning to enhance the water holding capacity of the soil, good nutrient and pest management, as well as properly designed, installed, and operated irrigation systems.

In terms of the performance of the irrigation system alone, Distribution Uniformity (DU) is a key measure of the efficiency at which water is applied to an irrigation area (the higher the DU the less total water that is required to provide minimum adequate water to the worst performing parts of an irrigation system). IAL is aware from open space irrigation audits around Australia that the average DU of open space irrigation is approximately 55%.

The Water Services Association of Australia and IAL's *Urban Irrigation: Best Management Practices* in May 2006 advocates a minimum DU of 75%.

An improvement from the average baseline DU of 55% to best practice DU of at least 75% is equivalent to a 26.7% water saving.

See table at Attachment A (which simply shows a mathematical relationship for increasing DU from various baseline levels).

ATTACHMENT S CONT'D

ATTACHMENT A CONT'D

Meanwhile, a conservative improvement from a baseline DU of 55% to say 65% would yield a 15.4% water saving, or improving DU to 70% would yield a 21.4% water saving.

Clearly, there are significant water savings to be made by improving the operation of the irrigation system alone.

IPWEA members could aim for a 20% saving on open space water use which equates to:

- a collective 2.35GL/year water saving;
- a collective, recurring water cost saving exceeding \$3.2million p.a (@ \$1.39/kL).

While DU is best achieved initially through good initial design of the irrigation system, DU can decline over time with component wear and can often be improved on existing irrigation systems through simple, low cost measures such as ensuring:

- the sprinkler heads are well maintained and directed;
- the sprinkler head specifications meet the original design (ie have not been replaced with different sprinkler heads designed for different pressures, trajectories etc);
- the system remains operating at the design pressure; and/or
- updating equipment to more modern technologies – such as pressure compensating emitters etc.

Further water savings, beyond those achieved from improving DU, can be made through engaging professional agronomic advice about soil, fertiliser and pest management for open spaces.

Open Space Irrigation Programs in Other States

South Australia: *Irrigated Public Open Space Program (IPOS)*

- allocations to Council's based on previous five year average use at each site;
- IPOS Code of Practice provides framework for reporting, managing at "fit-for-purpose" levels and improving water use efficiency over time.

SEQueensland: *Efficient Irrigation Guidelines and Water Efficiency Management Plans (WEMPs)*

- Register active playing surfaces with water service provider
- Install sub-meter for irrigation area
- Prepare a WEMP, signed off by a Certified Irrigation Professional
- Provide an annual report to the water service provider

Sydney: Best Practice Guidelines, Open Space Turf Areas in Sydney

- Currently being finalised
- Promoted to Council
- Sydney Water discussions with IAL to roll out training for Councils
- Potential to tie in with a regulatory or policy framework for future water restrictions

Potential IAL Services for Victorian Open Space Managers

• Access to technical capability/expertise from amongst 650 members across the nation, and 313 individuals in Victoria from 108 separate companies.

- IAL Irrigation Efficiency Course (IEC) for open space managers and auditors:
 - Two day course
 - Trouble shoot irrigation systems
 - Schedule irrigation events
 - Audit irrigation Systems
 - Keyed into national training framework
- IAL Certified Irrigation Professionals (CIP) program
 - Competent professionals that have at least three years experience and hold IAL specified competencies recognised in the national training framework
 - 44 Victorian based Certified Irrigation Auditor Landscape (CIAL)*
 - 20 Victorian based Certified Irrigation Designers

*CIAL is not currently offered by IAL, but is being revised to improve integrity and quality of auditors.

ATTACHMENT S CONT'D

ATTACHMENT A CONT'D

What IAL Seeks

IAL seeks to establish a co-ordinated program with the Institute of Public Works Engineering Australia (IPWEA) (Vic) to:

Assist IPWEA members to progressively improve open space irrigation managers to maximise water use efficiency and demonstrably meet agreed water use and irrigation efficiency benchmarks.

The benefits of achieving this objective include:

- Better playing surfaces/open space;
- Reduced water usage costs;
- Less exposed to future restrictions;
- Veritable claim that Council open space irrigation is not a discretionary use – every last drop is used efficiently to meet a defined objective for public benefit.

Proposed Work Program (for open discussion with IPWEA)

How Could this be Achieved?

Objectives → Develop/Provide Tools → Evaluate and Report → Rectification and Refinement

Objectives

- Workshop to set agreed irrigation performance benchmarks and management principles, such as:
 - DU;
 - ML/ha for grades of open space;
 - Management requirements/protocols (irrigation scheduling, maintenance, measurement, auditing, reporting).

Tools

- Develop MoU between IAL and participating IPWEA members:
 - IAL commitment to administer program in partnership with IPWEA, including development of supporting materials such as proformas for irrigation improvement plans, compilation of collective reporting, provision of discounted training, and linking IPWEA members with competent irrigation expertise through IAL's Certified Irrigation Professionals program;
 - IPWEA member commitment to develop an irrigation improvement plan that includes actions for continuous improvement to benchmarks, adoption of management principles/protocols, staff training;
- Training IPWEA member staff:
 - IAL's IEC, with an additional module about the benchmarks and management principles/protocols;
 - IAL willing to offer discounted rates for group bookings; and
- Development of site-by-site irrigation improvement plans by IPWEA members either through their own trained staff, or by engaging the services of an IAL Certified Irrigation Professional, where the improvement plan includes:
 - actions to progress toward benchmarks;
 - measures to establish management principles/protocols;
 - an irrigation schedule for the site.

Evaluation and Reporting

- Annual Irrigation System Audit – by Certified IAL member or trained IPWEA member staff
- Reporting and IAL/IPWEA comparison against:
 - agreed program benchmarks;
 - member specific MoU irrigation improvement plans; and
 - open space irrigation performance benchmarked under the *Yardsticks* benchmarking program.

Refinement

- Rectify basic system problems identified by audit – trained IPWEA member staff
- Refine irrigation improvement plans – trained IPWEA member staff or IAL Certified irrigation professionals.

ATTACHMENT S CONT'D

Attachment A Potential Water Use Savings from Distribution Uniformity

Improve DU from current 30%		
Distribution Uniformity (DU)	Water Use compared to current 30% DU	Water Saving from current 30% DU
30	100.0	0.0
40	75.0	25.0
50	60.0	40.0
60	50.0	50.0
70	42.9	57.1
<p>Example Interpretations: DU of the irrigation system can be increased from 30% to 40% then water saving can be made.</p> <p>DU of the irrigation system can be increased from 30% to 60% then water saving can be made.</p>		

Improve DU from current 40%		
Distribution Uniformity (DU)	Water Use compared to current 40% DU	Water Saving from current 40% DU
40	100.0	0.0
50	80.0	20.0
60	66.7	33.3
70	57.1	42.9
<p>Example Interpretations: DU of the irrigation system can be increased from 40% to 50% then water saving can be made.</p> <p>DU of the irrigation system can be increased from 40% to 60% then water saving can be made.</p>		

Improve DU from current 55%		
Distribution Uniformity (DU)	Water Use compared to current 40% DU	Water Saving from current 40% DU
55	100.0	0.0
60	91.7	8.3
65	84.6	15.4
70	78.6	21.4
75	73.3	26.7
<p>Example Interpretations: DU of the irrigation system can be increased from 55% to 75% then water saving can be made.</p>		

ATTACHMENT S CONT'D

ATTACHMENT B

Melbourne Domestic Irrigation Efficiency Discussion Paper

Background

Melbourne used approximately 380GL/year of water under 3A water restrictions of which 60 percent is used domestically. Of this 60 percent, an estimated 20 percent is used for watering gardens (www.melbournewater.com.au). **Based on this information, the current garden water used in Melbourne is approximately 45.6GL/year.**

Prior to restrictions, when the use of all domestic irrigation types was permitted, Melbourne's water use was approximately 22% more than current use. Assuming garden water use at the same proportion of total use, **the pre-restriction domestic garden water use in Melbourne would have been 55.6GL/year.**

While there are many factors that contribute to efficient garden and lawn watering such as plant selection and location and soil conditioning, the Distribution Uniformity (DU) of an irrigation event (including hand watering) is a key measure of the efficiency at which water is applied. IAL is aware from open space irrigation audits around Australia that the average DU of open space irrigation is approximately 55%, and we expect that domestic irrigation performs at a much lower DU given most domestic systems are not currently actively managed and maintained. The Water Services Association of Australia and IAL's *Urban Irrigation: Best Management Practices* in May 2006 advocates a minimum DU of 75%.

An improvement from a baseline DU of 55% to best practice DU of at least 75% is equivalent to a 26.7% water saving.

See table at Attachment A (which simply shows a mathematical relationship for increasing DU from various baseline levels).

Meanwhile, a conservative improvement from a baseline DU of 55% to say 65% would yield a 15.4% water saving, or improving DU to 70% would yield a 21.4% water saving.

A program that increased domestic irrigation efficiency from a DU of 55% to a modest 65% would therefore reduce pre-restriction domestic garden water use to approximately 46.53GL/year, which is equivalent to Melbourne's garden water use under 3A restrictions.

Domestic Irrigation Efficiency Programs in Other States

SE Queensland

Target 200 (200L/person/day) which guides total domestic consumption, combined with regulatory framework that permits the use of prescribed "efficient" irrigation system components OR permits the use of an irrigation system otherwise certified by an IAL Certified Irrigation Professional as an "efficient" irrigation system.

Western Australia

Waterwise Garden Irrigation Installer program is a joint initiative between the WA Water Corporation and IAL that recognises and endorses Waterwise Garden Irrigator Installers to install and schedule efficient garden watering systems to an industry standard. Until recently, WA Water Corporation also provided a rebate for irrigation systems that were installed by a Waterwise Garden Irrigator Installer.

Sydney

Prior to the lifting of water restrictions in Sydney in June 2009, IAL had been working on a program with Sydney Water to establish a program for exemptions from domestic water restrictions provided the homeowner implemented an irrigation schedule in accordance with a Sydney Water "Love Your Garden" site assessment, and had an Irrigation SystemCheck (Sydney Water develop irrigation system rating scheme) from a trained IAL Certified Irrigation that rated systems as five star or higher.

ATTACHMENT S CONT'D

ATTACHMENT B CONT'D

Potential Domestic Irrigation Efficiency Programs in Victoria

Good irrigation practice requires a well designed, installed and maintained irrigation system combined with operator knowledge of plant water needs.

A good domestic irrigation efficiency program will therefore:

- 1. require irrigation systems to be designed and installed to achieve specified DU benchmarks and avoid water waste through leakage and watering of non-target areas.**
- 2. ensure the householder understands the plant water needs of their garden (ie an irrigation schedule);**
- 3. require the householder to maintain their irrigation system to ensure benchmark DU is maintained;**
- 4. utilise recognised industry water efficiency expertise through mechanisms such as IAL's Certified Irrigation Professionals program.**

There are infinite options for the structure of a good domestic irrigation efficiency program that includes the above elements.

One simple example would be to provide conditional exemptions from water restrictions to householders where specified irrigation system efficiency benchmarks can be demonstrated to an IAL Certified Irrigation Professional (eg minimum DU, target areas only watered, and no leakage). This approach could apply to new and existing irrigation systems. The conditions of exemptions would require the householder to:

- i) operate the irrigation system in accordance with an irrigation schedule determined by an IAL Certified Irrigation Professional to ensure watering to meet only the plant water requirements for the property;
- ii) undertake maintenance of the irrigation system in accordance with recommendations of the Certified Irrigation Professional to maintain minimum DU and avoid leakage.

The exemption would need to be renewed at specified intervals.

Another example might be to adopt the Western Australian model of a Waterwise Garden Irrigation Installer for new irrigation systems - requiring an IAL Certified Irrigation Professional to certify that the system has been installed to specified standards for workmanship and efficiency, combined with the SE Queensland model for existing irrigation systems - where an IAL Certified Irrigation Professional can certify an irrigation system as efficient against guidelines.

The benefits of these basic types of programs are that:

- it can be done at little or no additional cost for Government because the industry is effectively implementing the certification processes behind the exemption regime; and importantly
- places a commercial value in water efficiency expertise and therefore encourages an industry that can support government water conservation efforts.

Some more sophisticated options might combine market and regulatory tools such as water allocation framework (the regulatory component), with any water use beyond the allocation subject to substantial price disincentives (the market component). While there are many issues which would need to be worked through, the primary benefits of this approach are that:

- governments role is clarified and limited to a regulatory and pricing role, setting and enforcing an allocation;
- industry would provide the efficiency gains by developing and bringing efficient technology to the market and the allocation and pricing framework would drive markets in education, advice and system maintenance services to sustain water savings over time;
- there is increased certainty for supply side investment made by governments, and clear water use benchmarks for community and industry.

IAL seeks to work with the Victorian Government to develop and implement a domestic irrigation efficiency program.

ATTACHMENT T

Victorian Open Space Irrigation Discussion Paper

Purpose of this Document

This document briefly analyses the potential water savings that could be made through a co-ordinated program to improve the efficiency of open space irrigation in Victoria, and examines the services that Irrigation Australia Ltd (IAL) has to offer Victorian open space managers to make such improvements.

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Further water savings, beyond those achieved from improving DU, can be made through engaging professional agronomic advice about soil, fertiliser and pest management for open spaces.

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- allocations to Council's based on previous five year average use at each site;
- IPOS Code of Practice provides framework for reporting, managing at "fit-for-purpose" levels and improving water use efficiency over time.

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- Register active playing surfaces with water service provider
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ATTACHMENT T CONT'D

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The benefits of achieving this objective include:

- Better playing surfaces/open space;
- Reduced water usage costs;
- Less exposed to future restrictions;
- Veritable claim that Council open space irrigation is not a discretionary use – every last drop is used efficiently to meet a defined objective for public benefit.

Proposed Work Program (for open discussion with IPWEA)

How Could this be Achieved?

Objectives → Develop/Provide Tools → Evaluate and Report → Rectification and Refinement

Objectives

- Workshop to set agreed irrigation performance benchmarks and management principles, such as:
 - DU;
 - ML/ha for grades of open space;
 - Management requirements/protocols (irrigation scheduling, maintenance, measurement, auditing, reporting).

Tools

- Develop MoU between IAL and participating IPWEA members:
 - IAL commitment to administer program in partnership with IPWEA, including development of supporting materials such as proformas for irrigation improvement plans, compilation of collective reporting, provision of discounted training, and linking IPWEA members with competent irrigation expertise through IAL's Certified Irrigation Professionals program;
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Evaluation and Reporting

- Annual Irrigation System Audit – by Certified IAL member or trained IPWEA member staff
- Reporting and IAL/IPWEA comparison against:
 - agreed program benchmarks;
 - member specific MoU irrigation improvement plans; and
 - open space irrigation performance benchmarked under the *Yardsticks* benchmarking program.

Refinement

- Rectify basic system problems identified by audit – trained IPWEA member staff
- Refine irrigation improvement plans – trained IPWEA member staff or IAL Certified irrigation professionals.

ATTACHMENT U

IAL DISCUSSION PAPER FOR NSW DPI ON WATERSMART FARMS PROJECT IN WESTERN SYDNEY

July 2009

Purpose of this Document

This document is a brief discussion paper outlining the services Irrigation Australia Limited (IAL) and its members could provide to assist the NSW Government to effectively implement the Water Smart Farms project in western Sydney.

The paper provides brief background on the IAL, describes a site assessment process to ensure the Water Smart Farms funds are effectively used to achieve best practice irrigation, and outlines services IAL and its members could provide to ensure benchmark standards in implementation of the project.

IAL understands that the primary objective of the Water Smart Farms relates to water savings. IAL supports this objective where the water savings are achieved through progress toward clearly defined best practice irrigation benchmarks.

IAL also considers the Water Smart Farms project provides an excellent opportunity beyond the landholder level, to build the capacity of the broader irrigation industry in Sydney. A professional irrigation industry that is available to provide water efficiency expertise to the community would indeed be an enduring legacy from the Water Smart Farms project.

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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).

IAL is a national, not-for-profit organisation representing the whole of Australia's irrigation industry chain, including both rural and urban irrigation. IAL members include organisations and individuals from all aspects of the urban water industry such as major water providers, corporations that supply irrigation equipment and organisations, consultancies and individuals who design, install, maintain and use irrigation systems. IAL's membership also includes educational and research institutions, government and statutory organisations, manufacturers and retailers. This broad membership base enables IAL access to credible technical information across the irrigation industry service chain, as well as to the collective technical services of its members.

IAL seeks to lead the development of a professional irrigation industry embracing best practice to underpin healthy, sustainable urban and rural communities and lifestyles. IAL objectives include:

- ensuring all irrigation water is used efficiently and responsibly;
- promoting the responsible use of water through training and certification schemes; and
- promoting environmental stewardship within the irrigation industry.

IAL's core function is to provide technical, training, certification and information services to support best practice irrigation across Australia.

ATTACHMENT U CONT'D

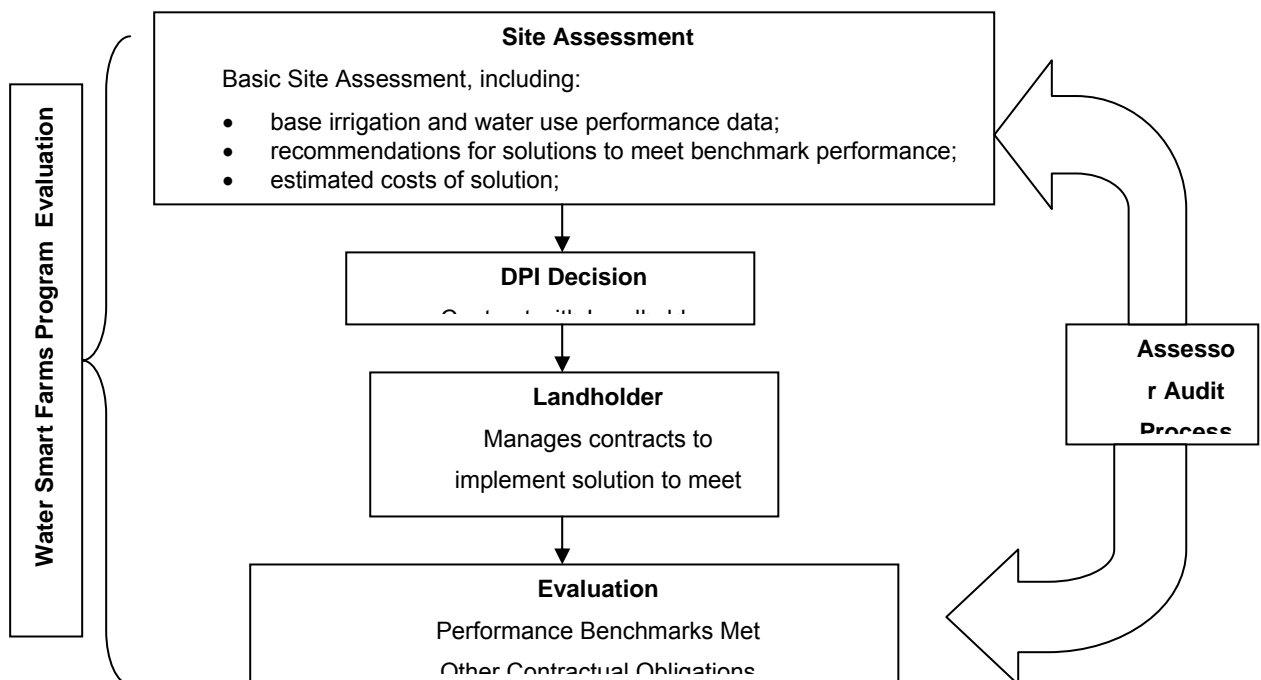
Site Assessment Process

The Water Smart Farms project will require some form of site assessment of irrigation properties in order for DPI to make individual funding decisions. The process will need:

- technical capacity to undertake on-site assessments of water savings opportunities;
- technical capacity to develop cost effective solutions at each participating property to meet defined irrigation efficiency and performance benchmarks;
- measures to ensure the transparency of funding decisions; and
- QA/QC measures to ensure the veracity of the technical outcomes achieved by the project, and the integrity of funding decisions.

While IAL recognises there are infinite permutations for how this process could work, we are assuming the basic steps in Figure 1 as fundamental to any model.

Figure 1 – Water Smart Farms Site Assessment Process



Under this model:

- DPI would set minimum performance benchmarks that must be achieved by the investment (e.g in relation to mean application rate and distribution uniformity of irrigation);
- the site assessment would determine the performance of the site relative to these DPI minimum performance benchmarks;
- where the current site performance is less than the DPI minimum performance standards, the property would be eligible for funding assistance. For these sites the site assessment would:
 - identify the least cost solution for improvements to meet the DPI minimum performance standards;
 - estimate the costs of the solution;
 - estimate the annual average quantum of water savings that would be achieved from this investment;

ATTACHMENT U CONT'D

- DPI would then consider the site assessment recommendations and determine whether it will enter into a funding contract with the landholder;
- the funding contract with the landholder would require, inter alia:
 - the implementation of measures to achieve the minimum performance standards;
 - that the performance standards be maintained for a specified period after the completion of works, and that records of this performance be maintained by the landholder;
 - that the landholder use certified professional irrigation services for any works;
 - that the landholder permit access to the works and irrigation areas for follow up audit processes; and
 - that the landholder record other information required for program evaluation (eg crop yield, water use and information about time invested in new/altered infrastructure) and permit access to this information by DPI, or parties acting on behalf of DPI.
- a site evaluation process would be required to ensure all landholder contractual obligations have been met, including that DPI minimum performance standards have been achieved; and
- individuals undertaking site assessments and evaluations would be subject to an Audit process.

Potential IAL Services

IAL, using its administrative capability and the collective professional services of its membership, can provide the following assistance to this site assessment process for the Water Smart Farms project:

- Certified Irrigation Professionals framework;
- Site Assessor program;
- Independent Evaluation of on-site outcomes;
- Audit Program for Site Assessment and Evaluation; and
- Water Smart Farms Program Evaluation.

Each of these potential IAL services are briefly discussed below. IAL would be pleased to develop more detailed business proposals for any of these services at DPI's request.

It should be noted that, for reasons of program and IAL integrity, the provision of the site assessor program, site evaluation and site assessor audit services are mutually exclusive i.e. IAL will only undertake one of these three services. However, IAL can concurrently provide all other services.

IAL Certification Scheme

IAL operates a Certified Irrigation Professionals scheme that recognises individual Irrigation Designers, Irrigation Agronomists, Irrigation Managers, Irrigation Installers, Irrigation Operators, Irrigation Contractors and Irrigation Retailers. The Certification scheme has been in place since 2006, and now has 425 Certified Irrigation Professionals in these occupations across Australia, with 86 of these Certifications in NSW.

The IAL's Certification scheme is a voluntary, national program that identifies and recognises individuals with the minimum skills and knowledge to work in these occupations so as to perform an irrigation job to the satisfaction of water managers and customers. The Certification scheme also requires continuous professional development for renewal of Certifications to ensure that Certified Irrigation Professionals maintain contemporary irrigation expertise and knowledge.

DPI could incorporate IAL's Certification scheme as a fundamental requirement for the participation of site assessors, irrigation system designers and in contracts with participating landholders to use Certified Irrigation Installers for the installation of irrigation equipment in the Water Smart Farms project. The use of this Certification framework would provide a QA/QC basis to all irrigation services utilised by DPI in the Water Smart Farms project.

More information on the IAL's Certification program can be found at <http://www.irrigation.org.au/index.cfm?training-and-certification/certification>.

ATTACHMENT U CONT'D

Benefits

The inclusion of the IAL Certification at all levels of the Water Smart Farms project would:

- provide DPI with a robust framework for ensuring the involvement of credible irrigation professionals;
- be the basis of QA/QC for the funding decisions in the project i.e. ensure that recommendations from the site assessment process are made by competent individuals; and
- serve as a capacity building mechanism for the broader irrigation industry, by providing incentive for professional development and recognition – a benefit that will have enduring legacy for the community.

IAL recommends that the IAL Certifications be incorporated into all levels of the Water Smart Farms project, including appropriate Certification as pre-requisites for participation as site Assessors or Evaluators and that funding contracts with landholders include a mandatory condition to require the use of Certified Irrigation Installers for any on-site works.

Site Assessment

IAL understands that DPI is seeking to make water savings at up to 650 sites under the Water Smart Farms project.

The site assessments will no doubt reveal that not all properties are suitable for funding under this program – such as in instances where the property already meets benchmark performance levels, or the cost effectiveness of the solution does not warrant the investment etc. Consequently, to “treat” up to 650 properties under this project, site assessments may need to be undertaken at between 800 and 1000 properties. These site assessments will need to be conducted within the next 2 years to enable on-ground investment of funds prior to completion of the project by September 2011. This will require between 400 and 500 assessments per year, or 7 to 10 assessments per week. Clearly, a team of site assessors would be required to meet this weekly rate of assessments.

One option is for DPI to directly contract this “team” of assessors. Or alternatively, IAL has the capacity to utilise its members in a site assessor scheme where IAL would, on behalf of DPI, run a call centre for landholders seeking to participate in the Water Smart Farms project. The IAL call centre would arrange a site assessment by a site Assessor from a rolling list of Assessors.

To maximise the quality and consistency of the site assessment process, all Assessors would need to:

- be an IAL member;
- hold a specified IAL Certification (type of Certification would be determined in conjunction with DPI, and would depend on the nature of and skills required to undertake the site assessment process required by DPI); and
- have undertaken and passed a training program with DPI about how to use the Water Smart Farms site assessment tool (currently being developed by DPI).

The Assessor would undertake the site assessments in accordance with a protocol determined by DPI, record details of that assessment on standard proformas provided by DPI, and provide the results of each assessment to the IAL. The IAL would then check the report to ensure all relevant information has been obtained, and would then refer the report to DPI for its consideration about whether it will enter into a contract with the landholder.

The site assessor scheme, and individual Assessors, would be subject to an independent audit process to ensure the integrity of this service. Assessors found not to be operating in accordance with procedures and proformas, or where site assessment results are significantly or repetitively different to the audit process, would be de-registered from further participation in the Assessor scheme.

ATTACHMENT U CONT'D

Benefits

- enables DPI to concentrate on project administration and irrigator support services;
- is an industry operated scheme underpinned by competency based Certification framework³⁸;
- utilises existing industry based expertise;
- potentially involves a wider diversity of Assessors – so Water Smart Farms is therefore not dependent on and thereby potentially compromised by a small in-house team of Assessors;
- contributes to the integrity of funding decisions as they would be based on reports from Assessors appointed from a rolling list – as opposed to landholder appointment of an Assessor;
- drives wider irrigation industry professionalism, providing longer term, enduring benefits to irrigators and the wider community.

Site Evaluation

IAL assumes that following installation works, there will be site evaluations to verify contractual commitments have been achieved at participating properties including confirmation the right works have been installed, minimum performance benchmarks have been achieved and all other contractual obligations have been met. This will require up to 650 evaluations to be undertaken.

IAL could operate a site evaluation process, similar to the Site Assessment process described above. IAL would utilise Evaluators from a rolling list that:

- are IAL members;
- hold a specified IAL Certification (to be determined with DPI); and
- have undertaken and passed a training program with DPI about the evaluation that is to be performed.

The Evaluation would include a standard process specified by DPI, using standard proformas, and would essentially record and report whether minimum funding requirements had been met at each participating property. The IAL would then check the Evaluation report to ensure all relevant information has been obtained, and would then refer the report to DPI for its consideration and contract remittance processes.

The site Evaluation scheme, and individual Evaluators, would be subject to an independent audit process to ensure the integrity of this service. Evaluators found not operating in accordance with procedures and proformas, or otherwise defaulting the system, would be deregistered from further participation as Evaluators.

Benefits

- as for Site Assessment Scheme above, plus
- adds independent verification of funding outcomes, providing integrity to the project.

Assessor and Evaluator Auditing

The performance and consistency of Assessors and Evaluators will need to be audited from time to time to ensure the integrity of Assessor and Evaluation schemes and the consistency and fairness of funding decisions.

IAL would undertake an audit program that:

- audits a specified sample size of both site assessments and evaluations; and
- audits specific Assessors or Evaluators as directed by DPI.

³⁸ The broader irrigation is demonstrably keen to participate in this type of scheme, as evidenced by the recent widespread industry interest in an equivalent site assessor scheme developed by IAL with Sydney Water for domestic irrigation (prior to the recent decision to lift water restrictions) – over 25 people in the industry sought advice about Recognition of Prior Learning to enable them to meet pre-requisites to participate in the scheme.

ATTACHMENT U CONT'D

The skills of the auditors would need to be the same as the Assessor and the Evaluator, as the audit will need to replicate these two processes. IAL would operate the audit scheme utilising a rolling list of IAL members with appropriate Certifications.

Individual audit reports would be submitted to DPI with recommendations for any actions in relation to individual Assessors or the Evaluators, and a periodic audit program report would also be submitted to DPI to provide overall program findings eg need for re-training or changes to assessment or evaluation proformas to enable greater consistency between Assessors/Evaluators or to improve technical rigour in reports.

Benefits

- audit process independent from DPI making individual funding decisions;
- provides base QA/QC process to whole funding program;
- enables continuous improvement of Assessor and Evaluator schemes;
- involves broader industry in program.

Note, the Assessment, Evaluation and Audit services would need to be operated independently to preserve the integrity of the funding program. IAL would therefore be pleased to develop a business case for one of these three services at the request of DPI.

Program Evaluation

IAL presumes that DPI will be required to undertake an evaluation of the overall Water Smart Farms project, as part of its funding obligations to the Commonwealth. IAL would be pleased to undertake this evaluation for DPI to provide independence in the findings.

IAL suggests that, beyond any mandatory evaluation required by the Commonwealth, that an evaluation exercise could be useful for collecting and developing case studies on successes and learnings to:

- be used in other programs (eg On-Farm Efficiency funding programs in the Murray Darling);
- assist any future Water Smart Farms program in the Hawkesbury Nepean catchment; and
- encourage irrigators to understand the business benefits of investment in best practice irrigation.

IAL would appreciate DPI's earliest advice should it wish for IAL to be involved in an overall Program evaluation, as the performance indicators would need to be identified up-front and included in landholder contracts etc, and measurement of these indicators would need to commence prior to the commencement of the funding program to enable baseline performances/information to be determined.

ATTACHMENT V

IAL SUBMISSION ON COMMONWEALTH DRAFT URBAN AND DESALINATION FUNDING GUIDELINES

Mr Steve Costello
Assistant Secretary
Urban Water Security Branch
Department of the Environment, Water, Heritage and the Arts
GPO Box 787
CANBERRA ACT 2601

Attention: Mr Ziggy Durek

27 August 2008

Dear Mr Costello

Re: National Urban Water and Desalination Plan: Draft Guidelines

Thank you for the invitation to comment on the National Urban Water and Desalination Plan: Draft Guidelines.

Irrigation Australia Limited (IAL) is a national organisation representing the whole of Australia's irrigation industry, including both rural and urban irrigation. IAL has a broad membership base such as major water providers, corporations that supply irrigation equipment and organisations, consultancies and individuals who design, install, maintain and use irrigation systems, and educational and research institutions. We therefore have a significant interest in safe, secure and reliable urban water supply systems, and funding programs of this nature.

IAL broadly supports the draft guidelines, but also recommends that DEWHA:

- ensures the funding is used to drive urban water reform that is necessary to provide certainty to the community and industry about urban water supplies;
- in the interest of community equity, allocates the funding to entities that do not currently meet acceptable specified benchmarks for security, reliability or safety in water supplies, provided that they can also demonstrate that these benchmarks will be maintained over time; and
- considers coupling the funding of supply side infrastructure with a requirement for entities to have a permanent water conservation framework that maximises water use efficiency in our communities while meeting demand.

Context to IAL Comments

Urban green space provides enormous social benefits for our urban community, including environmental, health and economic benefits, and is dependent on good irrigation practice to achieve and maintain these benefits. For example, green open spaces were recently valued in two Sydney local government areas as having an annual net social benefit of \$1.2million and \$1.4million for the Ashfield and Mosman local government areas respectively, from environmental services, increased capital property values, and reduced health issues such as obesity and depression³⁹. This research is confirmed by the Co-operative Research Centre for Irrigation

³⁹ J. Morison, L. Mathieson, 2008 EconSearch Pty Ltd 2008, Scoping Study: Economic Value of Irrigation in Urban Green Open Space

ATTACHMENT V CONT'D

Futures (CRCIF)⁴⁰ which presented a comprehensive catalogue of research on the value of green open space to show, inter alia:

- environmental benefits such as cooling effects on buildings to reduce energy consumption by between 7 and 47%, improving urban stormwater management, maintaining soil stability and structure, and maintaining biodiversity in urban areas.
- social benefits such as preventative health care including stress reduction, depression management and avoidance of obesity, childhood development in parks and open space, commons for social interaction and cohesion, and benefits associated with organised sport.
- economic benefits such as increased property values and tax revenue.

Urban green space in our urban environments is fundamentally supported by good irrigation practice which is itself dependent on the security and reliability of our water supplies. Water supplies around Australia have been severely affected by drought, climate change, population growth and a failure over many decades to adequately invest in either new water supplies or to effect significant and lasting demand management measures. The urban irrigation sector has suffered enormously and continues to operate within an uncertain business environment in many locations around Australia as a consequence of these circumstances. The national urban water and desalination funding, if rolled out well, presents an opportunity to address these issues for the urban irrigation sector.

Use the Funding Program to Drive Urban Water Management Reforms

IAL supports government actions that provide greater certainty and confidence to the community and industry to sustain the extensive social benefits underpinned by urban irrigation. IAL believes this will best be done through a combination of funding programs to increase water supply security through investment in sustainable infrastructure, and government policy settings that encourage and drive maximum efficiency in the use of our water supplies.

IAL has been concerned that there was no obvious driver for the proposed Draft National Principles for Urban Water Planning which are being prepared for the consideration of the Council of Australian Governments (COAG) in October 2008. We are therefore pleased to note in the draft Guidelines that the provision of funding to state/territory entities will be subject to the achievement of water reform milestones. In this regard, could you please confirm the statement in the draft guidelines that "water reform milestones in bilateral agreements" refers to the proposed Draft National Principles for Urban Water Planning to be considered by the Council of Australian Governments (COAG) in October 2008 as part of an enhanced urban water reform framework under the National Water Initiative.

Eligibility and Merit Criteria

While IAL broadly supports the eligibility and merit criteria included in the draft guidelines, we also consider it important for community equity that all water supply entities across Australia should aspire to achieve and then maintain a minimum level of security, reliability and safety. This security and reliability is required to maintain a healthy community, including the social, health and environmental benefits that are achieved from green spaces in urban environments. Consequently, we recommend that DEWHA also consider amending the guidelines to give preference for funding to entities that do not currently meet specified reliability, security and/or safety benchmarks for their water supplies and that can also demonstrate that they can viably maintain these minimum benchmarks in the long term. To achieve this the funding program could be rolled out in two stages. The first stage would provide a preferential funding opportunity to entities that do not currently meet the specified security, reliability and safety benchmarks, and the second stage would enable residual funding to be allocated to any other entity seeking to improve beyond the specified benchmarks. Alternatively, the current draft guidelines could simply be amended to make a clear statement that first stage entities will receive higher priority in funding decisions. In either case, we also recommend:

⁴⁰ CRCIF Technical Report No.04/08. *Irrigation of Urban Green Spaces: a Review of the Environmental, Social and Economic benefits*, April 2008

ATTACHMENT V CONT'D

- amending the eligibility criteria to require that proposals seek to increase supply security, reliability or safety to a specified minimum benchmark, and that proposals demonstrate that the proponent can maintain these minimum benchmarks over time; and
- refining the numerical information required for merit criteria 1 to include the reduction in frequency of (various levels of) water restrictions that would be achieved from the additional water volume generated by the proposal.

Maximising Efficiency of Supply Side Investment

Water use efficiency should be an integral and permanent part of any demand-supply balance and plan for increased security and reliability to:

- maximise the economic efficiency of any investment in existing and new supply infrastructure;
- reduce the probability and frequency at which short term restrictions are needed, and thereby avoid the social costs of restrictions previously outlined;
- deliver low cost water savings as an alternative to large scale infrastructure, through frameworks that encourage investment in increased knowledge of efficient practice and that recognise competency in water efficiency expertise such as IAL's Certification program; and
- preserve water savings in the longer term.

IAL therefore also recommends that the eligibility criteria include a requirement that any funding proposal must be supported by a permanent water conservation framework, where the framework adequately drives investment in both efficient technology and community knowledge about efficient practice, particularly in outdoor water use. Such a framework could include economic tools such as pricing and rebates, education tools, and regulatory frameworks to prohibit inefficient practices and wanton wastage of urban water.

Should you wish to discuss any of these matters further please feel free to contact me on (02) 9476 0142.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Tim Gilbert', with a large, stylized initial 'T'.

Tim Gilbert
Industry Development Manager
Irrigation Australia Ltd

**ATTACHMENT W
IAL SUBMISSION ON
COMMONWEALTH'S DRAFT URBAN WATER REFORM ADDENDUM
ON WATER PRICING PRINCIPLES**

17 November 2008

Ms Gayle Milnes
Assistant Secretary
Market Development Branch
Department of Environment, Water, Heritage and Arts
GPO Box 787
CANBERRA ACT 2601

Dear Ms Milnes

Re: Submission on Draft Water Pricing Principles

I refer to your letter dated 23 October 2008 inviting comments from Irrigation Australia Limited (IAL) on draft water pricing principles prepared under the auspices of the National Water Initiative Committee. The IAL is particularly pleased to have the opportunity to make comment on these principles and please thank the others for joining us for an open and frank discussion.

Please note that the IAL's comments relate only to the extent to which the draft principles apply to urban (town) water pricing. The reason for this is:

- your letter indicates the principles would apply only where the *Water Act 2007* does not, which essentially excludes rural water use in the Murray Darling Basin and therefore the majority of Australia's rural water use; and
- rural communities and regional economies are intricately linked to water access, with those linkages often unique to each region (eg other existing infrastructure and industries, climatic factors and climate change predictions that may affect the potential for future alternative rural practice etc). Therefore, to avoid perverse or unintended outcomes as specified in clause 64 of the National Water Initiative (NWI), IAL considers that pricing principles for rural water should be developed on a rural regional basis, not on a national basis.

IAL considers that water pricing has a significant role in any urban water policy framework to:

- enable the sustainable management and renewal of water supply infrastructure to support all human activities, including those dependent on the urban water supply for irrigation activities such as:
 - a) commercial irrigation (estimated value of production of over \$300m pa in the Sydney area alone, as summarised at Attachment A),
 - b) open space management (represents about 5% of total water use in Adelaide); and
 - c) domestic green space (a key component of modern urban living under threat from current water restriction approaches);
- drive water use efficiency, including for outdoor urban water use, in order to improve the sustainability of our towns and cities;
- support a clear and certain obligation between the supplier and the end user in respect to quality, reliability and time of supply; and
- assist to establish a deeper and more competitive supply market through investment in additional and alternative water supply options.

The principles should ultimately seek to guide water pricing policy decisions of jurisdictions to meet these objectives.

ATTACHMENT W CONT'D

With the exception of the specific matters raised in Attachment B, IAL is supportive of the draft principles subject to:

- more detail about the actions that would be undertaken to practically implement each principle;
- the identification of a mechanism that would drive jurisdictions to implement the principles – and subsequent actions; and
- the IAL being further consulted as the principles and policy framework is further developed.

IAL has previously made a submission to the Department of Environment, Water, Heritage and Arts (DEWHA) on the Draft funding guidelines for the Commonwealth's *National Urban Water and Desalination Plan* recommending that this funding be used to drive proposed urban water planning reforms by state jurisdictions. This funding should also be linked to adequate progress in urban water pricing reform, which could be measured by the existing National Water Commission biannual audit process.

IAL recognises that reform processes can take time, and acknowledges that “gradualism” will be required when implementing water pricing reform in order to enable sensible policy development and refinement by each jurisdiction, capacity of water reliant industries to respond, and ultimately the acceptance of the broader community. However, IAL also acknowledges the need for urgent urban water reform to both:

- seize upon the communities current consciousness of the need for improved urban water management, particularly for improved reliability of supply and increased water use efficiency; and
- drive measures to preserve the value of urban open and green space assets.

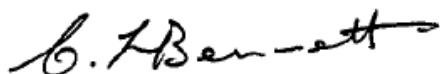
Consequently, we consider that a timeline for reform is imperative in order to flag this urgency with jurisdictions and to enable progress against a benchmark to be measured, and therefore to link funding to reform. A notional period of five years for full implementation, or a clear and publicised commitment by a jurisdiction to full implementation, would seem reasonable because:

- most new infrastructure will come on line in this period, enabling jurisdictions and communities to adjust with some certainty; and
- this enables most jurisdictions to demonstrably adopt the principles in the next one or two price determinations.

The IAL is aware of various sets of government proposed urban water reform principles and urban water funding programs currently under consideration, and we are very grateful for the opportunity to comment on these principles and programs during development. However, as a general constructive comment, the IAL suggests there is a need for co-ordination of these urban water reform actions to identify and sequence priorities in a strategic roadmap for reform. Indeed, such a roadmap would provide greater certainty for all stakeholders, and a clearer opportunity for all to input and support the reform process. IAL would be pleased to assist and support the development of such a roadmap.

Thank you again for the opportunity to comment on the draft principles and we look forward to working constructively with you into the future. Should you wish to discuss any matters raised in this letter please feel free to contact Tim Gilbert on (02) 9476 0142 or 0432 339 145.

Yours sincerely



CHRIS BENNETT
Chief Executive Officer
Irrigation Australia Limited

Attachment A: Water use estimate in Sydney Basin – NSW DPI figures
Attachment B: IAL Comments on Specific Draft Water Pricing Principles.

ATTACHMENT X

IAL SUBMISSION ON PROPOSED NATIONAL WATER MANAGEMENT AND PLANNING PRINCIPLES

Ms Katy Brady
Metro Water Branch
NSW Department of Water and Energy
urbanwaterreform@dwe.nsw.gov.au

27 May 2008

Dear Katy

Re: Draft Principles for Urban Water Reform Framework

I refer to your Email to Mr Jolyon Burnett at Irrigation Australia Ltd (IAL) dated 12 May 2008 inviting our views on the Draft National Principles for Urban Water Planning which were prepared for the consideration of the Council of Australian Governments (COAG) as part of an enhanced urban water reform framework under the National Water Initiative. The IAL welcomes the opportunity to comment on this important policy initiative.

IAL Background

The IAL is a national organisation representing the whole of Australia's irrigation industry, including both rural and urban irrigation. IAL members include organisations and individuals from all aspects of the urban water industry such as major water providers, corporations that supply irrigation equipment and organisations, consultancies and individuals who design, install, maintain and use irrigation systems. IAL's membership also includes educational and research institutions, government and statutory organisations, manufacturers and retailers.

IAL was formed to provide the industry and governments with the best possible advice and support in this time of significant change and challenge for the water industry. The IAL's core function is to provide technical, training and information services to support best practice in irrigation.

Urban Water Planning Framework

The IAL is encouraged by this initiative for a greater national coordination in the development of urban water policy. In particular, we welcome a policy framework that would provide some national consistency and increased future certainty for outdoor urban water use which has been particularly targeted and affected throughout Australia over the past seven years by the use of blunt water restrictions.

While water restrictions have traditionally been a successful short term measure for addressing supply shortfall during drought, it is now clear that with climate change, population growth and the costs of new supply options that we need a different, more sophisticated, longer term policy framework to drive enduring, higher levels of urban water use efficiency. Consequently, the IAL welcomes any national urban water policy framework that:

- ensures both supply and demand management decisions are made on the basis of the best available technical information about water efficiency and with a more comprehensive understanding of the social values that are fundamentally reliant on urban irrigation;
- drives enduring urban water use efficiency outcomes, rather than short term responses;
- results in the development of nationally consistent supporting tools such as regulatory restriction regimes, equipment rating and labelling schemes, rebates and community and industry education programs; and
- importantly, requires policy makers to engage with and utilise the immense knowledge and skill that is available in the industry sector, particularly the irrigation sector, to deliver water use efficiency and ultimately water savings.

ATTACHMENT X CONT'D

Draft Principles

The IAL is generally supportive of all the draft principles, subject to:

1. being supported by more detail the actions that would be undertaken to practically implement each principle, and the anticipated outcomes;
2. a timeframe being set for the implementation of some of principles, namely Principle 1: Agreed levels of service; and Principle 5: Consideration of the full portfolio of water supply and demand options;
3. the identification of a mechanism that would drive jurisdictions to implement the principles – and subsequent actions; and
4. the IAL being further consulted as the principles and policy framework is further developed.

The IAL would appreciate your advice about how and when these four matters may be progressed through the Project Group on Urban Water Reform.

Draft Principle 1: Agreed Levels of Service and Specified Levels of Reliability

This draft principle is critical to IAL and its membership as it is the means of achieving a national consistency to drive longer term investments in demand management and supply augmentation, and also achieve some improved certainty about the use and probability of short term restrictions. In particular, we would encourage a greater national coordination in the development of demand management programs in line with the recent Productivity Commission discussion papers.

The IAL would expect that the outcomes of this principle would, inter alia, be:

- the setting of consistent definitions for levels of restrictions (eg Level 1 = 10% reduction in average per capita consumption, Level 2 = 15% reduction in average per capita consumption etc); and
- the publishing of the trigger supply levels for the introduction of each restriction level in each jurisdiction or water supply system, together with the probability, or frequency, with which each level would need to be introduced taking account of supply limitations and plans, anticipated climate change and population and demographics.

At a minimum this would provide valuable information to community and industry about investment risks for water reliant activities, and ultimately could be used to guide large scale investment in demand management programs or supply projects. A timeframe and a driver for the implementation of this principle is therefore essential.

Draft Principle 2: Best Available Information

The IAL has been concerned for some time that urban water policy in many jurisdictions has not recognised the water savings that can be achieved through investment in outdoor water use efficiency programs. The policy response has usually been to prohibit or limit various forms of outdoor water use, which does not enable an enduring water saving through investment in efficient technology and community and industry education about how to irrigate gardens and lawns efficiently. Some basic facts to illustrate this point are:

- research by the CRC for Irrigation Futures (2006) shows that the use of fixed sprinklers with a controller on gardens in Sydney can reduce garden water consumption by greater than 50% compared to that from hand watering, yet restrictions prohibit investment in smart technology and permit hand watering.
- open space irrigation across Australia operates at an efficiency of about 55% yet could easily be operating at a minimum of 80% efficiency with appropriate incentives for efficient equipment and operator education.
- open space, supported by urban irrigation, provides extensive social benefits including, but not limited to, improved environmental services, increased capital property values, and reduced health issues such as obesity and depression. These benefits were recently valued as an annual net social benefit of \$1.2million in the Mosman LGA and \$1.4million in Ashfield LGA (Julian Morion, EconSearch PL, 2008).

ATTACHMENT X CONT'D

There is clearly much evidence that can and should be used to develop urban water policy that demonstrably delivers the greatest social benefit. A policy framework that drives consideration of this information would be most welcome.

We were also encouraged by the text under this principle that information should be acquired on an ongoing basis to continually improve the knowledge base. Such investment should be seen as an essential management tool to test policy and program implementation and refine approaches accordingly over time to ensure the continued maximum net social benefit from urban water use.

Draft Principle 4 – Adopt a Partnership Approach

In addition to the text under this principle, it is important that governments understand and recognise that the IAL and the irrigation industry also have much to offer in terms of knowledge, training and skills for improving the efficiency of urban water use. For example, the IAL runs training programs on open space water efficiency and auditing as well as administers a certification program to recognise competencies in irrigation design, installation and operation. These certifications could be confidently used as a cornerstone of demand management programs.

We would be pleased to work with governments as key partners in implementing urban water policy across Australia.

Draft Principle 5: Consider the Full Port Folio of Options

This principle is critical to finding the option with the greatest net social benefit. For transparency, and the understanding of the community and industry, the practical implementation of this principle should involve the publishing of the reasons for the selection of the water supply and demand management approach in each jurisdiction.

We would appreciate your advice about the process and timeframes for progressing the urban water reform framework, and of any opportunities for our input and review of any developments to these draft principles.

Thank you again for the opportunity to comment on the draft principles and we look forward to working with you and the Project Group on Urban Water Reform to progress this policy initiative. Should you wish to discuss any matters raised in this submission please feel free to contact me on 0432 339 145.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Tim Gilbert', with a stylized flourish at the end.

TIM GILBERT
Industry Development Manager
Irrigation Australia Limited

ATTACHMENT Y
LETTER TO SA WATER MINISTER
REQUESTING INTERIM DECISION ON WATER RESTRICTIONS

The Hon. Paul Caica MP
Minister for Water
GPO Box 1047
ADELAIDE SA 5001

25 May 2010

Dear Mr Caica

Re: Development of Frameworks for Permanent Domestic Outdoor Water Conservation

This letter is a follow up and confirmation of the discussions held with you involving Don Marriott, David Chester and myself from Irrigation Australia Limited's (IAL's) South Australian region on 21 May 2010 concerning the urban irrigation industry in South Australia (SA) and the current urban water restrictions.

Irrigation Australia Ltd (IAL) looks forward to a constructive working relationship with you on water and irrigation matters. As IAL is a national, not-for-profit organisation representing Australia's irrigation industry, including both rural and urban irrigation. Our members cover the whole industry chain and include research institutes, water supply organisations, irrigation design consultancies, equipment suppliers through to irrigation system installers and contractors. It is IAL's core function is to provide technical, training, certification, and information services to support best practice irrigation which underpins healthy, sustainable urban and rural communities and lifestyles. We are therefore in a unique position to provide technically based information and advice to government about best practice irrigation and water use efficiency.

As discussed at the meeting with you on 21 May 2010, the key issues for the irrigation industry in SA are:

- Primarily to assist government in developing a means of managing water restrictions in a better, more consumer sustainably approached manner.
- Assist in the development of a system that will deliver greater parity between rural urban and domestic water users. Rural users are presently under allocations, urban irrigation also under allocation, but management by a system policy tool – Irrigated Public Open Space (based on water scheduling and system delivery efficiencies, co developed by IAL).
- The using of certified personal or approved personal by SA Water to assist in system assessment and advice on technologies available, which in turn will provide greater consumer confidence and assurance.
- To provide government with up to date information on smart technologies such as controllers linked to moisture sensors, evapotranspiration sensors etc; allowing for precision scheduling and use of water delivery products that provide low water output while maintaining high water distribution efficiencies.
- To be an active member on the SA Water Customer Council

Moving from Water Restrictions for Spring 2010

As discussed with you, water restrictions have been of major concern and disruption to the domestic irrigation industry in SA since 2004. Therefore we would like to see the SA government implement an interim shift from the current water restrictions for the upcoming spring and summer of 2010/11.

ATTACHMENT Y CONT'D

As background to our request for you, IAL has been working co-operatively with SA Water through an Advisory Committee since 2008 to explore alternatives to the existing domestic water restrictions, similar to that undertaken for the development of IPOS for urban water conservation use. The decision on a preferred alternative was scheduled by SA Water for June 2010, ready for implementation in spring 2010. The decision was to be based on water use practices and behavioural data gathered from the installation of smart meters by SA Water into a number of homes (150) across the Adelaide metro area over the 2009/10 summer. Unfortunately the supply of these meters to SA Water had been delayed, and SA Water did not appear to pursue this delay vigorously. Consequently this data is not currently available to better inform government about permanent alternatives to water restrictions.

IAL supports the need for evidence based policy and so appreciates that the meter data is desirable prior to a final decision about permanent urban water conservation measures. However, given:

- the significant costs of water restrictions to the community, and
- the industry has been operating on the understanding there will be changes to water restrictions from June 2010, and

• that the Adelaide desalination plant will provide increased supply security from December 2010
IAL therefore considers there is a need and scope for an interim policy shift by June 2010, as originally planned, to provide a structured and measured relief from water restrictions to be enacted correctly prior to the summer irrigation period of 2010. Any interim measure could subsequently be replaced by permanent outdoor water conservation measures in the future. I have outlined a possible interim measure for your urgent consideration in Attachment "A".

IAL would be pleased to further discuss this proposed interim measure with you, with a view to implementation of this approach, or a refined alternative, for the 2010 spring season. We would appreciate your urgent response to this matter.

Thank you for taking the time to meet with us and should you wish to further discuss any matters raised within this letter or at our meeting please contact me on 0419804139.

I look forward to hearing from you.

Yours sincerely

Max Curnow
IAL SA Regional chair

Signed on behalf of Max Curnow by David Chester IAL SA Development Officer

ATTACHMENT Y CONT'D

ATTACHMENT A

PROPOSED INTERIM ALTERNATIVE TO WATER RESTRICTIONS FOR SPRING 2010

Proposed Interim Alternative

An interim policy shift could be simply to permit exemptions from water restrictions for householders with domestic irrigation systems that demonstrate and meet specified system performance benchmarks such as no leakage, correct pressures, and efficient irrigation systems that direct water only to gardens and lawns, and where the water application meets existing published standards and a watering scheduled plan.

How Would this Work?

The householder seeking exemption would have their irrigation system assessed and certified for exemption by an assessor that is a current IAL Certified Irrigation Professional* or is otherwise approved by SA Water.

The assessor would also need to determine and record a watering scheduled plan to meet plant water needs specific to the gardens and lawns at the premises. A copy of the assessor's paperwork would be submitted to SA Water who would then consider and issue exemptions. SA Water could audit individual assessors to ensure they maintain the integrity of the exemption process.

Exemptions could be subject to conditions limiting the times at which watering can be undertaken, requiring watering to be undertaken in accordance with the watering schedule determined by the assessor, and requiring the display of exemption signage.

*IAL's Certified Irrigation Professional Scheme

IAL has operated a Certified Irrigation Professionals (CIP) scheme since 2006 to recognise competency across a number of irrigation vocations such as irrigation system design, installation and operation. CIPs have at least 2 years industry experience, have specified irrigation related competencies defined in the national training framework, and must participate in a continuous professional development program to renew their Certification every two years.

Benefits of this Approach

This proposed interim approach:

- could be implemented immediately, as there are recognised and Certified industry practitioners available now to undertake site assessments, and many other irrigation practitioners across Adelaide and SA that already have the competencies and could readily obtain Certification;
- would be relatively low cost, or no cost, to Government as the exemption process would be largely managed by the community and the irrigation industry;
- represents only a small shift from the current water restrictions, and so would not preclude any permanent measures that may subsequently be recommended by SA Water or the Advisory Committee;
- would also provide the opportunity of exempt premises to be monitored and measured to further increase valuable additional data and information to the Advisory Committee to help it devise and assess options for permanent outdoor water conservation measures.