



ICRC

independent competition and regulatory commission

Issues paper
**Secondary water use in the
ACT**

**Report 9 of 2011
November 2011**

The Independent Competition and Regulatory Commission (the Commission) was established by the *Independent Competition and Regulatory Commission Act 1997* (ICRC Act) to determine prices for regulated industries, advise government about industry matters, advise on access to infrastructure, and determine access disputes. The Commission also has responsibilities under the ICRC Act for determining competitive neutrality complaints and providing advice about other government-regulated activities. Under the *Utilities Act 2000*, the Commission has responsibility for licensing utility services and ensuring compliance with licence conditions.

Correspondence or other inquiries may be directed to the Commission at the addresses below:

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The secretariat may be contacted at the above addresses, by telephone on (02) 6205 0799 or by fax on (02) 6207 5887. The Commission's website is at www.icrc.act.gov.au and its email address is icrc@act.gov.au.

Foreword

The Commission has recently been given references on secondary water use and the provision of water and sewerage services in the ACT. The purpose of this issues paper is to facilitate submissions from the community on the first of these references.

In approaching these references, however, the Commission has decided to adopt an holistic approach, considering the issues arising from both references within a common, overarching framework. To assist in establishing this framework from the outset of the inquiries, the Commission has issued a context paper explaining the approach the Commission is taking to these references and laying out the framework in which they will be progressed. This issues paper assumes that the reader has read the context paper first and the Commission encourages you to do that.

As I emphasised in the foreword to the context paper, the Commission cannot give proper consideration to the matters arising from the secondary water use reference unless it hears the views of the ACT community. Please assist us by providing those views, now and in response to the other documents the Commission will be releasing over the course of this inquiry.

All the relevant documents will be available from the Commission's website at www.icrc.act.gov.au. The Commission can also be contacted by telephone on (02) 6205 0799 or by writing to GPO Box 296, Canberra, ACT 2601.

The Commission looks forward to hearing from you.

Malcolm Gray
Senior Commissioner

23 November 2011

How to make a submission

The Independent Competition and Regulatory Commission (the Commission) welcomes submissions on the issues raised in this paper as well as any other relevant information that could assist the Commission's inquiry into secondary water use in the ACT.

Responses to the issues paper should be supported with evidence and data wherever possible. Where parties are interested in addressing one or more of the questions listed in the paper, the relevant question number(s) should be noted.

Submissions may be mailed to the Commission at:

Independent Competition and Regulatory Commission
GPO Box 296
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Alternatively, submissions may be emailed to the Commission at icrc@act.gov.au. The Commission encourages interested parties to make submissions in either Microsoft Word format or PDF (OCR readable text format—that is, they should be direct conversions from the word-processing program, rather than scanned copies in which the text cannot be searched.)

Submit your submission documents along with a completed submission cover sheet which is available on the Commission's website at www.icrc.act.gov.au/waterandsewerage#Inquiry_into_Secondary_Water_Use. For submissions received from individuals, all personal details (for example, home and email addresses, telephone and fax numbers) will be removed before it is published on the website for privacy reasons.

The Commission is guided by and believes strongly in the principles of openness, transparency, consistency and accountability. Public consultation is a crucial element of Commission's processes. It is the Commission's preference that all submissions it receives be treated as public and be published on the Commission's website unless the author of the submission indicates clearly that all or part of the submission is confidential and not to be made available publicly. Where confidential material is claimed, the Commission prefers that this be under a separate cover and clearly marked 'In Confidence'. The Commission will assess the author's claim and discuss appropriate steps to ensure that confidential material is protected while maintaining the principles of openness, transparency, consistency and accountability.

The secretariat may be contacted at the above addresses, by telephone on (02) 6205 0799 or by fax on (02) 6207 5887. The Commission's website is at www.icrc.act.gov.au.

Submissions on the issues paper are due with the Commission by **5 pm, 20 December 2011**.

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Definitions

Many water-related terms are used throughout this paper. To ensure consistency in the meaning of each term, definitions are provided below. These definitions are derived from those commonly used in the water sector by a range of key stakeholders including, but not limited to, water technical specialists, policy makers, and water-related institutions such as the National Water Commission and Murray–Darling Basin Authority.¹

Black water is water containing human excrement.

Effluent is treated sewage that flows out of a treatment plant.

Greywater is water discharged from bathrooms (excluding black water), laundries and kitchens.

Non-potable water is water deemed to be unsafe for human consumption and/or unpalatable for drinking.

Potable water is water suitable for human consumption (alternatively termed drinking water) as defined by standards established by the National Health and Medical Research Council.

Rainwater is water collected directly from roof run-off.

Raw water is water captured from the environment that has yet to be treated and supplied to users.

Recycled water includes water sourced from wastewater (treated effluent from a water treatment plant or sewer mining scheme and greywater), stormwater and rainwater. Recycled water has a range of uses including residential, commercial and industrial, agricultural and environmental.

Reticulation is distribution through a network of pipes used to transport water to the point where it is consumed.

Return flow is the return of treated wastewater to the river system for use as environmental flows and abstraction by other downstream users.

Secondary water is an alternative term for recycled water.

Sewer mining is the process of tapping into a sewer before it reaches a water treatment plant and extracting the sewage for treatment in a separate treatment facility for use as recycled water.

Stormwater is water run-off in urban environments arising from rainfall, which may be collected for flood mitigation and water quality purposes, and/or stormwater recycling (stormwater harvesting).

Third pipe residential systems bring treated wastewater back to households through an additional pipe for non-drinking purposes such as garden watering and toilet flushing.

Wastewater (or sewage) is industrial, residential and agricultural material collected from internal building drains and transported through the sewerage network for treatment before being discharged as return flows.

¹ An online water dictionary is available from the National Water Commission at http://dictionary.nwc.gov.au/water_dictionary/index.cfm.

Issues on which the Commission is seeking comment

The Independent Competition and Regulatory Commission is seeking comment through submissions to the issues paper. In addition to the submission process, the Commission will seek information directly from key players in the ACT urban water sector, including from:

- ACTEW—the Commission will seek information on ACTEW’s costs of providing reticulated and recycled water in the ACT and its views on opportunities for increased competition
- ACT Government Environment and Sustainable Development Directorate—the Commission will seek detailed information on the Canberra Integrated Urban Waterways Project, other recycled water initiatives and demand-management initiatives
- ACT Government Health Directorate—the Commission will seek relevant information on the health requirements related to various water sources
- ACT Government Territory and Municipal Services Directorate—the Commission will seek relevant information on the stormwater network.

The Commission is particularly interested in using the submission process to solicit information regarding the ACT commercial market for recycled water services, whether the services relate to greywater, treated sewage effluent, stormwater or rainwater. The Commission is keen to hear from both service providers and consumers of recycled water services. The Commission would also appreciate receiving detailed technological, cost and volume information on all aspects of recycled water technology relevant to the ACT.

Throughout the paper, the Commission has identified specific questions on which it welcomes responses from interested parties. The full list of questions is reproduced below for ease of reference.

The Commission also welcomes comment on any other issue, including on the context paper, or the provision of any other relevant information that interested parties think could assist the Commission’s inquiry into secondary water use in the ACT.

Overview of questions the Commission is seeking responses to

Q1: What is the market for recycled water in the ACT?

- (a) What types of commercial recycled water services are currently being (or could be) provided to the ACT residential and business sectors (new developments or retro-fit)?
- (b) How do they work?
- (c) How much potable water, if any, do they save?
- (d) What are their installation and maintenance costs and how long do they last?

Q2: Are there any barriers or impediments to businesses supplying commercial recycled water services in the ACT?

Q3: What are the advantages and disadvantages of the Commission's preliminary methodological approach to the inquiry?

Q4: What are the reasons for choosing to install a recycled water system rather than relying on reticulated mains water?

- (a) Do individuals and businesses have different reasons?
- (b) What is the recycled water used for?

Q5: Does recycled water replace reticulated water or is recycled water used in addition to reticulated water?

Q6: What is the scope for efficiently increasing the use of greywater in the ACT?

Q7: What impact has changed procedures for managing stormwater in new urban areas had on the cost of land developments, and what environmental benefits have been achieved?

Q8: Are there examples of urban waterways and stormwater harvesting programs other than the ACT Government's Canberra Integrated Urban Waterways Project which the Commission should consider? If so, please provide details.

Q9: What are the key economic, environmental and social factors relevant to the Commission's inquiry into recycled water in the ACT?

Q10: What are the implications of the draft Murray–Darling Basin Plan for water use (potable and non-potable) in the ACT? The Commission notes that responses to this issue will be informed by the expected release the draft Basin Plan on 28 November 2011.

Q11: Are there any water conservation measures that the Commission should consider? If so, please provide details.

Q12: How have developers responded to the challenge of meeting the 40 per cent reduction in mains water usage in new dwellings?

1 Introduction

1.1 Introduction

The Independent Competition and Regulatory Commission (the Commission) is currently undertaking two separate but related reviews of the ACT water sector.

The first is an inquiry into secondary water use in the ACT in response to a motion passed in the ACT Legislative Assembly on 4 May 2011. Secondary water, or water that has been used productively for a second time, is more commonly known as recycled water. For the purposes of this inquiry, and this **issues paper**,² the Commission will use the term ‘recycled water’. The **secondary water use inquiry** is scheduled for completion by the end of June 2012.

The second review, the **water and sewerage services inquiry** will determine the prices that ACTEW Corporation (ACTEW) will be able to charge for its water and wastewater services from 1 July 2013.

The Commission released a **context paper**³ on water in the ACT on 23 November 2011. The context paper provides a framework for both the recycled water inquiry and the review of ACTEW’s water and wastewater prices. It describes the key characteristics of the ACT water sector and identifies some of the significant matters that are likely to be considered in the two water reviews.

The issues paper should be read in conjunction with the context paper, particularly since the latter provides important and relevant background information about the broader water cycle, in which recycled water plays a role.

1.2 Background to the inquiry

Over the course of the past year the ACT has emerged from a decade of severe drought, during which decisions were taken to pursue increased water security through supply augmentations, demand-management initiatives and the development of water recycling initiatives.

In addition to specific water policy measures arising from the ACT Government’s *Think water, act water* strategy, the Commonwealth Government made funding available for investment in water recycling projects. The main effect of these initiatives was to conserve or reduce dependence on the supply of reticulated water through the ACTEW network. Separately, ACTEW commenced work on a range of water supply initiatives, including the expansion of the Cotter Dam from 4 to 78 gegalitres (GL), to ensure long-term water security for the ACT.

While the enlargement of water storages was controversial in terms of the scale of the investment, questions have also been raised about the need for, and the cost and efficacy of, the water recycling schemes.⁴ However, analysis undertaken to date has tended to consider the various water schemes in isolation from the overall use of water in the ACT and the linkages between different water sources and uses.

² *Issues paper: Secondary water use in the ACT.*

³ *Context paper: Water in the ACT.* The context paper is publicly available on the Commission’s website at www.icrc.act.gov.au.

⁴ For example, the ACT Auditor-General’s review of the North Weston Pond Project (*The North Weston Pond Project: Report No. 3/2011*, ACT Auditor-General’s Office).

This inquiry provides an opportunity to consider recycled water within the broader context of the ACT water sector. This entails taking a more holistic approach to examining the potential role of recycled water in comparison with alternative water supply and demand-management options in ensuring the ACT water supply–demand balance is maintained at least economic, social and environmental cost.

It is also timely to examine the role of recycled water as an alternative water source to ACTEW’s reticulated supply given that ACT water storages are currently close to full capacity, and following completion of the major water supply augmentation projects, the ACT is less likely to face severe water shortages for some time.

How different water sources interact and potentially support one another, the opportunities for alternative service delivery, and the ability for the community to benefit from investment in recycled water schemes are central to this inquiry.

1.3 Purpose of the issues paper

The issues paper is the first step in the Commission’s engagement with the ACT community on its recycled water inquiry. The purpose of the issues paper is to provide relevant information to inform submissions from interested parties, including:

- in conjunction with the context paper, relevant background information on the ACT water sector and the role of recycled water within the broader water cycle
- the requirements of the terms of reference and the Commission’s proposed approach to conducting the inquiry to meet these requirements
- identifying specific issues on which the Commission is seeking comment and information through the submission process.

1.4 Scope of the terms of reference

The Commission was issued with terms of reference on 21 September 2011 to undertake the inquiry. The inquiry is to be undertaken pursuant to sections 15(1) and 16 of the *Independent Competition and Regulatory Commission Act 1997* (the ICRC Act).⁵ The main elements of the terms of reference are as follows:

- 1) The Commission is to report on the following matters:
 - a) opportunities for a commercial market in grey water in both commercial and domestic applications and in new construction and retro-fits
 - b) the ACT Government’s urban waterways, stormwater harvesting programs and associated built wetlands
- 2) The Commission is to include consideration of:
 - a) the economic, environmental and social costs and benefits of the matters set out in 1(a) and (b), with and without the Basin Plan, to the extent possible given that the Basin Plan is under development

⁵ See Appendix 2 for an extract from the ICRC Act.

- b) any water conservation initiatives other than those captured in 1(a) and (b) that also have the potential to deliver economic, environmental and social outcomes
- c) any other matters the Commission considers relevant to the inquiry.

A full copy of the terms of reference is at Appendix 1.

The Commission is required to report to the ACT Legislative Assembly by the end of June 2012.

1.5 Structure of the issues paper

The structure of the remainder of the issues paper is as follows:

- **Chapter 2** sets out the broad approach the Commission intends to adopt in the inquiry.
- **Chapter 3** provides a brief overview of recycled water in the ACT. It also covers specific requirements related to the terms of reference, including commercial greywater market opportunities; the ACT Government’s urban waterways and stormwater harvesting programs; economic, social and environmental considerations; the Murray–Darling Basin Plan; and other water conservation initiatives.
- **Chapter 4** outlines the next steps in the inquiry process.

1.6 Inquiry timeline

Based on meeting a requirement to report by the end of June 2012, the Commission proposes the following timetable for the inquiry.

Task	Expected date
Release of context paper	23 November 2011
Release of issues paper	23 November 2011
Submissions on issues paper close	20 December 2011
Release of draft report	Late March 2012
Public hearing	Mid April 2012
Submissions on draft report close	Early May 2012
Final report presented to Legislative Assembly	Late June 2012

2 Inquiry approach

The Commission is undertaking an inquiry into recycled water use in the ACT. Specifically, the terms of reference instruct the Commission to report on opportunities for a commercial market in greywater (in both commercial and domestic applications and in new construction and retro-fits) and the ACT Government's urban waterways, stormwater harvesting programs and associated built wetlands.

In addressing the terms of reference, the Commission proposes to examine the potential role of recycled water within the context of the **overall objective of meeting the ACT community's demand for water, wastewater and stormwater services in a secure, reliable, effective and economically efficient manner**. In addition, the Commission considers it appropriate to be guided by the National Urban Water Planning Principles⁶ agreed by the Council of Australian Governments (COAG).

It is crucial that water management be considered in an holistic manner. That is, all possible water supply and demand-management options should be considered in ensuring that the supply–demand balance is maintained at least economic, social and environmental cost. This approach is commonly referred to as **integrated water management**.

Under such a framework, there will be instances where it will be appropriate to use water treated to a potable standard for non-potable uses. The extent to which water from one source may substitute that from another is limited at any time by the technology available to provide the necessary level of treatment and delivery and the full costs and benefits (financial, social and environmental) of doing so.

The terms of reference also specifically require consideration of commercial market opportunities in the provision of greywater. An explicit outcome of an integrated water management framework is that, given the substitutability across the range of supply sources and demand-management options, consideration of a commercial market requires that all possible water supply and demand-management options be examined.

A commercial market is underpinned by private risk taking for profit by suppliers seeking to meet the needs of consumers and results in reduced overall costs (financial, social and environmental) to individuals and society as a whole through increased economic efficiency.⁷

The effective establishment and efficient operation of a commercial market requires a number of preconditions to be met. Relevant preconditions in the context of the urban water sector include:

- secure property (or ownership) rights
- minimal barriers to entry (and exit) for potential market participants
- conducive institutional and regulatory settings

⁶ <http://www.environment.gov.au/water/policy-programs/urban-reform/nuw-planning-principles.html>.

⁷ Economic efficiency can be thought of as consisting of three components: productive efficiency ensures that goods and services are delivered at least cost; allocative efficiency ensures that the overall resources of the economy are employed in their most productive purpose; dynamic efficiency ensures that new and improved ways of doing things are continually developed.

- sufficient information
- willingness of suppliers and customers to participate in the market
- third-party access to natural monopoly infrastructure.

The exact institutional arrangements required to underpin a functioning commercial market in the ACT water sector will depend on a range of unique industry, institutional, ownership, policy and legacy arrangements.

It is important to note that in considering the market characteristics of the ACT urban water sector, the emphasis should not be on increasing competition (as some services might be more efficiently provided by one firm) but rather on identifying and removing, where feasible, any barriers that may be restricting possible market entry or limiting consumers choice in meeting their need for water.

Q1: What is the market for recycled water in the ACT?

- (a) What types of commercial recycled water services are currently being (or could be) provided to the ACT residential and business sectors (new developments or retro-fit)?
- (b) How do they work?
- (c) How much potable water, if any, do they save?
- (d) What are their installation and maintenance costs and how long do they last?

Q2: Are there any barriers or impediments to businesses supplying commercial recycled water services in the ACT?

Q3: What are the advantages and disadvantages of the Commission's preliminary methodological approach to the inquiry?

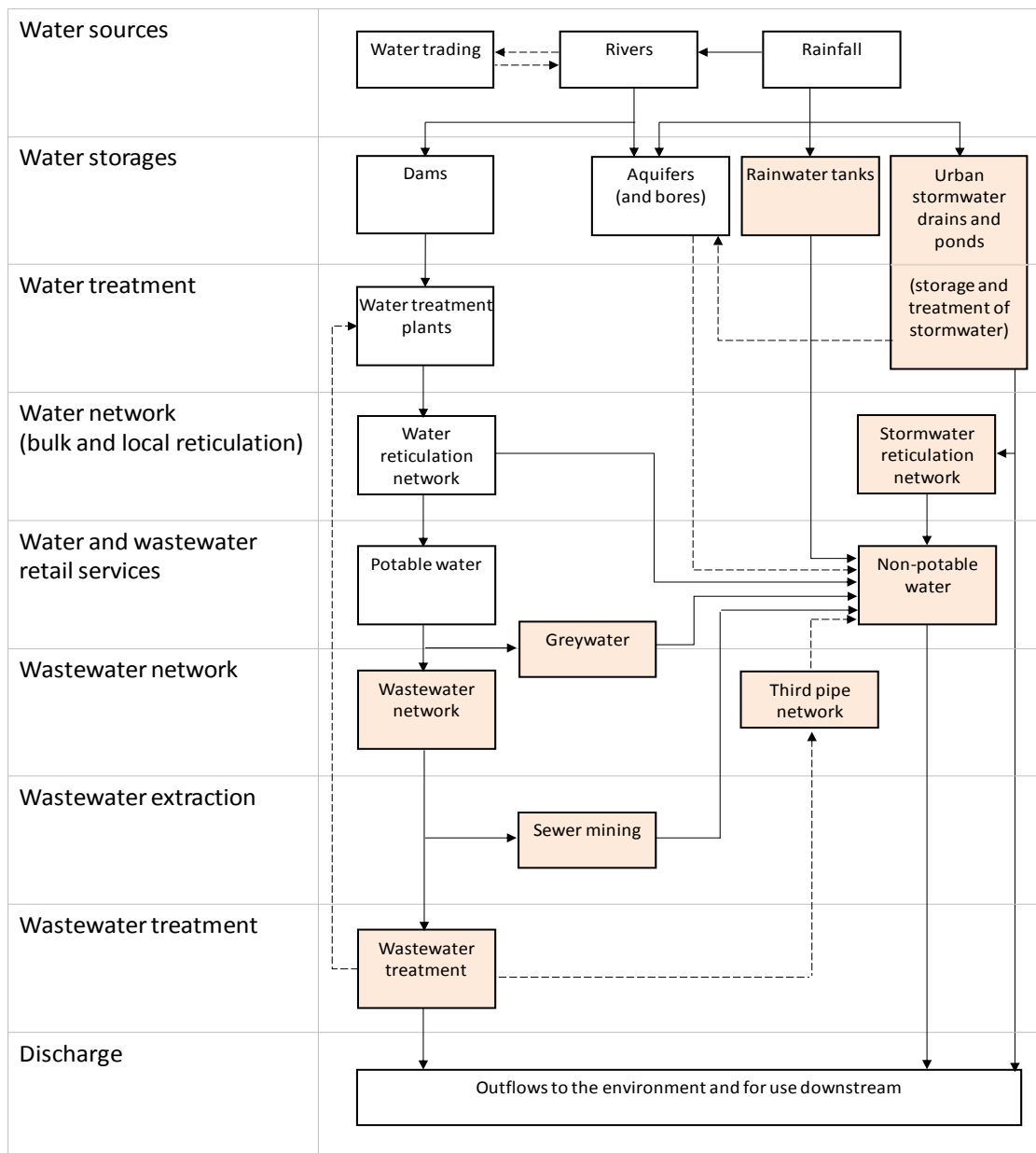
3 Background information for submissions

This chapter provides relevant background information on recycled water in the ACT and highlights a number of specific requirements of the inquiry terms of reference to inform submissions from interested parties. For more information on the broader ACT urban water sector, refer to the Commission’s context paper on water in the ACT.

3.1 Overview of recycled water in the ACT

The conceptual overview in Figure 3.1 illustrates the physical components of the ACT’s urban water supply system and demonstrates the flows through the water, wastewater and stormwater networks.

Figure 3.1: Conceptual overview of the ACT urban water supply network



The shaded boxes represent the components of the ACT recycled water network. The flows in solid lines represent the current situation in the ACT, while the dotted lines represent flows arising from projects that are under consideration.⁸

Recycled water includes water sourced from wastewater (treated effluent from a water treatment plant or sewer mining scheme and greywater), stormwater and rainwater. Box 3.1 describes a typology of the typical sources of recycled water and provides relevant ACT examples.

Box 3.1: Examples of major sources of recycled water

Wastewater

Greywater from bathrooms, laundries and kitchens

- greywater used to water the garden via gravity-fed hose from the laundry⁹
- greywater pumping systems that allow pressurised garden watering
- greywater storage, treatment and pumping systems that allow recycling for irrigation or internal reuse in toilets and laundries.

Treated sewage effluent from water treatment plants and sewer mining

- residential third pipe system for toilet flushing or garden watering—a third pipe system was considered for the Molonglo Valley residential development¹⁰
- the Lower Molonglo Water Quality Control Centre supplies treated sewage effluent to nearby vineyards (100 hectares) and a golf course (30 hectares)
- the North Canberra Water Reuse Scheme is a recycled water network which provides treated sewage effluent to 70 hectares of ovals and open spaces across North Canberra
- the Southwell Park Watermining Project is a sewer mining scheme where a small treatment plant is used to supply recycled water to the 10 hectare playing ovals.

Stormwater

Water runoff from rain events entering the drains and channels of the urban stormwater network

- stormwater collected in constructed urban ponds and used to irrigate sports fields—Canberra Integrated Urban Waterways Project.¹¹

Rainwater

Water collected directly from roof run-off

- the ACT Government provides rebates for rainwater tanks with a connection to plumbing inside the home (for example, to the toilet or washing machine).¹²

⁸ The previously proposed Water Purification Scheme remains a future option for the ACT.

⁹ As part of the *Think water, act water* strategy for sustainable water resource management, the ACT Government ran a program from February to May 2008 to distribute 10,000 greywater diversion hoses free of charge to ACT residents.

¹⁰ This was a condition of the Parliamentary Agreement between the ACT Labor Party and ACT Greens for the 7th Legislative Assembly made on 31 October 2008.

¹¹ Refer to Chapter 3 for more information the Canberra Integrated Urban Waterways Project.

¹² ACTSmart rainwater tank rebate: http://www.actsmart.act.gov.au/your_household/rainwater_tank_rebate.

Q4: What are the reasons for choosing to install a recycled water system rather than relying on reticulated mains water?

- (c) Do individuals and businesses have different reasons?
- (d) What is the recycled water used for?

Q5: Does recycled water replace reticulated water or is recycled water used in addition to reticulated water?

3.2 Greywater recycling

Greywater is water from bathrooms (excluding black water), laundries and kitchens. Greywater systems broadly consist of two types:

- diversion devices which direct greywater to the garden for immediate use without making changes to its quality. The untreated greywater is not stored due to the presence of bacteria and chemical contaminants¹³
- treatment systems that improve the quality of the greywater by filtering, disinfecting and treating it.

The Commission understands that greywater recycling in the ACT is largely restricted to the household level. The greywater is typically used to replace or complement reticulated mains water for outdoor garden use.

The use of greywater in the residential sector has been encouraged by the ACT Government over recent years through initiatives such as:

- advertising campaigns encouraging household greywater use
- give-aways of greywater hoses
- the inclusion of greywater systems as an acceptable solution in the Water Sensitive Urban Design General Code¹⁴ to reduce mains water consumption.

Q6: What is the scope for efficiently increasing the use of greywater in the ACT?

3.3 The ACT Government's urban waterways and stormwater harvesting programs

Stormwater is rainfall run-off in urban environments, which may be collected for flood mitigation, water quality purposes, and/or recycling (stormwater harvesting).

The ACT urban stormwater network was originally designed to remove rainfall from within urban areas to protect against flooding. In 2000 the ACT urban environment was estimated to generate

¹³ The ACT Government has issued guidelines for the safe use of greywater. *Greywater use: Guidelines for residential properties in Canberra* is available at <http://www.health.act.gov.au/c/health?a=sendfile&ft=p&fid=1193295029&sid=>

¹⁴ The code sets out mandatory targets for mains water use reduction and stormwater quality and quantity management for all new developments and redevelopments in the ACT. The code is available at <http://www.legislation.act.gov.au/ni/2008-27/copy/56032/pdf/2008-27.pdf>.

13 GL of stormwater run-off.¹⁵ The existing storages for stormwater consist of the significant urban lakes in the ACT, such as Lake Burley Griffin, Lake Tuggeranong and Lake Ginninderra.

In recent years the nature of the network has altered to include a focus on not only flood mitigation but also water quality and the potential for stormwater recycling. This has included consideration of urban ponds and wetlands for stormwater storage and reticulation. There is also the potential for stormwater to be stored in underground aquifers.

Stormwater in the ACT is normally treated to improve its quality through natural processes by retaining or detaining it in lakes, ponds and wetlands. The treatment consists of the removal of various nutrients and sediments. It is not treated to a level suitable for potable consumption and as such is used for irrigation purposes on sporting ovals and other recreational facilities such as golf courses.

Q7: What impact has changed procedures for managing stormwater in new urban areas had on the cost of land developments, and what environmental benefits have been achieved?

Canberra Integrated Urban Waterways Project

In 2007 the ACT Government, under the management of the Environment and Sustainable Development Directorate, commenced the Canberra Integrated Urban Waterways Project. The project resulted from an agreement between the Commonwealth and ACT governments as part of the National Water Initiative.

The project is aimed at improving water quality for local river systems, contributing to flood protection, enhancing urban biodiversity and landscape amenity and substituting non-potable for potable water supply through the use of alternative water sources such as harvested stormwater from ponds and recharged groundwater sources. The target is to substitute 1.5 GL of potable water by 2011 and 3 GL by 2015.

Table 3.1: Canberra Integrated Urban Waterways Project

System	Expected annual supply (ML)
Inner North Stormwater Reticulation Network	500
Weston Creek Stormwater Reticulation Network	225
Tuggeranong Stormwater Reticulation Network	450
Valley Ponds Stormwater Reticulation Network	30
Murrumbidgee Country Club, Yowani Country Club, Federal Golf Club	273
Point Hut Pond	35
Bonner Neighbourhood Oval	12
Crace Community Recreation Irrigated Park	5
Total	1,530

Source: ACT Government, *Review of think water, act water*, p. 21 (unpublished).

In March 2007 a funding deed was signed committing \$10.2 million of Commonwealth funds and \$6.8 million of ACT Government funding to the project. The ACT has subsequently committed a total of more than \$49 million towards the project. At present the project consists of the pilot elements set out in Table 3.1.

¹⁵ ACT Natural Resource Management Council, 2009, *Bush Capital legacy: Plan for managing the natural resources of the ACT*, p.40.

In relation to the next step for the project, the ACT Government has stated:¹⁶

It is intended that the pilot reticulation projects be evaluated after a two year period of operation to comprehensively assess the costs and benefits of broad scale stormwater harvesting in the ACT. If the pilot evaluation concludes that the projects have been successful further infrastructure will be identified to meet the longer term 3 GL target of substituted potable water by 2015, pending successful ACT Government budget bids and additional Water for the Future grants.

The ACT Government is also undertaking a pilot project to assess the possible use of aquifers for storage of stormwater for later use.

Q8: Are there examples of urban waterways and stormwater harvesting programs other than the ACT Government’s Canberra Integrated Urban Waterways Project which the Commission should consider? If so, please provide details.

3.4 Economic, environmental and social costs and benefits

A holistic analysis of the costs and benefits of recycled water initiatives requires consideration of the economic, environmental and social criteria relevant to the project or initiative in question. For example, the list of typical criteria set out in Table 3.2 is drawn from the ACT Government’s discussion paper titled *Triple bottom line assessment for the ACT Government*.¹⁷

Table 3.2: Possible economic, environmental and social criteria

Economic	Environmental	Social
ACT Government Budget	Biodiversity	Community and individual health
Productivity	Landscape changes	Access to services
Income levels and distribution	Heritage	Access to housing
Employment	Natural resources	Access to social networks
Workforce composition	Environmental quality	Participation in community activities
Skills	Greenhouse gas emissions	Justice and rights
Investment	Water	Differential issues across gender
Consumption	Air	Differential issues across sectors
Competition	Microclimate	Differential issues across age groups
Cost of living	Visual quality	Disability
	Waste	Disadvantage and vulnerability

Source: *Triple bottom line assessment for the ACT Government*, discussion paper, ACT Government, June 2011, p. 22.

Once the criteria are selected, the range of recycled water initiatives can be assessed and compared in terms of their impact (either positive or negative) on each criterion. Impacts on some criteria can be readily quantified (financial costs, for example) while others are more difficult to measure (such as social impacts). An assessment that covers economic, social and environmental costs and benefits therefore often involves a mix of criteria that can be quantified and criteria that require a more qualitative assessment.

In the draft report the Commission will explore which economic, social and environmental indicators are most relevant to the use of recycled water in the ACT, and the extent to which the

¹⁶ Canberra Integrated Urban Waterways Project, final report, ACT Government, June 2011.

¹⁷ Available at <http://www.cmd.act.gov.au/policystrategic/sustainability>.

selected criteria can be quantified. This exercise will inform the methodology by which the Commission will consider the economic, social and environmental costs and benefits of the matters set out in the terms of reference.

Q9: What are the key economic, environmental and social factors relevant to the Commission's inquiry into recycled water in the ACT?

3.5 The Murray–Darling Basin Plan

Current arrangements

The ACT is a signatory to the Murray–Darling Basin Agreement, an intergovernmental agreement between Basin jurisdictions which, among other things, sets caps on consumptive surface water use. The ACT cap¹⁸ under the agreement allows the ACT to take out of the ACT river system a net 40 GL of water per year for consumptive use with credits or debits accruing annually. The cap allows the amount of water allocated to the ACT to grow as the population increases, by allowing the net 40 GL cap to increase by a growth factor of 75 per cent of the 2006 ACT and Queanbeyan¹⁹ population per capita water use.²⁰

Box 3.2: Net cap on ACT water diversions

A 'net cap' is the difference between actual water diversions by consumptive water users and treated water returned to the river system for use by the environment and other downstream users.

In the ACT, diversions include the volume of water removed from rivers and dams either by ACTEW or by agricultural businesses. Returns include the volume of water returned to the environment following treatment at the Lower Molonglo Water Quality Control Centre and the Queanbeyan Sewage Treatment Plant.

The Basin Plan

The Basin has been under environmental stress as a result of past water-allocation decisions, prolonged drought, natural climate variability, and emerging climate change. As part of the process to resolve these issues, the Murray–Darling Basin Authority (MDBA) is developing a Basin Plan under the auspices of the Commonwealth *Water Act 2007*. This is a strategic plan for the integrated and sustainable management of water resources across the whole Basin. The Basin Plan, among other things, will set environmentally sustainable limits—known as sustainable diversion limits (SDLs)—on the amount of water that can be taken from Basin water resources.

A key aim of the Basin Plan and the SDLs is to ensure that sufficient water is returned to the environment to restore the Basin waterways and key environmental assets to health. The Basin Plan will replace the existing ACT cap under the Murray–Darling Basin Agreement with an ACT SDL. The SDLs under the Basin Plan will come into effect in 2019, with current cap arrangements remaining in place until then.

¹⁸ Section 9 of the Murray–Darling Basin Agreement, Schedule E—Cap on Diversions.

¹⁹ The ACT provides water to Queanbeyan.

²⁰ There are also other climate-related annual adjustments.

Under the *Water Act 2007* the MDBA is required to prepare a draft Basin Plan (which is a legislative instrument) for public consultation, before a final Basin Plan can be presented to the Commonwealth Water Minister for approval. On its own initiative (that is, not as a statutory requirement), and in advance of developing the draft Basin Plan, the MDBA publicly released a *Guide to the proposed Basin Plan* in October 2010. The guide presented the MDBA's early proposals on the content of the draft Basin Plan, including SDLs, for discussion. The guide proposed substantial cuts in consumptive water use for all jurisdictions, including the ACT.²¹

Subsequent to the release of the guide and following further work and consultation cross the Basin, the Commission understands that the MDBA is planning to release the draft Basin Plan legislative instrument for consultation on 28 November 2011. The release of the draft Basin Plan will provide the Commission with the necessary information with which to fully assess the implications of the final Basin Plan for recycled water use in the ACT.

The Commission's view is that, in particular, the potential implications of any reduction in the ACT's ability to extract water for consumptive use should be carefully assessed. Any significant reduction may have cost impacts not dissimilar to the recent drought on both ACTEW (lower water sales and revenue) and the ACT community (reduced amenity due to water restrictions, for example).

There may also be implications for new or expanded recycled water initiatives within the ACT given the ACT's requirement to return treated wastewater to the Basin river system given its inland location.

Q10: What are the implications of the draft Murray–Darling Basin Plan for water use (potable and non-potable) in the ACT? The Commission notes that responses to this issue will be informed by the expected release the draft Basin Plan on 28 November 2011.

3.6 Other water conservation initiatives

The Commission is aware of a number of ACT water conservation initiatives other than those related to water recycling that have the potential to deliver economic, environmental and social outcomes. These include demand-management initiatives such as:

- water restrictions and conservation measures
- planning measures—water-sensitive urban design
- various water-saving rebates, subsidies and programs.

Think water, act water, released in April 2004, is the ACT Government's long-term water resources strategy. The strategy highlighted recycling, conservation and demand management as the key options for securing the ACT's water supply. It included the following targets:

- a reduction (relative to 2003 consumption) in per capita consumption of mains water by 12 per cent by 2013 and 25 per cent by 2023 through water efficiency measures, sustainable water recycling and use of stormwater and rainwater
- an increase in wastewater reuse from 5 per cent to 20 per cent by 2013.

²¹ The guide proposed ACT watercourse diversion reductions of up to 45 per cent compared to current arrangements, with no provision for population growth.

The targets and other measures contained in the strategy have formed the basis for many ACT Government programs in the years since its release, including a range of rebates and subsidies aimed at encouraging water efficiency.

The ACT Government is reviewing the *Think water, act water* strategy. An updated strategy is expected to be released in 2012.

Water restrictions and conservation measures

The ACT introduced revised permanent water conservation measures (PWCM) from 1 November 2010 through the Utilities (Water Conservation) Regulation 2006, which is made under the *Utilities Act 2000*. ACTEW is granted the authority for the development of PWCM by a disallowable instrument, the Utilities Water Conservation Measures Approval 2010.

The PWCM are aimed at reducing the usage of potable water and impose ‘common sense’ requirements such as the use of hand-held hoses, prohibition on watering gardens at designated times and other restrictions on use.

The ACT also has recourse to its temporary water restrictions scheme, also approved under the Utilities (Water Conservation) Regulation 2006, in times of emergency water shortage. While the Minister for Water has a role approving the principles of the temporary water restrictions regime, the actual implementation, including timing and stages, is determined by ACTEW.

Temporary water restrictions are applied through a four-stage scheme of progressively higher levels of restrictions based on the scarcity of water. The ACT was in various stages of temporary water restrictions almost continuously over the recent drought period from 2002 to 2010.

Planning measures—water-sensitive urban design²²

The ACT Government has introduced various planning requirements which are aimed at contributing to the targets of the *Think water, act water* strategy and other environmental outcomes such as improved water quality. The main requirements are contained in the Water Sensitive Urban Design (WSUD) General Code.

WSUD is aimed at achieving a 40 per cent reduction in mains water usage in all new dwellings (single residential, multi-unit residential, estate, commercial, industrial or institutional) compared to 2003 levels as well as stormwater quality and quantity management. The mains water reduction target applies to all new developments or redevelopments. As such, the WSUD principles apply to a significant proportion of ACT buildings, including all new suburbs and commercial and industrial developments.

Rebates, subsidies and programs

Many ACT Government departments are involved in the administration of demand reduction initiatives, including but not limited to the Education and Training Directorate, the Community Services Directorate, the Environment and Sustainable Development Directorate and the Territory and Municipal Services Directorate. Table 3.3 lists a sample of the current ACT Government administered rebates, subsidies and programs in this area.

²² ACT Government, *WaterWays—Water Sensitive Urban Design General Code*, http://www.actpla.act.gov.au/topics/design_build/siting/water_efficiency#residential

Table 3.3: ACT Government rebates, subsidies and programs

Rebate, subsidy or program	Description
Canberra Plant Selector	Web-based advice on waterwise garden plants
GardenSmart Service	A free visit from a horticulturalist and up to \$50 rebate on approved water saving garden equipment
Rainwater Tank Rebate	A rebate of up to \$1,000 for rainwater tanks connected to internal plumbing
ToiletSmart and ToiletSmart Plus	Reduced-price toilets and water-efficient equipment such as showerheads
WaterRight Garden Webtool	Web-based tool to develop a garden watering schedule
Outreach Program	Scheme aimed at assisting low-income households to reduce energy and water bills
ActSmart Schools	School water audits

In addition to the above schemes administered directly by the ACT Government, the Government participates in COAG processes such as the Water Efficient Labelling Scheme (WELS). WELS is based on labelling water-efficient appliances with the intention of providing point-of-sale information to consumers.

Q11: Are there any water conservation measures that the Commission should consider? If so, please provide details.

Q12: How have developers responded to the challenge of meeting the 40 per cent reduction in mains water usage in new dwellings?

4 Next steps

The issues paper is the first step in the Commission's consultation on this inquiry. The ACT community will have further opportunities to participate in the consultation process through submissions to the draft report or attending the planned public hearings. The timetable showing the proposed timing of the next steps in the inquiry process is set out below.

Task	Expected date
Release of context paper	23 November 2011
Release of issues paper	23 November 2011
Submissions on issues paper close	20 December 2011
Release of draft report	Late March 2012
Public hearing	Mid April 2012
Submissions on draft report close	Early May 2012
Final report presented to Legislative Assembly	Late June 2012

The Commission will be undertaking extensive consultation as part of each inquiry. If you wish to be included on future correspondence lists to receive reports and information as it becomes available, please contact the Commission by telephone on (02) 6205 0799, by fax on (02) 6207 5887, or by email at icrc@act.gov.au.

Appendix 1: Terms of reference

Australian Capital Territory

Independent Competition and Regulatory Commission (Inquiry into Secondary Water Use)

Terms of Reference Determination 2011

Disallowable instrument DI2011–255

Made under the

Independent Competition and Regulatory Commission Act 1997, Section 15 (Nature of industry references) and Section 16 (Terms of industry references)

Reference for investigation under Section 15

Pursuant to sections 15(1) and 16 of the Act, I refer to the Independent Competition and Regulatory Commission (the Commission) the task of undertaking an inquiry into and assessment of secondary water uses in the ACT.

1. The Commission is to report on the following matters:

- a) opportunities for a commercial market in grey water in both commercial and domestic applications and in new construction and retro-fits;
- b) the ACT Government's urban waterways and stormwater harvesting programs and their associated built wetlands; and

2. The Commission is to include consideration of:

- a) the economic, environmental and social costs and benefits of the matters set out in 1(a) and (b), with and without the Basin Plan, to the extent possible given that the Basin Plan is under development;
- b) any water conservation initiatives other than those captured in 1(a) and (b) that also have the potential to deliver economic, environmental and social outcomes; and
- c) any other matters the Commission considers relevant to the inquiry.

The Commission will report by the end of June 2012.

Andrew Barr MLA

Treasurer

21 September 2011

Appendix 2: Extract from the ICRC Act

15 Nature of industry references

- (1) A referring authority may provide an industry reference to the commission in relation to any of the following matters:
 - (a) prices for regulated services;
 - (b) competition within a regulated industry;
 - (c) any other matter in relation to a regulated industry;
 - (d) any matter in relation to regulated industries in general;
 - (e) any other matter in relation to an industry, or industries in general;
 - (f) any matter provided for by another law of the Territory.
- (2) The fact that a price direction is in force in relation to a regulated industry does not preclude a further investigation of prices in the industry, or the making of a new price direction in relation to prices in the industry.
- (3) An industry reference may limit the scope of the investigation and report to a particular aspect of the regulated industry, or to a particular period during which the industry has been operating, or in any other matter.
- (4) An industry reference may relate to a number of goods or services supplied by the same or different suppliers.
- (5) An industry reference may be withdrawn or amended by the referring authority at any time before the commission has delivered its report to the person.
- (6) If an industry reference is amended or withdrawn, the referring authority must prepare a written notice setting out the reasons for the amendment or withdrawal.
- (7) The referring authority must give a copy of the notice to the commission.
- (8) The notice is a notifiable instrument.

Note A notifiable instrument must be notified under the Legislation Act.

16 Terms of industry references

- (1) The referring authority may determine terms of reference for an investigation on an industry reference.
- (2) The terms of reference may include 1 or more of the following:
 - (a) a specification of a period within which a report is required to be submitted to the referring authority;
 - (b) a requirement that the commission consider specified matters;
 - (c) except in relation to price regulation, the making of a price direction and any related investigation and report—a requirement that the commission exercise its functions subject to any subsequent written direction of the authority.
- (3) A determination under subsection (1) is a disallowable instrument.

Note A disallowable instrument must be notified, and presented to the Legislative Assembly, under the Legislation Act.

- (4) A referring authority must cause a direction mentioned in subsection (2) (c) to be presented to the Legislative Assembly within 6 sitting days after it is given.

Abbreviations and acronyms

ACT	Australian Capital Territory
ACTEW	ACTEW Corporation
Commission	Independent Competition and Regulatory Commission (ACT)
COAG	Council of Australian Governments
GL	gigalitre
ICRC	Independent Competition and Regulatory Commission
ICRC Act	<i>Independent Competition and Regulatory Commission Act 1997</i> (ACT)
MDBA	Murray–Darling Basin Authority
ML	megalitre
PWCM	permanent water conservation measures
SDL	sustainable diversion limit
WELS	Water Efficient Labelling Scheme
WSUD	water-sensitive urban design