



MEDIA RELEASE

29 October 2010

YOUNG WATER PROFESSIONAL OF THE YEAR SEES GREENER TIMES AHEAD DESPITE THE DROUGHT

Well known TV green thumb Josh Byrne was announced Young Water Professional of the Year at the recent WA Water Awards, supported by the Department of Water and the Water Corporation. The annual event promotes the outstanding work achieved by individuals and organisations in the water sector, recognising innovation and excellence in the conservation, management and delivery of water.

Byrne is best known for his role as the WA presenter and writer for ABC's *Gardening Australia* TV program and magazine, where he's regularly seen demonstrating practical ways to create productive and water efficient gardens. Alongside his media commitments, he is also engaged in research, teaching and consultancy work in the areas of sustainable landscape design and urban water management.

His latest mission has been to help head up a campaign to make Perth a leading example of a water sensitive city. Perth has just experienced its second driest winter on record, with long term predictions suggesting that reduced rainfall is likely to be the norm. Byrne believes that this is the wakeup call that's needed to get things moving.

According to Byrne, further water restrictions aren't the solution - he believes that they will have a significant impact on the landscapes that make our urban environment liveable. Instead he advocates an integrated approach to water conservation that incorporates improved water efficiency both inside and outside the home, along with wastewater recycling and rainwater harvesting.

Byrne has teamed up with the Garden Industry Alliance (GIA), a coalition of peak industry groups incorporating Irrigation Australia Limited (WA), the Landscape Industries Association of Western Australia, the Nursery and Garden Industry Western Australia, the Turf Growers Association of WA, Turf Australia and Compost WA. The group has recently tabled a Joint Position Statement to government that calls for the implementation of a suite of initiatives, ranging from the reinstatement of rebates for water saving technologies to be supported by sophisticated community education programs, through to the introduction of mandatory irrigation standards and the provision of alternative water supplies for new housing.

"Industry wants to work with government to meet the required scheme water savings to avoid the continuation of the one day per week irrigation roster, or even worse, a complete ban. It will require a whole of government and industry response to bring about rapid changes to business as usual. It's ambitious but it can be done if we work together."

Attachments: Garden Industry Alliance (GIA) Joint Position Statement
Availability: additional information, photographs, interviews

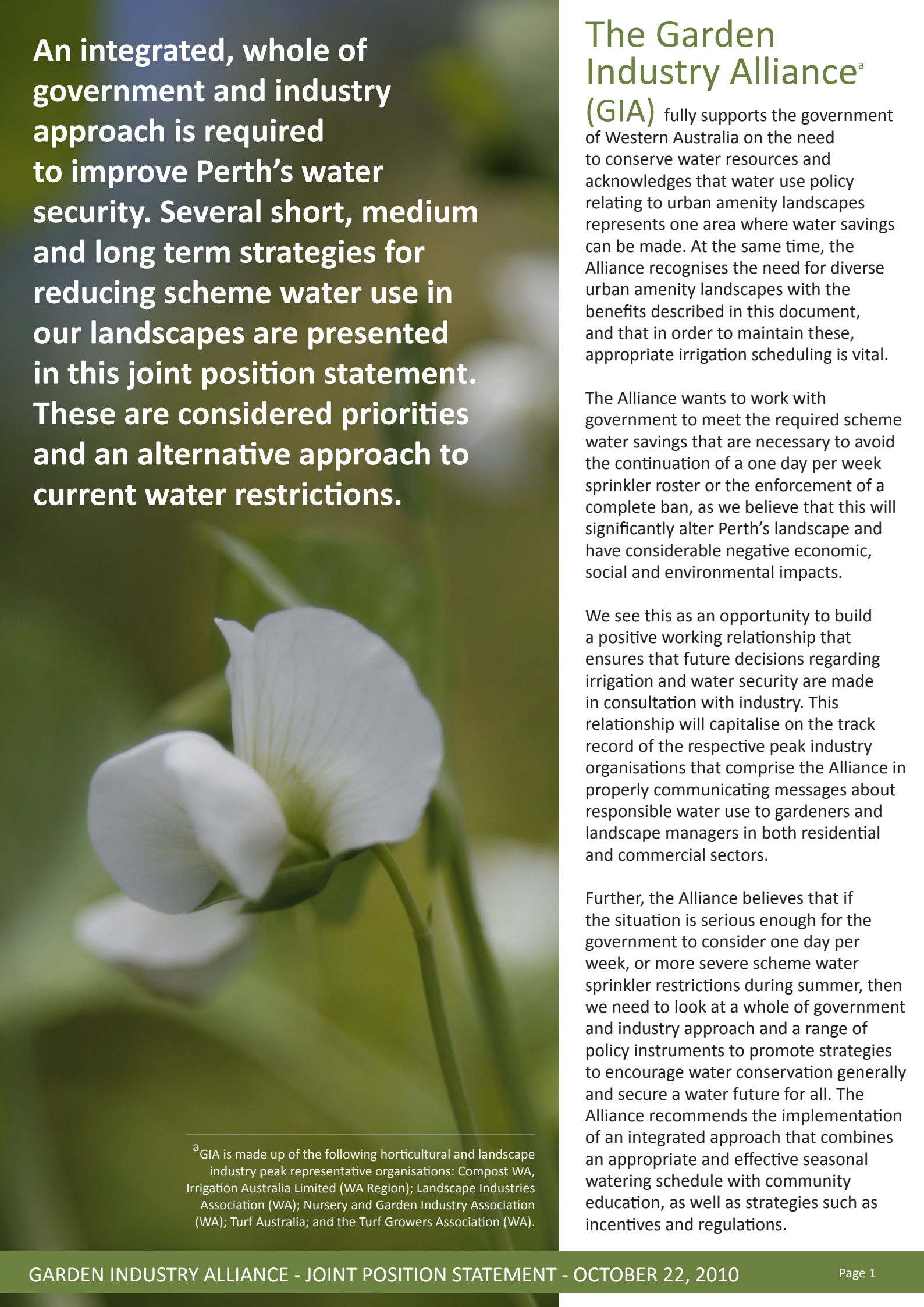
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GARDEN INDUSTRY ALLIANCE



Joint Position Statement October 22, 2010



An integrated, whole of government and industry approach is required to improve Perth's water security. Several short, medium and long term strategies for reducing scheme water use in our landscapes are presented in this joint position statement. These are considered priorities and an alternative approach to current water restrictions.

The Garden Industry Alliance^a

(GIA) fully supports the government of Western Australia on the need to conserve water resources and acknowledges that water use policy relating to urban amenity landscapes represents one area where water savings can be made. At the same time, the Alliance recognises the need for diverse urban amenity landscapes with the benefits described in this document, and that in order to maintain these, appropriate irrigation scheduling is vital.

The Alliance wants to work with government to meet the required scheme water savings that are necessary to avoid the continuation of a one day per week sprinkler roster or the enforcement of a complete ban, as we believe that this will significantly alter Perth's landscape and have considerable negative economic, social and environmental impacts.

We see this as an opportunity to build a positive working relationship that ensures that future decisions regarding irrigation and water security are made in consultation with industry. This relationship will capitalise on the track record of the respective peak industry organisations that comprise the Alliance in properly communicating messages about responsible water use to gardeners and landscape managers in both residential and commercial sectors.

Further, the Alliance believes that if the situation is serious enough for the government to consider one day per week, or more severe scheme water sprinkler restrictions during summer, then we need to look at a whole of government and industry approach and a range of policy instruments to promote strategies to encourage water conservation generally and secure a water future for all. The Alliance recommends the implementation of an integrated approach that combines an appropriate and effective seasonal watering schedule with community education, as well as strategies such as incentives and regulations.

^aGIA is made up of the following horticultural and landscape industry peak representative organisations: Compost WA, Irrigation Australia Limited (WA Region); Landscape Industries Association (WA); Nursery and Garden Industry Association (WA); Turf Australia; and the Turf Growers Association (WA).



BENEFITS OF URBAN AMENITY LANDSCAPES

The benefits of urban amenity landscapes are well documented. The lists presented below provide a snapshot of the range of economic, social and environmental benefits reported in the literature.^{1,2,3}

SOCIAL BENEFITS

- Improved wellbeing and quality of life
- Increased social cohesion
- Improved health outcomes in areas such as obesity and mental health
- Reduced crime and juvenile delinquency
- Education opportunities
- Noise reduction
- Recreational value

ECONOMIC BENEFITS

- Increased real estate value
- Reduced energy requirements for cooling in summer
- Economic value of sports fields
- Combined industry turnover
- Combined industry employment
- Increased economic activity in the tourism sector

ENVIRONMENTAL BENEFITS

- Assisting urban cooling and reduced heat island effect
- Indirect reductions in CO₂ emissions due to reduced energy consumption required to cool buildings and local (home) food production
- Carbon sequestration where vegetation acts as a natural sink for carbon dioxide (CO₂)
- Preserving and enhancing urban biodiversity
- Improved air quality through the amelioration of air pollution
- Soil stabilisation

“ there is a significant relationship between mental health and greenness¹ ”

“ attractive landscapes can increase house prices by as much as 12%² ”

“ the cooling benefits of urban vegetation can result in air temperature reductions of between 2-8°C with associated savings in cooling/heating costs³ ”

IMPACTS OF FURTHER SPRINKLER RESTRICTIONS AND/OR BANS

PERTH RESIDENTS

- A loss in amenity, reduced health and wellbeing and financial costs associated with affected landscaping and real estate values.

STATE GOVERNMENT

- Rising costs to Treasury to manage public sector demands that are likely to arise as a result of a diminished amenity horticultural environment (e.g. police, health and tourism).

GARDEN INDUSTRY

- A loss of technical expertise from the industry ultimately affecting the viability of this industry in the longer term.

Perhaps most significantly, there is evidence to suggest that this measure will not achieve the anticipated water savings representing a policy failure. According to a recent study⁴ **“for a typical consumer complete sprinkler bans may be little more effective than milder restriction policies... the associated water savings are around 36 per cent of current consumption for the mild restrictions, compared with only 42 per cent when a complete sprinkler ban is in place.”** This is due to an increase in hand held watering.

PERTH’S WATER OUTLOOK

Increasing demand and decreasing water availability makes water security a serious issue for Western Australia.

INCREASING DEMAND

- Perth’s scheme supplied water consumption is currently inside the target for the financial year to date⁵.
- However, the Water Futures for Western Australia 2008 – 2030 study⁶ concluded, based on a range of scenarios (low, medium, high and climate dependent demand), that:
 - Perth will “reach a total water use of between 704 GL and 1002 GL by 2030.”
 - **Perth will enter a water deficit by 2020 under all scenarios.**

DECREASING SUPPLY

- Figure 1 illustrates significantly lower streamflow into Integrated Water Supply Scheme (IWSS) dams in 2010/2011.⁷
- “Perth has received 57.8 mm of rain so far this Spring, compared to the Spring rainfall average of 156 mm”.⁸



WATER USE

Total water use (scheme and self-supplied) in Perth amounts to 562 GL per annum with 56.8 % or 241 GL per annum from scheme water.⁸ Household use accounts for 64% of all scheme water.

Information presented as a snapshot of the 2009/2010 Perth Domestic Water Use Study⁹, due for release in late October, indicated that 43.5 % of scheme water was used outside the home of which 37.8 % was used to water lawns and gardens. This is compared to 50 – 56 % of water used outdoors as reported in the previous study.¹⁰ This represents a significant reduction in water used for irrigation and highlights what can be achieved when government and industry work together to promote a two day per week watering schedule in conjunction with other waterwise messages.

Water restrictions can be an effective tool in reducing water use if properly implemented as demonstrated above, however it should only be seen part of the solution. Further reducing Perth's scheme water usage will depend on the successful introduction of a broad and integrated range of supply and demand management solutions geared to short, medium and long term targets.

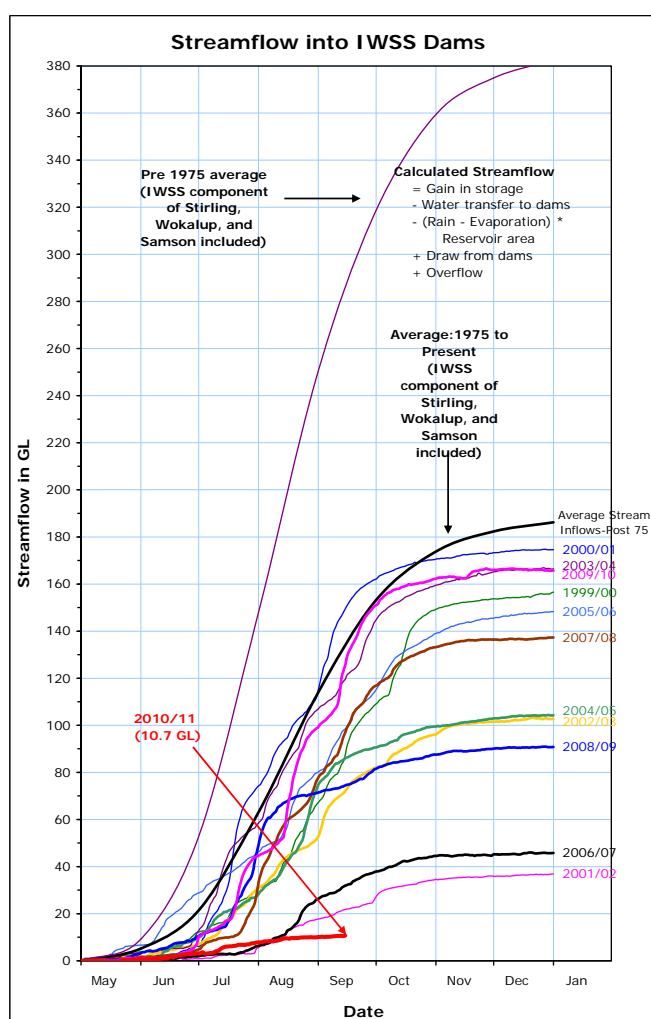


Figure 1: Streamflow into Integrated Water Supply Scheme (IWSS) Dams 1999/2000-2010/2011⁷

Table 1: Perth Residential Scheme Water Use⁹

USE	PERCENTAGE (%)
Indoor Use	
Shower and bath	24.9
Toilet	8.6
Washing machine	7.5
Taps	5.9
Evaporative air-conditioner	5.2
Dishwasher	0.3
Sub total	52.4
Outdoor Use	
Hand-watering	3.1
Pool	2.5
Spa	0.1
Irrigation	37.8
Sub total	43.5
Other	
Leaks	4.2

“ Perth will enter a water deficit by 2020 under all scenarios. ”

STRATEGIES

SHORT-TERM

OPTIMAL WATER USE EFFICIENCY OF IRRIGATION SYSTEMS

Restricting irrigation for less than two days per week during periods of high evaporation (late spring to mid autumn) will have a detrimental effect on lawns and many common garden species due to the low soil moisture holding capacity of Perth's sandy soils, combined with high evapotranspiration demands. To ensure optimal efficiency of watering systems, and eliminate the need for one day per week restrictions, four strategies are recommended.

1. New seasonal irrigation schedule for scheme water use

The Alliance recommends the introduction of a seasonally appropriate irrigation schedule for scheme water use based on the previous two day per week roster system, with a total ban still being in place for the winter months from 1 June to 30 August. Additional savings can be made by encouraging gardeners to halve their run times during the shoulder periods either side of winter, i.e. early Spring (1 September to 30 September) and late Autumn (1 May to 31 May) when evaporation rates and plant water use requirements are generally low (see Figure 2).

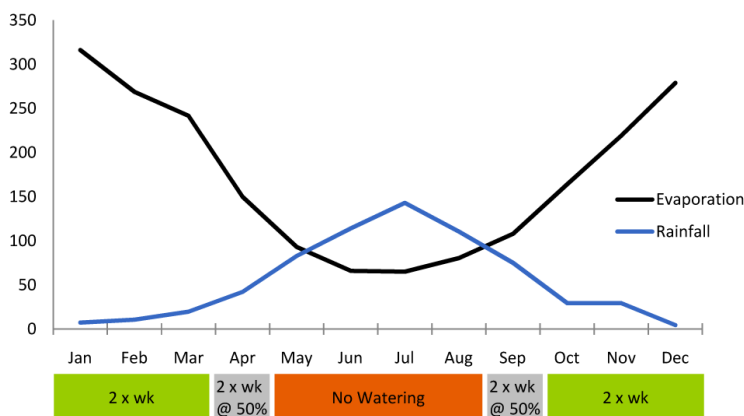


Figure 2: Recommended Seasonal Irrigation Schedule for Scheme Water Use in Perth

2. New installation and maintenance rebates

Irrigation systems that are designed, installed and maintained to the Water Corporation Waterwise Garden Irrigator Program (WGIP) standards can potentially achieve 30% water savings when compared to the operation of typical systems. Two rebates are recommended to improve the quality of new and existing irrigation systems to achieve greater efficiency:

1. \$500 for new automatic irrigation system when installed by a Certified Waterwise Garden Irrigator
2. \$50 to engage a Certified Waterwise Garden Irrigator to service an irrigation system for a pre season start up

3. Mandatory irrigation standards and licensing/ accreditation for installers

The Waterwise Garden Irrigator Program (WGIP) standards and codes were designed by Irrigation Australia Limited (IAL) and the Water Corporation to optimise the water-use efficiency of domestic irrigation systems, however there is a considerable amount of residential and light commercial irrigation systems that do not meet these standards. The WGIP Program provides the base standards which can be built on for proper standards, accreditation and licensing of all irrigation installers to ensure quality of design, installation and maintenance of irrigation systems. Applying these standards to current and new systems will result in water savings when compared to non compliant systems.

4. Soil moisture, rain or climate controlled sensor rebate

With most automatic irrigation systems programmed to water early in the morning many people do not switch off their automatic systems if it is raining, resulting in unnecessary watering. This could be avoided if Smart Approved WaterMark soil moisture, rain or climate controlled sensors were made mandatory on every new automatic irrigation system. A \$50 rebate is recommended to facilitate uptake of these sensors.

UPTAKE OF ALTERNATIVE WATER SUPPLY TECHNOLOGIES

1. Bore rebate

There are currently 176,000 residential bores in the Perth metropolitan area.¹¹ It is widely acknowledged that “garden bores are generally a better alternative to scheme water for use on gardens as they reduce the need to use high quality drinking water for irrigation”.¹² The Department of Water are concerned at the drop off in new bore installations particularly in new sub divisions in Perth. Rising water tables in some parts of Perth concern the DoW and garden bores are a suitable method to keep this in balance.

In light of this, rebates of \$500 for the installation of new individual bores, with an additional \$500 per residence under a shared bore arrangement is recommended for areas designated appropriate by the Department of Water (DoW). Further recommendations on the use of community bore infrastructure for new housing developments are detailed under the Policy & Legislation section.

2. Greywater rebate

Greywater reuse systems utilise wastewater from bathrooms (shower, bath and hand basin) and laundries (washing machine and laundry trough) for garden irrigation. These systems can be used to effectively irrigate approximately 30 m² to 50 m² of garden or turf and can substitute for scheme water. In addition to the federal rebate (currently for greywater treatment systems only), a rebate for greywater systems to the value of \$500 per system is recommended.

3. Rainwater rebate

Rainwater harvesting systems are an effective substitute for scheme water for toilet flushing and washing machine use during periods of regular rainfall where savings of between 20 to 30 kL/a can easily be achieved with a small tank and modest roof catchment. In addition to the federal rebate, a \$1000 rebate for the installation of rainwater harvesting systems plumbed to both toilet and washing machine is recommended.



WATERING EXEMPTIONS

A range of watering exemptions are currently available for users of scheme water provided by the Water Corporation (e.g. sports facilities, market gardens, nurseries, caravan parks etc). These exemptions apply largely to commercial activities. It is recommended that these are extended to individuals/households beyond the current provision for establishing new gardens or lawns to include those who can demonstrate actual water saving targets achieved from the installation of water saving technologies as a reward mechanism. This initiative is of particular relevance to people who want to grow vegetables and other food crops which would otherwise not survive on two or less watering days per week.

It is also recommended that community gardens are made eligible for watering exemptions in recognition of their important social value and so as to provide an opportunity for individuals who are not in a financial position to install water saving equipment in their homes to still participate in local food production activities. In order to be granted an exception, it is recommended that the proponent must demonstrate the intent and ability to deliver best practice water conservation measures documented in a water management plan outlining water use targets, monitoring and verification methods.



WATERWISE EDUCATION

The changing water outlook for Perth warrants extending current messaging around best practice water usage outside the home. This should aim to:

- Deliver a properly resourced education program for gardeners (both residential and commercial) using scheme water.
- Provide gardeners with the knowledge and skills to manage their garden assets according to current regulations and watering schedules while making the most of available incentives such as rebates.
- Develop as a collaborative effort between the Water Corporation, the Department of Water and the GIA to ensure that there is a clear, sophisticated and unified message coming from both government and industry.

WATER SAVINGS AND ASSOCIATED COSTS

Six rebates have been outlined as strategies to optimise the efficiency of watering systems and increase the use of alternative water supplies:

1. New irrigation system installation
2. Maintenance rebates
3. Rain sensor or soil moisture system rebate
4. Bore rebate
5. Rainwater tanks
6. Greywater systems

Assuming that each rebate was applied to 10,000 separate homes, for all systems, the total volume of water saved per year is 1.84 GL and will cost \$26 million in rebates or \$1.4/kL (or \$1.4m/GL) over a 10 year timeframe.

With the infrastructure cost of new resource development reported at approximately \$10/kL (or \$10m/GL)¹³ these rebated systems offer significant dividend to the taxpayer.

Details of the calculations and an explanation of each rebate are provided in Appendix I.

MEDIUM AND LONG-TERM

REMOVAL OF REGULATORY BARRIERS

A recent report¹⁴ explored four demonstration projects in Perth:

1. Kwinana Water Reclamation Plant
2. Liege Street Wetland
3. The Green at Brighton Estate
4. Wungong Urban Water Project

A finding of this study was that urban water management projects are typically constrained by current regulatory approval and implementation processes.

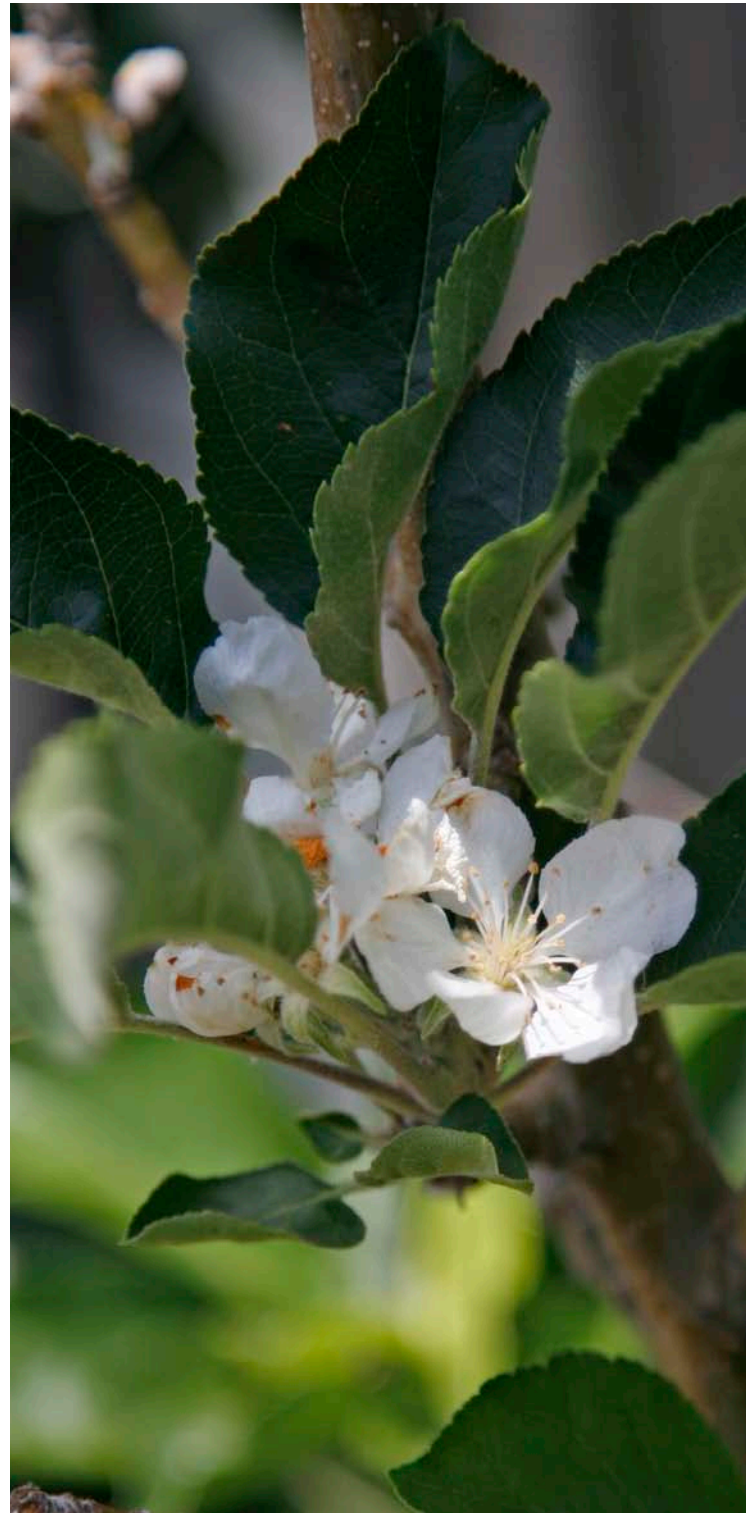
This regulatory environment undermines many water supply and conservation strategies. These regulatory barriers need to be removed and replaced with guidelines and approvals processes that are not onerous or overly risk averse.

POLICY AND LEGISLATION

The introduction of government policy and legislation that mandates the incorporation of alternative water supply capability into new or retrofitted residential, commercial and industrial buildings is recommended. Initiatives should include:

- Installation of dual plumbing for new and renovated residential housing stock. This would enable buildings to be connected to an alternative water supply and/or greywater diversion systems, giving householders the opportunity to use alternative water supplies at low additional cost at the time of connection.
- New residential land developments to have an appropriate alternate water supply via either a third pipe system (recycled water or community bore) or lot-scale rainwater tanks, greywater systems or shared bores, whichever is most environmentally and financially viable at each site, as determined through a Local Water Management Strategy and then mandated through the Urban Water Management Plans.

- A similar approach to the above is necessary for commercial buildings for all transfer of ownership, retrofit or new constructions requiring installation of facilities for rainwater harvesting, water recycling for non-potable uses and new plumbing systems to allow use of alternate sources of water to scheme.
- Industrial facilities using scheme water for non-potable uses to install a choice of non-potable systems such as rainwater harvesting or water recycling, whatever is most economically viable for the site.



CONTRIBUTORS

This Joint Position Statement has been prepared by Josh Byrne & Associates on behalf of the Garden Industry Alliance (GIA) which is made up of the following horticultural and landscape industry peak representative organisations:

- Irrigation Australia Limited (WA Region)
- Landscape Industries Association (WA)
- Nursery and Garden Industry Association (WA)
- Turf Growers Association (WA)
- Turf Australia
- Compost Australia

This statement was issued to the West Australian Minister for Water, Honourable Dr Graham Jacobs, on October 26, 2010.

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¹⁵ GHD (2005). Non-potable water use: guidelines for developers and their consultants. Water Corporation document 61/16176/52589. Water Corporation: Perth, Western Australia.

¹⁶ DoH. (2005). Code of Practice for the reuse of greywater in Western Australia. Water Corporation, Department of Health and Department of Environment: Perth, Western Australia.

APPENDIX I – REBATE CALCULATIONS

Six rebates are proposed in this statement:

1. New irrigation system installation
2. Maintenance rebates
3. Rain sensor or soil moisture system rebate
4. Bore rebate
5. Rainwater tanks
6. Greywater systems

Table 2 gives indicative costs of the rebates presented in this statement assuming that each rebate was applied to 10,000 separate homes. It also provides the total volume of water that can be saved from these systems and the cost per kilolitre after 10 years (\$/kl equates to \$m/GL).

Table 2: Estimate of costs and benefits of recommended rebate initiatives

	SAVINGS	REBATE	NO. OF HOMES	WATER SAVED PER YEAR	REBATES VALUE	WATER SAVED AFTER 10YRS	LIFE OF REBATE INVESTMENT	WATER VALUE
	kL/h-h/a	\$/hh	in 1st year	GL/a	\$m	GL	yrs	\$/kL or \$m/GL
Bore	85	500	10000	0.85	5	8.5	20	0.29
New Install	21.2	500	10000	0.212	5	2.12	10	2.36
Maintenance	17	50	10000	0.17	0.5	1.7	1	2.94
R/SM sensor	3.8	50	10000	0.0375	0.5	0.375	10	1.33
Rain Tank	25	1000	10000	0.25	10	2.5	20	2.00
Grey Water	31.6	500	10000	0.316	5	3.16	10	1.58
TOTAL				1.84	26	18.36		

For all systems, the total volume of water saved per year is 1.84 GL and will cost \$26 million in rebates or \$1.4/kL (or \$1.4m/GL) over a 10 year timeframe. With the infrastructure cost of new resource development reported at approximately \$10/kL (or \$10m/GL) these rebated systems offer significant dividend to the taxpayer. It is noted that those who take up these rebates will need to pay for the balance of the cost of the systems. There is however a benefit in them doing so in that they will have more water available to them (in the cases of bores and greywater systems and rainwater tanks) and not be restricted by the sprinkler roster. If these systems are maintained (the cost of which is borne by the owner of the system not the taxpayer) these systems can have a life expectancy far greater than 10 years. This has the potential effective of increasing the return on the investment far greater than that outlined in Table 2.

The calculations shown below for each of the recommendations are indicative of savings that could be made and more detailed calculations would need to be performed to ensure accuracy. There are many factors not considered in these calculations that could either improve or hinder the take up of these rebates and/or the volume of scheme water that could be saved if these systems were implemented. The calculations used below are conservative and it could be expected that yields will be higher than that stated.

\$500 FOR INSTALLATION OF A NEW BORE

Using the proposed sprinkler roster timetable and an application rate of 10mm/irrigation event, the following scheme water can be substituted by bore water.

Table 3: Estimate of total volume of scheme water to be substituted by bores for residential irrigation

MONTH	NO. OF WEEKS	IRR. EVENTS	APP. RATE	TOTAL DEPTH	IRR. AREA [^]	VOLUME
	(wk)	(per wk)	(mm)	(mm)	(m2)	(kL)
September	4	2	5	40	125	5
October to April	30	2	10	600	125	75
May	4	2	5	40	125	5
TOTAL VOLUME						85

[^] Based on R20 zoning with a lot size of 500m² and 125m² of irrigatable area.¹⁵

The total saving from the installation of only 10,000 bores would be 85kL/a x 10000 bores = 850 ML/a. The above calculations are based on one bore per household however the GIA believes there is great benefit and potential for shared bores. We would recommend that where a bore is installed to service two or more homes, the rebate should be increased by \$500 per household to provide additional incentive for this arrangement.

\$500 FOR NEW AUTOMATIC IRRIGATION SYSTEM WHEN INSTALLED BY A CERTIFIED WATERWISE GARDEN IRRIGATOR

Assume irrigation water consumption of 85 kL/a[^] and just 25% saving as a result of the installation of the automatic irrigation controller, a total of 21kL/hh/a can be saved. Over a 10 year period, this equates to 212 kilolitres. With the \$500 rebate, the value of the rebate over a ten year period is \$2.4m/GL.

\$50 TO ENGAGE A CERTIFIED WATERWISE GARDEN IRRIGATOR TO SERVICE AN IRRIGATION SYSTEM FOR A PRE SEASON START UP

Assume water consumption of 85 kL/a[^] and just 20% saving, a total of 17kL/hh/a can be saved. Over a 10 year period this equates to 170 kilolitres. With the \$50 rebate, the value of the rebate over a ten year period is \$2.9m/GL.

[^]Based on R20 home with 125m² of irrigable area¹⁵ irrigated at 10mm/d under the proposed irrigation timetable.

\$50 FOR INSTALLATION OF A SOIL MOISTURE, RAIN OR CLIMATE CONTROLLED SENSOR

If just three watering cycles were saved per year per home (1.25kL/event[^]), a total of 3.8kL/hh/a can be saved. Over a 10 year period this equates to 37.5 kilolitres. With the \$50 rebate, the value of the rebate over a ten year period is \$1.33m/GL.

[^]Based on R20 home with 125m² of irrigable area¹⁵ irrigated at 10mm/d under the proposed irrigation timetable.

\$1000 FOR THE INSTALLATION OF RAINWATER HARVESTING SYSTEMS PLUMBED TO A MINIMUM OF TOILET AND WASHING MACHINE

A 2kL tank, with 100m² of roof and an occupancy of 2.5 people will yield on average 25kL/a if used for toilet (27L/p/d) and washing machine only (19L/p/d). These yields can be achieved even when winter rainfall is low. This type of system is very climate resilient as there is usually more winter rainfall than can be utilized.

A rainwater tank yielding 25kL/a for the life of the tank (currently about 20 years) would deliver a total water savings of 500kL. If 10,000 homes were fitted with rainwater tanks plumbed to toilets and washing machines, 250ML/a could be saved every year for 20 years for a initial investment of \$10m. This equates to a value of \$2m/GL.

\$500 PER GREYWATER SYSTEM INSTALLATION

Based on the Greywater Code of Practice (CoP)¹⁶, the greywater produced from the bathroom and laundry of a four bedroom home must irrigate a minimum of 46.5m². This is based on a greywater production of 465L/hh/d (Table 4 in the CoP) irrigated at an application rate of 10mm/d giving an irrigated area of 46.5m². Table 4 shows that using the proposed sprinkler roster 32kL/a of scheme water could be substituted per home using greywater.

Table 4: Estimated calculations of greywater savings

MONTH	NO. OF WEEKS	IRR. EVENTS	APP. RATE	TOTAL DEPTH	IRR. AREA	VOLUME
	(wk)	(per wk)	(mm)	(mm)	(m2)	(kL)
September	4	2	5	40	46.5	1.86
October to April	30	2	10	600	46.5	27.9
May	4	2	5	40	46.5	1.86
TOTAL VOLUME						31.62

Note: this is not the total volume of greywater produced but the volume of greywater that would effectively substitute scheme water if an appropriate irrigation regime was applied. More greywater would be available to the owner.

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