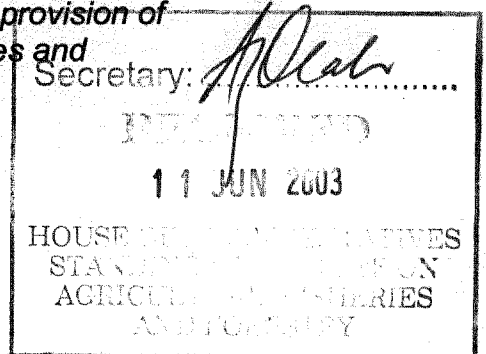


"SECURING DOMESTIC WATER SUPPLY"

*Submission to The House of Representatives Standing Committee
on Agriculture, Fisheries and Forestry inquiry into "the provision of
future water supplies for Australia's rural industries and
communities".*

June 11, 2003



The Prime Minister, in his role as Chairman of CoAG, is able to request State Governments to complete implementation of the 1995 Water Reforms Agreement that

"...as far as possible, the roles of water resource management, standard setting and regulatory enforcement and service provision be separated institutionally."

The States of NSW, South Australia and Western Australia are yet to implement the reforms.

In keeping with National Competition Policy, the Prime Minister is able to request the States to consider the adoption of State plumbing regulations that will facilitate securing the future of water supply through the use of rainwater tanks by the 87% of Australian households that are connected to a mains water supply.

Fundamental to the success of a national rainwater tank program is for State Governments to acknowledge property owners' rights to the unrestricted use of water from rainwater tanks.

A second fundamental need is for State Governments to confirm property owners' rights to distribute both mains water and rainwater in household plumbing systems, provided backflow into the mains water service is prevented.

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Australia's Rainwater Tank Challenge

The problem with rainwater tanks is that State Governments treat them merely as devices for lowering mains water consumption during drought.

As a "new", permanent, source of water, rainwater tanks will secure water supply to the 87% of Australian homes that are connected to a mains water service.

Rather than encouraging rainwater tanks as water supply, State Governments now seem intent on restricting their use.

Actions by State Governments are reflected in draft changes to Australian Standard 3500 – National Plumbing and Drainage Code.

Since 1992, AS 3500 has provided a plumbing regulation for cross connecting rainwater tanks to the mains water supply (provided a backflow prevention device is used) thereby allowing property owners to distribute rainwater in their household plumbing.

A draft revision of AS 3500, dated February 6, 2003, nominated toilet flushing as the "permitted" use of rainwater when a cross connection is made to the mains water supply using the household plumbing.

On April 8, two more "permitted" uses of rainwater - "laundry" and "ablutionary purposes" - were added to the draft.

Following public comment, on May 23, a further "permitted" use of rainwater - "other purposes" - was added to the draft.

AS 3500 has no legal status in its own right but is incorporated in State Government plumbing regulations. One State Government, NSW, adopts three different versions of AS 3500, and modifies each of them.

A "Plumbing Code of Australia" is being prepared to achieve national consistency in plumbing regulation. State and Territory Governments have agreed to adopt the "Plumbing Code of Australia", which will incorporate AS 3500, together with other relevant Australian Standards.

Fundamental to the success of a national rainwater tank program is for State Governments to acknowledge property owners' rights to the unrestricted use of water from rainwater tanks.

A second fundamental need is for State Governments to confirm property owners' rights to distribute both mains water and rainwater in household plumbing systems, provided backflow into the mains water service is prevented.

A "rainwater tank connection valve" developed by Urban Rainwater Systems allows cross connection without backflow.

The valve allows property owners to select the use of rainwater which can be for all purposes, select potable purposes, or select non-potable purposes in compliance with State health recommendations.

For example, in South Australia, rainwater tanks are the primary source of water for human consumption by the majority of the population, whereas, in NSW, the State Health Department recommends mains water in preference to rainwater for human consumption.

Compliance with NSW Health recommendations is achieved where mains water and rainwater share plumbing installed for non-potable water uses only. Many South Australians would prefer rainwater to be used for potable purposes and would install separate plumbing to use only mains water for flushing toilets.

The valve, which is certified to AS 4020 (valve used in connection with drinking water) achieves a cross connection under the following conditions:

1. Prevents tank water backflow into the mains water service pipe. Backflow is further prevented by a dual check valve installed at the connection and another dual check valve installed at the water meter as required by AS 3500. In total, there are three independent forms of backflow prevention.
2. Prevents tank water and mains water making contact within the valve.
3. Allows a property owner to use a rainwater tank for all purposes or for select purposes in compliance with health guidelines.
4. Upholds property owners' legal rights to unrestricted use of water from rainwater tanks.
5. Satisfies National Competition Policy and the Trade Practices Act by enabling property owners to choose their water supply in compliance with health guidelines and backflow prevention.
6. Enables Local Councils to make rainwater tanks compulsory for new development without infringing property owners' legal rights.
7. Establishes the property owner as the party legally responsible for the tankwater.
8. Optimises the yield of a rainwater tank consistent with household choice of use; optimises reduction in stormwater discharge.
9. Achieves instant transfer of water supply between the rainwater tank and the mains supply.
10. Enables a minimum size rainwater tank commensurate with maximum yield (important in confined urban spaces).

Financing and Economic Development

There are seven million occupied private dwellings in Australia. Of this number, five million are detached family homes. If a rainwater system costing \$3,200 was acquired by each household, it would generate economic activity worth \$16 billion. There would be some thousands of jobs created in materials manufacture, installation and maintenance services.

Financing of this magnitude can be achieved at no cost to Government by permitting a property owner the option of securing a loan as a Local Council rates caveat on the property. The loan is discharged when the property is sold. The property owner may purchase outright at any time.

There is no legal liability to the Local Council nor is the Council responsible for collecting the loan.

In this way, rainwater tanks become a privately financed national infrastructure project controlled by each property owner. The role of State Governments is to establish a favourable policy setting and public education.

Urban Rainwater Systems has developed a national program for immediate implementation once supportive State Government policies exist.

The program will secure Australia's urban water supply in 20 years if only 5% of homes install and use a 4,500 litre rainwater tank each year.

At the local level, individuals or small businesses will be recruited to provide installation and maintenance services while Urban Rainwater Systems provides services in: training; marketing; sales and financial administration; purchasing; and, quality control.

Several Local Councils in NSW and Queensland are keen to adopt the program immediately.

System maintenance costs are negligible if maintenance is provided by the property owner. Maintenance visits arranged by Urban Rainwater Systems will cost about \$60 and are recommended twice annually. The service includes (in compliance with the *National Health Monograph*):

- Clearing of overhanging branches from roof area.
- Gutter cleaning.
- Drain pipe, rain head and first flush device inspection and cleaning.
- Stormwater System maintenance.
- Rainwater tank maintenance.
- Filter and screens cleaning (and change if necessary).
- Pump inspection.
- Plumbing inspection.

A maintenance report is provided to the household and the status of the system is uploaded to a data base.

The program is ideally suited for community-based, not-for-profit organisations.

It is considered that a partnership approach with the Local Council will generate considerable cost savings in marketing and administration that can accrue to the local entity. There are significant commercial opportunities at the local level in provision of maintenance services.

Involvement of Local Councils has been cleared with State Governments for compliance with local government regulations.

Contribution to Water Supply

The most important decision for a household is to select the range of uses they want to be supplied from their rainwater tank. Thereafter, the rainwater tank becomes the preferred source of supply for the selected uses.

The most cost effective use of a rainwater tank occurs when the rainwater is used to supply all household purposes.

Indoor water use by an average Australian household is 156 kilolitres per year however outdoor use varies widely between States. A 4 500 litre tank has been calculated as a compromise and best fit to household use, tank draw down, storm water retention, cost and footprint. Based on daily rainfall since 1980, a 4 500 litre rainwater tank can yield the following water volumes a year:¹

Brisbane:	101 kilolitres or 65% of indoor use
Sydney :	100 kilolitres or 65% of indoor use
Perth:	83 kilolitres or 53% of indoor use
Melbourne:	80 kilolitres or 51% of indoor use
Adelaide:	72 kilolitres or 46% of indoor use
Hobart:	71 kilolitres or 45% of indoor use

Technical Description

At the centre of the technology is a purpose designed "balanced shuttle valve" developed by Sigra Pty Ltd of Brisbane.

The valve is certified AS 4020 and approval is being sought under MP 52 (Manual of Authorisation Procedures for Plumbing and Drainage Products).

Although both the mains water supply and the rainwater tank supply are connected to the valve, its design prevents the tank water backflowing into the mains water supply.

Both water sources utilise the piping system on the home (upstream) side of the water tank but they do so independently of each other.

Separate piping may be installed if the property owner chooses to use rainwater for non-potable uses only.

The balanced spindle shuttles between rainwater tank supply and mains supply as water is detected in the tank.

Physical connection of rainwater and mains water within the valve is prevented by fully closing the closing port before the opening port begins to open.

The valve is activated by a DC motor through a small epicyclic gearbox.

Power is provided via a nicad battery pack which is always topped up by mains power.

The valve can be manually operated.

The logic includes a discharge/recharge cycle to ensure battery charge integrity.

In the event of a power outage, the logic instructs the valve to traverse to 'mains' so that the householder does not lose water supply.

The valve and pump are controlled by a PCB/microprocessor which accepts signals from a (hall effect) device and instructs the (70 lpm @ 180 Kpa) 3 stage pump to start and the valve to traverse to "tank" when rain water is detected.

When the tank and connecting pipework are 100% scavenged to empty (via a bottom centre basin exit) the valve is instructed to traverse to "mains" and the pump is instructed to stop.

The traverse and water loss to the household take one second.

A standard 4 500 litre rainwater tank is 1.85 meters high with diameter of 1.72 meters. It can be easily handled by two people.

The rainwater tank sits on a 150 mm., purpose designed lightweight base.

Rainwater enters the system via a leaf diverting rain head. The rainhead (and all tank inlets and outlets) is fitted with a stainless steel mesh screen for mosquito protection in compliance with National Health Monograph guidelines.

The first flush of rainwater is collected in a first flush device and allowed to slowly drain off to the existing storm water system.

After the first flush is diverted the rainwater is allowed to enter the rainwater tank.

The system includes a controller that fully automates process control and household water supply management.

The microprocessor/controller:

1. Recognises 'water' and 'no-water' in the rainwater tank.
2. Communicates the water status to a purpose designed shuttle valve (which activates towards tank or mains).
3. Recognises household demand.
4. Communicates demand to the pump (which starts).
5. Recognises no household demand.
6. Communicates 'no demand' to pump (which stops).
7. Defaults to mains if power is lost to the household.

Both source inlets are closed when the valve mechanism traverses the neutral position. The changeover between mains supply and tank supply is seamless to the householder.

The bottom of the rainwater tank is designed to facilitate full scavenging of the tank. When the tank is scavenged it is left dry and sealed and ready for the next rainfall event.

For aesthetic reasons, rainwater is filtered through a 50 micron filter before it enters the dwelling to provide crystal clear water.

A 90 mm overflow to the storm water system is provided for overflow.

A dual check backflow prevention device is provided in accordance with Australian Standards and plumbing codes and to prevent backflow into the mains water system.

National Health Guidelines for Rainwater Tanks

Australia's national health guidelines for rainwater tanks are produced by the *National Environmental Health Forum*, which comprises the Directors of Environmental Health from each State and Territory and the Commonwealth with a secretariat provided by the Commonwealth Government.

The Forum publishes a range of monographs to give expert advice and guidance on a variety of important and topical environmental health matters.

The aim of the Monograph *Guidance on the use of rainwater tanks – water series 3, 1998* is to consolidate information and advice on rainwater tanks in one document.

The fourth edition of the Monograph is due for release in the second half of 2003.

The Monograph presents a description of the issues and provides guidance on the collection, care and storage of rainwater in domestic tanks in a manner that should maximise the quality of water supplied from these tanks.

The Monograph, which is endorsed and recommended by every Australian Government and the National Health and Medical Research Council, says:

Rainwater tanks can provide a relatively safe, soft, clear and odourless source of water that can be used for a range of purposes including drinking, washing, bathing, laundry and garden. Rainwater can be used to supplement existing supplies or as a sole source of water.

...Routine testing of rainwater collected in domestic tanks should not be necessary and in most cases is not recommended.

If there are doubts about the quality of rainwater, particularly if used for drinking or cooking, testing may be necessary. If rainwater is made available for public use a limited testing program focusing on microbiological quality should be performed.

New South Wales Government Policy

NSW Premier, Hon Bob Carr, announced a State Government policy to encourage the installation and use of rainwater tanks in urban areas on May 15, 2002.

On June 11, 2002, the "Committee on Uniformity of Plumbing and Drainage Regulations in NSW (CUPDR)" issued Circular No. 14 containing guidelines for plumbing a rainwater tank for toilet flushing and garden watering uses.

Contained within Circular 14 was a prohibition on the cross connection of a rainwater tank to the mains water service, and a requirement that pipes connected to a rainwater tank be labelled "non-potable water". Consequently, Circular 14 made no provision for plumbing a rainwater tank for potable use.

In May 2003, when Circular 17 replaced Circular 14, the requirement that rainwater services be labelled "non-potable water" was replaced with the requirement that they be labelled "Rainwater".

Circular 17 also required that

Rainwater tank installations shall be designed, installed and maintained so as to prevent a cross connection with potable water.

The NSW Government does not prohibit a rainwater tank being used for a potable water supply. Indeed, it acknowledges a person's right to use a rainwater tank for potable purposes. Therefore, the NSW Government is acting improperly by refusing to provide a regulation for plumbing a rainwater tank for potable use.

By prohibiting a cross connection, the NSW Government is denying a property owner their right to use their own plumbing system to distribute rainwater.

Subsequent to the Premier's policy announcement, sundry NSW Government policies have been issued in relation to rainwater tanks.

It has recently been announced that "The NSW Government will cut the red tape necessary for households to gain council approval for a tank" to flush toilets and water gardens with the view to conserving water resources and reduce demands on treated water supplies.

(Source: CUPDR Circular 13, June, 6, 2002)

NSW is currently amending the Code of Practice to permit the use of rainwater for garden watering and toilet flushing.

(Source: Minister for Land and Water Conservation, Hon John Aquilina, letter, June 7, 2002)

All [rainwater tank] distribution pipes shall be clearly labelled "Non Potable Water " with appropriate hazard identification."

(Source: CUPDR Circular 14, June 11, 2002)

Toilet flushing and garden watering were provided as examples of non-potable uses of rainwater by Premier Carr in his announcement of May 15, 2002. The NSW Government has never prohibited rainwater tanks being used to supply potable water, although for the period June 2002 – May 2003 an "interim plumbing guideline" (Circular 14) required piping connected to a rainwater tank to be labelled "non-potable water".

I am aware that rainwater is used for drinking in many areas of the State and it is not NSW Government policy to declare rainwater non-potable. NSW Health has advised, however, that where a reticulated drinking water supply is available, it is preferable to use that supply for drinking and cooking purposes, especially in major urban areas. This position is reflected in recent changes the Government has made to State Environmental Planning Policy (SEPP) #4 to enable rainwater tanks up to 10,000L in size to be classified as complying development."

(Source: Minister for Energy, Hon Kim Yeadon, letter, February 20, 2003)

The use of rainwater tanks for drinking purposes is not recommended where a reticulated potable water supply is available.

...A properly maintained rainwater tank can provide good quality drinking water.

(Source: NSW Health Circular 2002/1, January, 2002)

It is the Department's view that in large urban areas the reticulated potable water supply remains the most reliable source of drinking water for the community, due to extensive regulation and management of the supply.

In particular the Department would view with concern any proposal to permit the connection of tanks to the reticulated supply system, because of the potential for backflow contamination and illegal cross-connections being made to the supply.

Such a proposal could erode the impressive gains made in recent years in quality improvement in the reticulated supply. I am also informed that this caveat on rainwater tank use is unlikely to detract from demand management targets, as drinking water represents a small fraction of water usage.

(Source: letter from the Health Minister, Hon C Knowles, to Energy Minister, Hon K Yeadon, June 24, 2002)

NSW Health recommends against the use of rainwater tanks in the urban environment on the basis of reliability of supply and the efficacy of approved back flow prevention devices. The Department does not prohibit use for potable purposes.

It is considered that NSW Health, whilst acknowledging a person's right to use a rainwater tank for unrestricted water supply in an urban area, has not fully understood the issues of water supply or backflow protection.

SEPP 4 advises property owners who intend to drink rainwater to follow NSW Health Guidelines. NSW Health recommends the *National Environmental Health Forum Monograph "Guidance on the use of rainwater tanks"* for people who use rainwater for drinking.

NSW Energy Minister, *Hon Kim Yeadon* held a media conference on October 31, 2002, to confirm NSW Government policy that Sydney residents may drink roof water collected in a rainwater tank.

It is important that rainwater tank piping systems are not directly connected to the reticulated supply lines (e.g. supply to the kitchen tap) so that water from the tank system does not siphon back into the reticulated supply and possibly contaminate the drinking water.

(Source: CUPDR Circular 13, June 6, 2002)

Rainwater tank installations shall be designed, installed and maintained so as to prevent a cross connection with potable water.

(Source: CUPDR Circular 17)

If plumbing work is required to connect the tank to a water supply service pipe or water main, it must be done by a licensed plumber, in accordance with the NSW Code of Practice – Plumbing and Drainage, have the consent of the public authority responsible for the water supply service pipe or water main, and meet any requirements of that authority.

(Source: SEPP 4, December, 2002)

If water in a rainwater tank is intended for human consumption the tank should be maintained to ensure that the water is fit for human consumption – see rainwater tank brochure published by NSW Health and publication entitled *Guidance on the use of rainwater tanks*, water series 3, 1998, National Environmental Health Forum.

(Source: Note to SEPP 4, December, 2002)

Backflow prevention devices do not provide a satisfactory bacteriological break and can also fail.

(Source: Minister for Land and Water Conservation, Hon John Aquilina, letter, March 12, 2003)

If inter-connection of potable and rainwater systems were permitted within the home, responsibility for water quality and product liability would be shared between the home owner and the water utility. As the water utility is unable to ensure proper maintenance of the rainwater tank system or disinfection of the rainwater (if necessary), interconnection is regarded as an unacceptable public liability risk for the water utility.

(Source: Minister for Land and Water Conservation, Hon John Aquilina, letter, March 12, 2003)

AS 3500 provides the technical requirement for a cross connection.

Sydney Water Corporation approved a draft revision of AS 3500 for public comment on April 8, 2003. Sydney Water represents the NSW Government on the Committee of *Standards Australia* that produces AS 3500.

Section 14 of the draft revised AS 3500 sets out the technical specifications for the cross connection of a rainwater tank to a mains water service. Where a cross connection occurs, a dual check backflow prevention valve must be installed at the point of cross connection and also at the water meter.

AS 3500 rates a rainwater tank as a "low hazard" risk and nominates a dual check valve as the appropriate backflow prevention device.

Sydney Water is a member of CUPDR which issued Circular 17 in May, 2003. It would appear that Circular 17 conflicts with the draft revised AS 3500 and SEPP #4.

It is considered that the NSW Government is unable to justify its decision that (two) dual check backflow prevention valves certified to all Australian Standards are inadequate to prevent backflow. (Note: the RTCV developed by *Urban Rainwater Systems* provides a third level of backflow protection.)

The *Australian Drinking Water Guidelines* make it explicit that a water utility is responsible for the delivery of water to the consumer's meter.

Generally, a drinking water supplier is only responsible for delivery of water to the consumer's meter. However, although it is not possible to control consumers' actions, suppliers should consider how drinking water quality may be affected in private plumbing systems and provide appropriate information to consumers.

(Source: (draft) Australian Drinking Water Guidelines, Clause 3.2.1, June, 2002)

There are adequate provisions in the *Trade Practices Act* to protect consumer interests including when rainwater is used.

...as far as possible, the roles of water resource management, standard setting and regulatory enforcement and service provision be separated institutionally.

(Source: CoAG Water Reforms Agreement, 1995)

The NSW Government has failed to implement National Competition Policy in relation to the CoAG 1995 water reforms agreement.

Sydney Water Corporation is both a network utility operator and a plumbing regulator.

As well as sitting on CUPDR and representing NSW on the Standards Australia AS 3500 Committee, Sydney Water Corporation represents NSW on the National Plumbing Regulators Forum (NPRF), which is responsible for preparing the Plumbing Code of Australia.

Victorian Government Policy

Victorian Government policy is

To support the use of rainwater tanks for potable purposes within the guidelines of the Department of Human Services and the Plumbing Industry regulations.

(Source: Letter from Mr Kevin Love, Director - Resources and Infrastructure, Victorian Department of Premier and Cabinet, September 5, 2002.)

In September, 2001, the Victorian Government declared town planning approval throughout Victoria for the installation of rainwater tanks up to 4 500 litres capacity (except in heritage zones).

In January, 2003, the Victorian Government introduced a rebate of \$150 for the installation of rainwater tanks. Victoria's Government-owned Water Authorities administer the scheme through their billing systems.

Victoria's independent plumbing regulator, the *Victorian Plumbing Industry Commission*, adopts AS 3500.

The Commission rates rainwater tanks a "Low" hazard in accordance with AS 3500.

The *Victorian Department of Human Services (DHS)* recommends the National Environmental Health Forum Monograph on the use of rainwater tanks for detailed information about planning, installing and using rainwater tanks. DHS places no restrictions on the use of rainwater tanks in its publication *Your Private Drinking Water Supply*.

Victorian legislation confers legal rights to property owners to use rainwater.

Amendments to the *Water Act, 1989*, passed in April, 2002, explicitly provide for property owners' continued rights to the unrestricted use of rainwater for domestic purposes on their property *free of charge*.

Victoria has implemented the CoAG water reform for separating the operation and regulation of water utilities institutionally.

South Australian Government Policy

The Premier of South Australia, *Hon Mike Rann*, in a letter dated November 2, 2002 said:

The Government is supportive of people who wish to install rainwater tanks, however we recognise that the true cost of water from this source is consistently greater than the cost of mains water.

It is for this reason that the Government is reviewing current policy about rainwater tanks.

SA Water requires a backflow prevention device to be fitted to prevent any possibility of contamination to the mains water system

ALP policy for the 2002 State election stated:

Labor will also work with SA Water to develop a scheme for consumers to purchase water saving devices to be paid for through their water bills.

Premier Rann launched the *Waterproofing Adelaide* strategy on February 11, 2003, with Environment Minister *Hon. John Hill* and Minister Assisting in Government Enterprises, *Hon. Jay Weatherill*.

Mr Weatherill said

...the Government is currently investigating ways of encouraging people to install domestic rainwater tanks, and make use of low flow shower roses and so on.

SA Water Corporation applies AS 3500.

South Australian Government *health policy* says:

A correctly installed rainwater tank with a properly managed roof catchment area should provide a renewable supply of safe, soft, clear, good tasting drinking water.

...An extensive epidemiological study found no measurable health difference between those who drink raintank water and those who drink mains water.

(Source: Environmental Health Branch, SA Department of Human Services.)

More South Australians drink rainwater than drink reticulated water.

South Australia has a population of 1.6 million people of whom 42% (672 000 people) use water from rainwater tanks as their main source of drinking water and 40% use reticulated water.

(Source: Environmental Health Branch, SA Department of Human Services.)

In Adelaide alone, 28% of households (340 000 people), use water from rainwater tanks as their main drinking supply.

(Source: Environmental Health Branch, SA Department of Human Services.)

South Australia's *State Water Plan 2000* says:

The South Australia Water Resources Act 1997 defines a water resource as a watercourse or lake, surface water, underground water and effluent.

Surface water means water flowing over land other than in a watercourse, following rain (or some other precipitation) or from groundwater rising naturally to the surface).

Surface water includes water flowing over land that has been collected in a dam or reservoir.

Rainfall, before it becomes surface runoff, is not included in the definition of water resource.

This is particularly relevant to the many householders who have rainwater tanks collecting runoff from their roofs for domestic purposes.

The Water Resources Act 1997 does not exercise control over the continued ability to do this. However, controls may be exercised under other Acts such as the Development Act 1993 and the Local Government Act 1999.

South Australia has not implemented the CoAG water reform for separating the operation and regulation of water utilities institutionally.

Queensland Government Policy

Queensland Government policy says:

The Queensland Government supports the use of water from rainwater tanks for potable and non-potable purposes.

(Source: Queensland Water Recycling Strategy, October, 2001.)

The Queensland Minister for Local Government and Planning, *Hon Nita Cunningham*, says:

Rainwater tanks are permissible in urban areas and can be interconnected with a reticulated water supply provided a backflow prevention device is installed to prevent contamination of the town water

supply. The installation of tanks must meet the relevant building, plumbing and drainage requirements contained in the Building Act 1975 and the Sewerage and Water Supply Act 1949.

(Source: Letter from Queensland Minister for Local Government and Planning, Hon Nita Cunningham, July 11, 2002.)

The *Sewerage and Water Supply Act 1949* will be replaced by the *Plumbing and Drainage Act 2002* however plumbing matters under the new Act will still be administered by the Department of Local Government and Planning.

Queensland Local Governments that provide mains water supply remain the plumbing regulators for areas under their jurisdiction.

Decisions to allow the installation of rainwater tanks that are connected to reticulated water supply systems remain a matter for each Local Government.

(Source: Letter from Mr D McGreevy, Acting Chief of Staff, Office of the Premier, January 10, 2003.)

For example, Brisbane City Council, which owns and operates *Brisbane Water*, prohibits cross connection of rainwater tanks to the mains water supply. The Council policy says:

There must be no cross-connections with the mains water system: provide for dual plumbing of mains and tankwater to fixtures with no cross-connections.

(Source: Brisbane City Council Policy: Rainwater Tank Systems (Using Roofwater), August, 2002.)

If cross connections were to be permitted, this maintenance risk would be compounded by the risk of potentially fallible backflow prevention devices that have a limited lifetime. Hence, Council has adopted the policy position on this issue that recognises the need to introduce new sustainable solutions but also protecting the community's investment in existing water supply infrastructure.

(Source: Lord Mayor of Brisbane, Hon Jim Soorley, letter, October 16, 2002)

Brisbane City Council policy is to place no restrictions on the water uses supplied by a rainwater tank.

Queensland Health policy says:

Rainwater can provide a renewable supply of natural, soft, clear and odourless water, which can be used for a range of purposes including drinking, washing, bathing, laundry and gardening.

Queensland Health supports the appropriate and safe use of rainwater tanks provided public health issues regarding water quality and mosquito borne disease control are adequately addressed.

(Source: Letter from Queensland Minister for Health, Hon Wendy Edmond, April 24, 2002.)

The *National Environmental Health Forum Monograph* has been adopted as Queensland's interim guideline on the operation of rainwater tanks.

(Source: Letter from Office of Minister for Environment, May 31, 2002.)

Under the *Queensland Health Regulations 1996, Part 8, "Mosquito Prevention and Destruction"*, Local Governments are required to ensure that tanks intended for the holding of water be constructed with mosquito-proof screens, flap valves or other devices to prevent mosquitoes ingress or egress and a maximum size manhole if provided.

Queensland has implemented the CoAG water reform for separating the operation and regulation of water utilities institutionally, however, it remains unclear whether the State Government or Local Governments interpret the plumbing regulations.

Western Australia Government Policy

On February 10, 2003, WA Premier *Hon. Geoff Gallop* announced a \$7million *Waterwise rebate program* to encourage the uptake of products such as rainwater tanks, water efficient washing machines, low-flow shower heads and garden bores.

Purchasers of *Waterwise* products are eligible for rebates of up to \$300.

Western Australia's plumbing regulator, *Water Corporation*, adopts AS 3500 in permitting cross connection of rainwater tanks with the reticulated water system.

There are no health restrictions on the use of rainwater tanks. *WA Health Department* says:

Members of the public are advised to take simple preventative measures to minimise any potential risk of contamination to either new or existing rainwater collection systems. These measures are described in the Department of Health Environmental Health Guide, "Is the Water in Your Rainwater Tank Safe to Drink.

...The Department of Health was involved in the development of the National Environmental Health Forum Monograph "Guidance on the use of rainwater tanks" [which] provides a single reference to a range of design and operational considerations in addition to the specific health considerations outlined in the Environmental Health Guide.

...Specific information regarding the potential risk of airborne contamination to rainwater supplies in any given area may be obtained by contacting the Department of Environment, Water and Catchment Protection.

(Source: Letter from WA Minister For Health, Hon R Kucera, June 6, 2002.)

It remains unclear if Western Australia has implemented the CoAG water reform for separating the operation and regulation of water utilities institutionally.

Tasmania, ACT and NT Governments' Policies

The policy and regulatory systems in Tasmania, Australian Capital Territory and Northern Territory were not assessed.

About us

Urban Rainwater Systems Pty Ltd is a new Australian company.

It was formed to provide a vehicle for the re-entry of domestic rainwater systems into the urban environment.

Work on the project commenced in December 2000 when the founding partners of @worksystems (www.atworksystems.com), Greg Cameron and Rod Moore identified the impediments to rainwater tanks as urban infrastructure during their work as local economic development facilitators.

The initial work was targeted at understanding the (lack of) policy logic within Governments and water authorities which impeded a cogent take up of rainwater systems in the urban environment. This impediment existed despite a growing willingness of Governments to offer rebates for rainwater systems whilst preventing the optimum uses of the harvested rainwater. This prevention was accompanied by a lack of willingness by Governments to provide useful and relevant public education on the use of rainwater tank systems as a private water supply source.

By mid-2002 it was clear that the technology required to deliver a simple, automated solution to the interconnection of a domestic rainwater system to the household system was not available. At this time Dr. Ian Gray and his team at Sigra Pty Ltd at Rocklea, Queensland, joined the project. The Sigra team developed the automation and the valving required.

In February 2003, the Singleton-based Pegasus Group of companies joined the project. Pegasus brought administrative and management service expertise to the project.

In March 2003 Greg Cameron, Rod Moore, Ian Gray and the Pegasus Group formed Urban Rainwater Systems Pty Ltd.

####

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	Rod Moore	02 6572 1315 (Singleton)

¹ Water Demand

Based on average household water consumption for Melbourne.
Total water use for an average household is 240KL/Y comprising:
garden 35%
bathroom 26%
toilet 19%
laundry 15%
kitchen 4%
drinking 1%

65% or 156KL/Y is used indoors.

Source: Melbourne Water Resources Strategy Committee, June 2001, pages 14, 17.

Rainfall

The rainwater tank yield calculations were based on daily rainfall as recorded between 1980 - 2001 inclusive at the following sites of the Bureau of Meteorology:

Sydney Regional Office site 66062
Melbourne Regional Office site 86071
Brisbane Regional Office site 40214 (1980 – 1993)
Brisbane Airport site 40842 (1995 – 2001)
Adelaide Regional Office site 23090
Perth Airport site 9021
Hobart Regional Office site 94029

Roof Run-Off

Run-off (litres) = A x (Rainfall - B) x Roof Area, where
A is the efficiency of collection and a value of 0.8 is used.
B is the loss associated with adsorption and wetting of surfaces and a value of 2 mm per month (24 mm per year) is used.

Source: National Environmental Health Forum Monograph – water series 3: guidance on the use of rainwater tanks, 1998.
(<http://enhealth.nphp.gov.au/council/pubs/pdf/rainwtr.pdf>)

Roof area of average home: 175M²

Source: Melbourne Water Resources Strategy Committee.

Tank draw-down/day: 427 litres (156 000/365).

Amount of rainfall to produce 427 litres: 3MM (175 X 3 X 0.8)

Total stormwater discharge = (Rainfall – 24MM) X Roof Area