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Saving our Water Resources
an equitable and sustainable policy for the ACT

A joint position paper of the
ACT Council of Social Services
and the
Conservation Council of the South East Region and Canberra

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Table of Contents

SAVING OUR WATER RESOURCES: AN EQUITABLE AND SUSTAINABLE POLICY	3
PRINCIPLES FOR WATER CONSERVATION REFORM.....	4
EXECUTIVE SUMMARY AND KEY RECOMMENDATIONS	5
USING WATER IN THE ACT	8
Water cycles	8
Water quality and re-use	8
Stormwater.....	8
Rainwater.....	9
Wastewater	9
Sewerage.....	9
Environmental Flows.....	10
Our Catchment.....	10
How we use water in the ACT	10
CHANGING BEHAVIOUR RELATING TO WATER USE	12
What we need to save	12
1) Designing new water efficient developments and buildings	14
2) Retrofitting households and neighbourhoods	16
3) Engaging consumers in behaviour change.....	17
4) Engaging businesses in behaviour change.....	19
Is water too cheap?.....	20
Non-discretionary variations in water usage.....	20
Water pricing in the ACT	21
Impacts of prices increases on tenants and unmetered properties.....	23

Saving our Water Resources: an equitable and sustainable policy

The ACT Council of Social Service Inc (ACTCOSS) and the Conservation Council of the South East Region and Canberra (CCSERAC) share a common interest in the issue of water conservation in the ACT.

ACTCOSS and CCSERAC have a long history of working together. We worked closely together in 2002 on our respective comments on the ACT Governments draft 'sustainability' policy. To further our commitment to sustainability we agreed to do further work on this particular issue of common interest. This paper is the outcome of that work. It is our first joint paper.

The choice of water was driven by short and long term concerns about the current use of the water resources in the ACT.

Short term reasons are:

- impacts of the drought and the 2003 bushfires on our water catchments and water reserves;
- discussions about the need for a new dam or other means of increasing water supply;
- impact of current (and increasing) mandatory water restrictions;
- new Government policies looking at sustainable water resource management; and
- current inquiries of the Independent Competition and Regulatory Commission into water pricing arrangements.

Some longer term reasons include:

- growing pressure on our water resources from increases in the ACT's population and current water use patterns;
- likelihood of increasingly uncertain rainfall as climate change impacts on our environment; and
- the need for action on water conservation in the broader catchment of the Murray-Darling Basin.

*The Council of
Social Services
and the
Conservation
Council working
together to
promote water
conservation.*

Principles for water conservation reform

ACTCOSS and CCSERAC acknowledge access to clean water as a basic human right.

CCSERAC's key concern is to ensure the sustainable use of water in the ACT. Achieving this will require behavioural change, achieved through a combination of positive incentives as well as appropriate price signals. However, CCSERAC also recognises that using price alone to affect behaviour is regressive and something of a 'blunt instrument', given every-one's need and right to water for existence.

ACTCOSS is concerned to ensure sustainable use of water resources, because if these resources were to become even scarcer, it will impact most adversely on those who are least able to afford demand management technologies and price increases. ACTCOSS is concerned to ensure that any method chosen to influence the level of water use does not have a disproportionate impact on low income earners or consumers with a low capacity to implement necessary behaviour change, eg. large families.

ACTCOSS and CCSERAC support the need for the price of water to reflect its scarcity value and the environmental and infrastructure costs of service provision. However, there are concerns that the fundamental principles underlying price determination may incur a disproportionate impact on certain groups, and may not achieve environmentally sustainable outcomes in the absence of community education and demand management incentives.

CCSERAC and ACTCOSS have therefore come together to seek reforms, which will achieve:

- sustainable water use without causing hardship to disadvantaged people in the ACT community; and
- an equitable pathway to this goal.

A priority in achieving these goals is to change the way we use water in the ACT to one focused on sustainable use of this scarce and valuable resource.

*Our
objective is
to achieve
social
equity and
ecologically
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limited
water
resources.*

Executive summary and key recommendations

ACTCOSS and the Conservation Council welcome the commitment of the ACT Government to “maintain the ACT at the forefront of best practice in the sustainable management of water resources.” In particular ACTCOSS and the Conservation Council supports the initiative of the ACT Government to set targets for reductions in water use.

*Recommendation one:
ACTCOSS and the Conservation Council recommend the target for water conservation be a 20 per cent reduction in potable water use water within ten years.*

Achieving this will require significant behavior change by the whole community. ACTCOSS and the Conservation Council are committed to ensuring such change occurs in a fair and equitable manner. ACTCOSS and the Conservation Council are also committed to ensuring our water resources and the ecosystems that rely on those resources are adequately protected for current and future generations.

Such change in water use can be achieved in a range of ways including community education, regulation, water pricing increases to encourage reduced discretionary use, subsidies or capital works such as retrofitting of low-income households for free. It also requires leadership from the Government in their own behavioural patterns and substantial investment in demand management systems.

*Recommendation two:
ACTCOSS and the Conservation Council recommend that the ACT implement a range of voluntary and regulatory measures to facilitate water conservation.*

Measures advocated by ACTCOSS and the Conservation Council are discussed in this paper, including:

- legislation requiring new developments and buildings to conform to high water conservation standards
- greater investment in grey water and stormwater re-use;
- a program to ensure all public housing is retrofitted as a matter of priority;
- changes to the format of water bills to assist people in understanding their water usage;
- incentives and financial assistance to undertake water audits;
- rebate schemes on water efficient appliances;
- low interest loans for the purchase of expensive water efficient appliances e.g. rainwater tanks and washing machines; and
- changes to current policies in relation to ‘deemed use’ and flat rate usage applied to unmetered properties.
- education to allow people to understand the need for environmental flows.

A well executed and supported community education campaign will result in many members of the community investing in their own water demand management systems, particularly should financial support be provided by Government.

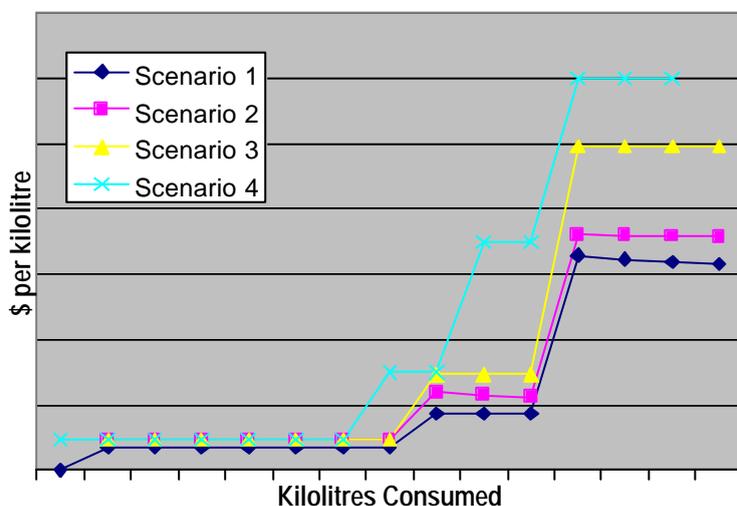
*Recommendation three:
ACTCOSS and the Conservation Council recommend that in partnership with the community the ACT Government undertake an extensive community education campaign on water conservation.*

Many people living on low incomes and people living with disadvantage, however will need further support in accessing information and a larger number will need significant support in accessing the technology required to reduce their water use. Therefore Government also needs to first invest in people on low incomes and living with disadvantage to enable them to apply demand management systems to ensure price increases do not incur undue hardship. Investment in the whole community may then follow.

Recommendation four:

ACTCOSS and the Conservation Council recommend that the Government use revenue raised by the Water Abstraction Charge to invest in a significant demand management program. In the first instance it is recommended that priority be given to educating and investing in those on low incomes or living with disadvantage.

Only in conjunction with a substantial and significant demand management program should we as a community look at increasing the price of water as a means to reduce demand. The current water pricing structure has a downward curve resulting in low end users paying proportionately more per kilolitre consumed than high end users. ACTCOSS and the Conservation Council want to see a pricing package for water that is stepped upward with volume used and combined with tools to assist those – such as larger families or low income earners who may be unduly disadvantaged by such pricing changes. Points of usage and how many steps is an area that ACTCOSS and CCSERAC will be investigating further, as well as the best ways of obtaining a pricing structure with an upward curve.



Recommendation five:

ACTCOSS and the Conservation Council recommend that substantial price increases of water must be considered in conjunction with a mix of other measures to ensure they do not cause hardship to low income earners or others affected by poverty. One of these could be a low price for the basic water allocation per household.

ACTCOSS and the Conservation Council also recommend that those with a higher non-discretionary use of water such as large families be protected from 'high use' price increases, by appropriately targeted and easily accessible rebates or concessions.

Ensuring appropriate environmental flows for our aquatic ecosystems is integral in the sustainable use of the ACT's water resources. A concerted effort needs to be made to better understand the needs of these biota and the impact of changes in environmental flows on their succession and survival.

*Recommendation six:
ACTCOSS and CCSERAC recommend that the Government use revenue derived from the WAC to fund research and monitoring of the impacts of environmental flows on aquatic biota and aquatic ecosystem processes.*

Water resources planning in the ACT

In 2002, the ACT government through Environment ACT outlined their proposal to develop a Water Resources Strategy through the review process of the Water Resources Management Plan (under the Water Resources Act 1998).

In July 2003, the Government released *Water ACT: a draft policy for sustainable water resource management* to provide a whole of government framework to guide development of the Water Resources Strategy

The draft policy outlined key targets for water resource management including:

- a 12% reduction in per capita use of potable water over the next 10 years, and a 25% reduction by 2023; and
- increased use of treated effluent, from the current 5% to 20% by 2013.

In concert with the development of the Water Resources Strategy, the Independent Competition and Regulatory Commission (ICRC) was issued a reference by the Government in May 2003 to advise on an appropriate level for the Water Abstraction Charge and to investigate the price direction of water and wastewater services provided by ACTEW.

Using water in the ACT

Water cycles

When we think of using water in our homes, most people think of dripping taps, hoses and sprinklers. When we think of wastewater and sewerage, people think of flushing toilets and sometimes storm water drains. In many ways, urban water supply in the ACT was designed with just such a system in mind – a ‘one pipe in-one pipe out’ simplified throughput system. However the water cycles in the ACT are much more complicated than the “one pipe in-one pipe out” model even at its most basic. If we start with a very simple household, we have water coming in from the mains, rainwater falling on the land, and sometimes, we may have run-off from adjacent properties. On the outflow side, water used in the home goes down our drains into our sewerage treatment plants, and hence is returned to the river, water that falls on our land either infiltrates into the soil or runs off our land and buildings and into our stormwater system.

Water quality and re-use

Water sources vary and can not all be used, reused or processed in the same manner. The best use of water requires us to know what we want to use it for and to explore how it can be safely used.

Water that comes through our mains water pipes is termed ‘potable water’ and is considered to be of a quality fit for direct human consumption. It has been treated with chlorine to make it safe from harmful bacteria. Water can also be obtained through collecting rainwater for human consumption, as occurs in many rural properties. There is an inherent risk risk of contamination, which has to be accepted by users.

Stormwater

The capacity of our land to absorb water is affected by how it has been altered by development. For example large areas of concrete and buildings reduce the ability of the landscape to absorb water, while natural landscapes such as woodlands and grasslands, and urban gardens and parks allow water to filter naturally into the soil.

Some of this water will eventually return into the subterranean water supplies and rivers. This process can biologically clean the water, or if the land through which the water passes is contaminated, the water can transport these contaminants into the surrounding lakes and river systems.

Sullivans Creek Catchment Group – David St wetland

Sited behind O’Connor shops, the off-line wetland receives urban run-off via the stormwater system, where native aquatic plantings and ecosystem processes remove nutrients from the water before it is returned to the stormwater system. A well functioning wetland system such as this can return the water to the system up to 60% cleaner than when it entered.

In 1985, the ACT moved to retain natural waterways and construct vegetated waterways rather than use concrete storm water channels to address water quality issues associated with urban run-off. One example of industry, government and community working to achieve this aim is the Sullivan’s Creek Catchment Group urban wetland project.

There is considerable potential for stormwater to supplement existing potable supplies for appropriate uses. Investigating treatment options and uses for the large amounts of stormwater that runs-off our landscape is an area of growing interest, which should be encouraged to determine the best use of our water resources.

Rainwater

Under ACT legislation rainwater may only be used for non-potable uses such as watering of gardens or supplying toilet flushing mechanisms.

Rainwater can also be gathered on a site through landscape features, such as banks or 'swales' that retain water on the surface, giving it time to soak into the soil and reducing the need for potable water for garden maintenance.

Wastewater

On the wastewater side, there is 'grey water' and 'black water'. The term 'black water' is generally used to identify water where faecal matter is present, eg. toilet water and nappy-washing water. However, because kitchen wastewater often contains a lot of organic waste, it is often considered to need the same special care required for dealing with faecal matter, so such wastewater from our kitchens is also termed 'black water'.

Grey water usually refers to shower/bath and clothes washing water (subject to the caution about faecal matter in either). Depending upon what other chemicals are added to the water by washing products, such water can be suitable to use on gardens. However, it is important to know:

- What is in the water, eg. bleaches and cleaning chemicals can adversely effect soil life and plants, and many washing powders contain high levels of salt and phosphate;
- What plants the water will be going onto, many native plants and trees do not tolerate high levels of phosphorous;
- Whether you are planning to eat the plants being watered, eg. it is not recommended that grey water be used to water root vegetables or leaf vegetables where there is direct contact between the water and the part of the plant being eaten.

All these things require consumers to be much more aware of what they are doing in their houses and on their land. They also require information that is not currently readily available, eg. regarding the contents of many cleaning and washing products and their likely effects on soil and plant condition.

Sewerage

Wastewater from our houses and businesses is treated before re-entering the river system via our sewerage treatment plants. This water is used by others further downstream in the Murray Darling Basin, into which our rivers flow. The potential for this water to be treated and reused in the ACT rather than returned to the river system has received increased attention.

Sometimes the safest and most effective way of reusing water is not on an individual block, but through designing in local treatment plants to reuse effluent and stormwater on appropriate public land that requires irrigation. ACTEW currently has 12 systems operating that trial grey water treatment and recycling systems. These trials should prove significant in allowing monitoring of soil impacts over time, and developing best practice models for wider application.

Sewerage reuse at Southwell Park

One example of this is ACTEW's Southwell Park WATERMINING® facility. The facility draws untreated sewerage from the sewer, upon which it is treated to remove solids and harmful bacteria before being used to irrigate Southwell Park playing fields.

Solids removed in this process are then returned to the sewerage system and treated in existing treatment plants before being returned to the river systems. The appropriate treatment and reuse of wastewater resources is seen to provide considerable potential for reducing our reliance on potable water.

Environmental Flows

Australian rivers have evolved in a climate of great variability, so that the biota are adapted to floods and droughts and require these variations to survive. Especially they need floods in winter and spring, and low flows in summer in our region. These needs form the basis of 'environmental flows'. Irrigation requires water in the dry months, so our dams hold the winter floods and release water in the summer. This reverses the natural pattern, and damages the ecology of the rivers. Environmental flows are essential in maintaining the health of our aquatic ecosystems and need to be maintained and assessed on a periodic basis to ensure their capacity to maintain this function.

We have particular responsibilities to ensure that we look after our water resources and use them well, so that water remains available for both environmental flows and for down-stream users who also depend upon the water passing through our community. Preserving a scarce resource, such as water is also a part of our responsibilities to future generations – known as 'intergenerational equity'.

Our Catchment

The ACT receives water via two catchments, the Cotter Catchment, located within Namadgi National Park and the Googong Catchment located to the east of the ACT.

These catchment areas provide our water supply and are substantially protected for water conservation. The location of our water supply reservoirs in Namadgi National Park and Googong Catchment Reserve helps ensure that our water remains reasonably clean. Unfortunately in the aftermath of the fires, the water in Namadgi National Park has been severely damaged and it may be a decade before it returns to the former water quality and quantity. Currently, we rely solely on the Googong dam to service our water needs, however, increased pressure on the resources of this dam, coupled with the prolonged period of low rainfall, has prompted widespread concern over the capacity of these resources to meet the ACT communities needs into the future.

As a community, the ACT needs to adopt a culture sensitive to the value of water, and develop innovative measures to ensure the long-term sustainability of this valuable resource and the ecosystems that depend upon it.

How we use water in the ACT

Water is recognised in our community as an essential resource and access to it as a basic human right.

According to the 2002 Senate Report *The Value of Water* the minimum daily requirement for drinking, cooking, bathing and sanitation is about 50 litres per person and average daily water usage in Australia [in year] is around 350 litres per person.

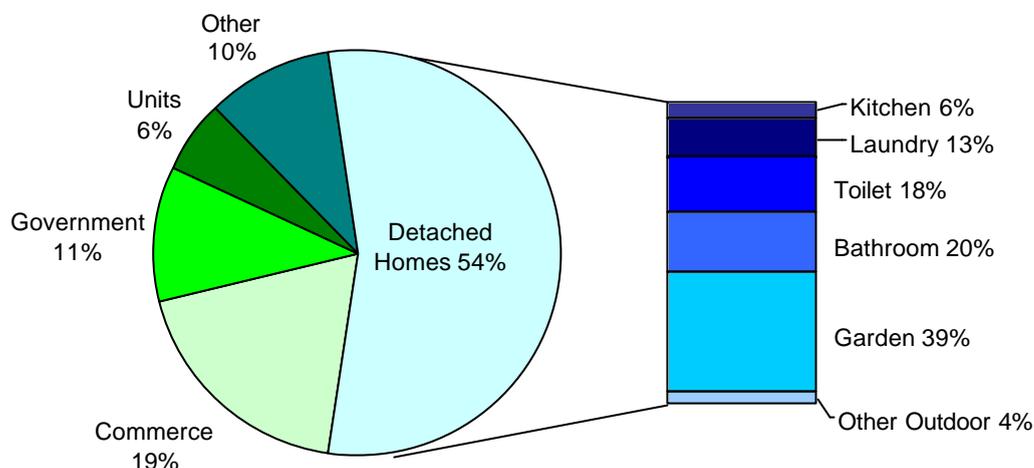
Water use falls into two broad areas – discretionary and non-discretionary water use.

Non-discretionary water use is the water we use within the house to meet our daily consumption and sanitation needs including cooking, showering and washing of clothes.

Discretionary use is additional non-essential water such as water used on our gardens, in pools or to wash the car.

ACT residents currently consume 64% of the water used in the ACT. Figure 2 shows water usage by sector and also a breakdown of residential water use. At least 40% of Canberra's domestic water use can be considered discretionary.

Figure 2. Mains Water Use in Canberra



Source: Environment ACT, October 2003

Whilst the ACT's large discretionary use can in part be attributed to our 'garden city' reputation, larger block sizes and the dry hot summers that characterise our climate, the community has a considerable capacity to reduce their level of consumption in times of need. This was evidenced in the recent response to the drought and mandatory water restrictions, with the community successfully meeting the 25% reduction target under Stage 2 water restrictions.

CSIRO estimates that our summer 'peak load' is 1.48 times the average, with this being most likely linked to increased garden use in our hot summers. Currently, the water used to service the needs of our gardens is derived from the same source as our drinking water supply.

In Canberra we supply water at a much lower cost and use more water per household than other capital cities. For example, Canberra households use an average of 294kl per annum compared to 220kl per annum in Sydney households and 228kl by Melbourne households.

CHANGING BEHAVIOUR RELATING TO WATER USE

What we need to save

It is clear that conserving water or demand management can be effective. In the ACT, community education campaigns on water conservation commenced in the early 1990s. Dual flush toilets were made mandatory for all new or replacement toilets in 1993. In the decade since then our per capita water usage has fallen by 20% and some of this can be attributed to the increase in water charges.

However, our population is expected to increase over the next century. While there are debates about the accuracy of population estimates, the ACT Spatial Plan estimates that the ACT's population could increase up to 500,000 by the middle of this century. Whether or not this figure is accurate, demand management of our water resources is required now, to prevent adverse intergenerational effects of any increase in population. Similarly, if we are to avoid constructing a new dam to meet any increasing total water needs, then we need to achieve significant reductions in our water use.

*Recommendation one:
ACTCOSS and the Conservation Council
recommend the target for water conservation
be a 20 per cent reduction in potable water
use water within ten years.*

*demand management
-- the principle being
to reduce demand
rather than increase
supply*

In achieving demand management on this scale there are a range of options, other than price, which is discussed later. Some of these have already been found to be successful in other places, both here and overseas. These include:

- designing more water efficient housing developments;
- retrofitting households and neighbourhoods to increase their water efficiency;
- engaging consumers in monitoring and changing their water use;
- engaging businesses in making their water use more efficient.

Behaviour change can be achieved in a number of ways. These include:

- **regulation** to require reduced water usage eg the current mandatory water restrictions, mandatory use of dual flush toilets in new or replacement situations, planning and development legislative requirements;
- **education and information** about usage and ways of reducing usage, eg. pamphlets and display centres like the Energy Information Centre; display houses where people put in place systems and make their houses available for public viewing, eg. like the Solar House tours; planting displays such as the Xeriscape Gardens at Weston; and
- **incentives/disincentives** which encourage behaviour change, eg. subsidies to replace high water use showerheads with low water use models, subsidies for installing rain water tanks, water conservation rating on properties, as there is with energy rating in the ACT, so that purchasers know what's in place; placing environmental taxes on items that are heavy users of water to make them more costly to purchase over water efficient alternatives.

Methods of achieving behaviour change can be applied in different ways to achieve the same end. For example, where some appliances are known to require significantly less water than a similar product, people could be:

- compelled by regulation to purchase the low water use item when replacing it and removing the higher water usage item from the market by prohibiting its sale;
- informed about the environmental benefits and the potential water savings which could be made through the changeover;
- provided with incentives to purchase the more water conserving appliance, eg. through a rebate or no/low interest loan; or
- discouraged from purchasing the less efficient appliance by imposing water use tariff on the purchase price at the point of purchase.

Recommendation two:

ACTCOSS and the Conservation Council recommend that the ACT implement a range of voluntary and regulatory measures to facilitate water conservation.

1) Designing new water efficient developments and buildings

Designing more efficient systems – whether through new arrangements or retrofitting older ones – can be an effective way of achieving changed water usage, because you are not requiring people to consciously change their behaviour. It is simply more difficult to waste water.

As is frequently the case, the cost of creating a more water efficient home at the beginning is much easier and less expensive than ‘retro-fitting’ an old home. This is an important policy issue for any new developments, where water use and re-use strategies can be designed into new sub-divisions. For example, the reticulation of treated effluent into external garden taps can make the use of this resource in domestic gardens much easier.

A considerable amount of information is currently available on designing water conserving dwellings and neighbourhoods. The ACT Government needs to require any new housing developments in the ACT to meet best practice standards in these areas. These could include low watering landscaping, water channels and detention ponds for stormwater run-off, dual reticulation systems with “on-site” effluent treatment arrangements to create low water usage developments and reduce the need for potable water in the surrounding landscape.

CCSERAC and ACTCOSS advocate that the Government introduce legislation to require any new developments to implement water conservation design elements, and that new dwellings be required to include a number of appropriate water conservation technologies into their design.

As well as designing in water conservation technologies, new developments and new houses may be able to utilise water reuse technologies. CSIRO sets out a broad range of options for water reuse, their pros and cons, where they exist at the moment and recommends these be more thoroughly researched as part of the development of sustainable urban water use plans. CSIRO suggests recycling of wastewater, grey water or stormwater is potentially good for the environment for two reasons:

- it reduces the amount of water taken from natural environments allowing more water for other users eg. agriculture, industry or to improve environmental flows,
- it also diverts wastewater, greywater or stormwater effluent away from natural environments and thereby decreasing the amount of pollutants discharged into these environments.

Pricing of recycled water will need to be addressed to make this option more attractive to consumers, with current prices exceeding those of potable water.

The ACT Government has shown leadership in this area by committing itself to increasing the use of recycled effluent from 5% to 20% by 2013.

ACTCOSS and CCSERAC advocate that the ACT Government dedicate some of the income from the Water Abstraction Charge to research on domestic and small scale recycling of greywater to ensure that it can be done in a manner that protects the environment and public health.

Using rainwater is a long-standing traditional (and necessity) in non-urban areas of Australia, through rainwater tanks. In the ACT, we have used urban ‘lakes’ and wetlands and grassed channels to divert stormwater into more environmentally appropriate places than concrete drains. Research done in the ACT shows that urban areas have significantly increased run-off compared to the same area in a rural catchment.

Stormwater use is, however, not without problems, particularly in areas where contamination from pollutants can occur. Solid waste such as rubbish and animal excrement also can affect the quality of the water. In its submission last year to the 2002 Senate inquiry into water use, the CSIRO said:

“In comparison to wastewater, stormwater may initially appear to be a more suitable resource for urban use, because of its perceived higher quality. However, due to the intermittent nature of rainfall and its variable quality of stormwater runoff [sic], there are substantial difficulties associated with the use of this resource. Options for stormwater use include: on-site rainwater tanks, community collection and storage for irrigation, aquifer storage and recovery, and habitat restoration such as a wetland or stream.”

ACTCOSS and CCSERAC support existing programs to encourage the collection of rainwater and to divert stormwater into ecologically appropriate uses and advocate that further ‘best use’ strategies for stormwater and rainwater be implemented.

The ACT Government provides a subsidy towards the purchase price of rainwater tanks on domestic dwellings. It could be a requirement that all new buildings or new sub-divisions are required to install rainwater tanks as a condition of planning approval.

2) Retrofitting households and neighbourhoods

Retrofitting is almost always going to be a more expensive way of achieving the same result than in a new purpose built development. However, we already have extensive existing housing stock in the ACT, and for these, retrofitting is the only feasible option for introducing water-saving technologies. Often the most appropriate time will be when a house is being renovated or when an appliance breaks down. Statutory requirements to comply with water conserving technologies are possible at this point.

People also need access to good quality, useful information, that makes 'doing the right thing' easier. Information centres, as exist in the energy conservation area, are one way of helping inform the potential retro-fitter of what is available and what they can do to increase the water efficiency of their dwelling. ACTCOSS and CCSERAC advocate that the ACT Government ensure that the information needed by people in the ACT community to manage their water use is freely available. It is particularly important that this is accompanied by a public promotional campaign so that people know where to obtain the information.

As well as information, some 'working examples' help show people what is possible. The current Solar House Tour, run annually throughout Australia by the Australia/New Zealand Solar Energy Society and the Alternative Technology Association fills a similar need, with people who might be 'early adopters' of technology or change, agreeing to allow people to view the technology at work in their houses.

ACTCOSS and CCSERAC advocate that the ACT Government examine ways of showing the community what is possible through effective retrofitting, or supporting others who are able to do this. Water tanks could also be considered in any plans to 'retrofit' appropriate public housing sites.

Subsidy schemes, such as the one recently in place in the ACT for water conserving showerheads, or arrangements such as the Queanbeyan free package for retrofitting of water conserving technologies offer ways of making these changes less costly.

In some places, the cost of new capital works for water or wastewater makes the provision of free water and wastewater saving technologies economically the most sensible option, as was the case in Queanbeyan (see box)

Water conservation and sewerage infrastructure in Queanbeyan

Water conservation measures in Queanbeyan have meant that an expensive upgrade in the sewerage disposal system is not required.

A significant reduction in wastewater output was required to prevent having to spend \$10m on upgrading the sewerage disposal system.

A free water audit was provided with replacement of all low efficiency showerheads and non-AAA toilets with AAA rated fixtures, and the supply and installation of two tap washers, and one flow regulator. The program also provided rainwater tank subsidies. The cost of this program was approximately \$1.5m and saved enough wastewater to avoid having to upgrade the sewerage system.

At June 2003, there had been a 21% residential uptake, and some commercial uptake as well.

The unit cost price was \$300 installed for toilet and showerhead, and \$90 for the audit and tap regulators. Water use savings were around 11%.

3) Engaging consumers in behaviour change

Engagement of the community and households begins with information and education. The provision of better information to consumers about their water usage is a prerequisite for conscious, non-mandatory, broad scale behaviour change. This will empower consumers to become more positively engaged in demand management.

*Recommendation three:
ACTCOSS and the Conservation Council recommend that in partnership with the community the ACT Government undertake an extensive community education campaign on water conservation.*

CCSERAC and ACTCOSS advocate that all water bills include information on consumption per household (as currently occurs), as well a figure for average ACT 'per person' consumption (which doesn't occur at present) to enable consumers to work out their average personal use, which will vary with the number of people living in their household. We also suggest this be provided graphically along with tips on water saving measures.

After informing consumers about their usage, education of households and business about what can be done to reduce their usage is the next priority to achieve behaviour change. Currently ACTEW has produced a range of pamphlets for householders, eg. the Stop the Drop leaflets and the Saving Water in Canberra booklet. These strategies need to be evaluated to determine their effectiveness. It may be that direct engagement on a one to one basis is likely to be more effective than pamphlets or advertising campaigns.

One method which has been used by the Essential Services Consumer Council (ESCC) has been the use of energy audits for those who have trouble paying their utility bills. This has proved to be quite successful and acceptable to those people who have sought such assistance. Such a model would not necessarily have to be limited to people experiencing difficulties paying their water bills. It could be made available through community agencies or other bodies as a service for all consumers.

CCSERAC and ACTCOSS advocate the development and funding of water audits (possibly combined with energy audits in appropriate cases) to assist all consumers and, in particular, those on low incomes, to know how to reduce their water use.

In addition, arrangements for subsidies and purchase assistance arrangements to encourage water conservation should be pursued. ACTCOSS and CCSERAC advocate that subsidies and purchase assistance schemes be used as broadly as possible across the community. If there is a "rationing" approach taken, then low income households should have priority for subsidies.

This should not be limited to pensioners and beneficiaries, as other households on low fixed incomes can suffer the same disadvantages.

When consumers wishing to recycle or reuse water on their own property, need access to information to enable them to do this in a healthy and environmentally positive manner. This requires the consumer to be informed regarding inputs into their household wastewater, eg. household cleaning products, laundry powders particularly phosphates.

ACTCOSS and CCSERAC advocate that the ACT Government introduce legislation requiring the appropriate labeling of contents on cleaning and washing products, so that consumers who wish to recycle their own water on site can do so with minimal negative environmental impact.

Often there is a focus on 'high end' options, whereas there is often a range of things that people can do which cost very little.

ACTCOSS and CCSERAC advocate the development of a set of 'low cost' actions that people can do to conserve water. To involve the community in this process, a competition could be held for the best low cost solutions, and these could be published and distributed across the community.

4) Engaging businesses in behaviour change

In business, price can be a powerful tool for achieving behaviour change so far as water use and wastewater disposal is concerned. However, there are risks with using this as the only tool. For example, unless a transition period of education and assistance is provided, simply increasing the price of wastewater disposal could result in increased, uncontrolled dumping of wastewater, or alternatively impact on business viability.

Kogarah Town Square, Sydney

The Kogarah Town Square redevelopment covers one hectare, comprising of retail and commercial space along with 190 apartments, a public library and underground parking. Stormwater is used for landscape irrigation, toilet flushing and car washing. Some 17 per cent of the water used in the redevelopment will be stormwater, in the order of 5700kL/y. Solar power is also generated. The project commenced in early 2001 with completion in 2002.

Source: CSIRO

CCSERAC and ACTCOSS agree that where water is used commercially or in businesses, there are good arguments for significant increases in prices after a transition period to enable business investment in water saving technologies to internalise the environmental costs of water usage associated with their businesses.

In relation to wastewater, there is no metering of wastewater inflows, so pricing cannot currently be based on volume. There is no additional charge for trade wastes, though additional costs are incurred by ACTEW in managing these

wastes. After an appropriate transition period, ACTCOSS and CCSERAC support additional charges being made on the producers of trade wastes. These costs should cover the additional costs of inspection and where remediation on site cannot be achieved, a charge for treatment of these wastes until they meet appropriate standards.

Is water too cheap?

The price charged for water in Australia is generally recognised as very low. The 2002 Senate Report indicated that the current average price of \$1 per kilolitre does not reflect the full environmental and other values of the water, but rather the costs of pipes and infrastructure used in the supply of water. The water itself is essentially provided free. The low price is argued to act as an impediment to recycling and other forms of water re-use. It is also argued that it fails to give water users (including households) price signals to reduce their use. However, water is also recognised as being a 'basic need' and something where steep price rises would affect those who could least afford to pay. A central question is whether price can influence demand management of water.

In looking at the pricing issue, the Senate Report identified the tension inherent in household water pricing and the irony of the bottled water market:

"Increasing water prices would be politically contentious, and many consumers would argue that because water is a basic human need, it should be free. However, it is ironic that Australians are prepared to pay a thousand times more per litre for bottled water than they do for tap water of much the same quality."

However, the ICRC also says that "consumption of water has a positive relationship with income and size of property". It is arguably more appropriate for those who are high-end water users pay more for their discretionary use of water. So long as those whose non-discretionary use of water is higher than average are appropriately protected. People on low incomes and particularly those with large households needs significant concessions as well as investment by government in demand management systems.

Non-discretionary variations in water usage

There are reasons that people with low incomes or with other disadvantages such as disabilities or illness may have a higher per capita water usage than others. Larger families, particularly those with children, are also likely to be more disadvantaged by price increases because water usage is not priced by per capita usage but by household usage.

Research is needed on water usage across a wider number of socio-economic indicators to ensure both subsidies and education campaigns are well-targeted. For example, it would be useful to know whether and by how much water usage varies:

- Across the age spectrum of residents eg small children, adolescents, older age people;
- With the incidence of specific disabilities or illnesses eg where these cause incontinence and a greater need for washing;
- Between renters and owner/occupiers; and
- Between households with small and large numbers of people present.

ACTCOSS and CCSERAC advocate that the Government fund research into the socio-economic variations in water usage across individuals and households in the ACT. This research should be aimed at ensuring that any community service obligations (CSOs) related to price increases are appropriately targeted, and that other policies to reduce water demand are appropriately targeted and equitably implemented.

ACTCOSS and CCSERAC also advocate that those with a higher non-discretionary use of water be protected from 'high use' price increases, by appropriately targeted and easily accessible rebates or concessions.

Water pricing in the ACT

When consumers receive their 'water bill' from ACTEW, it includes both water and wastewater components. There is no capacity for households to alter the costs of the fixed supply charge for water as the price charged is not dependent upon how much is used or produced. Wastewater (including sewerage) charges differ between residential and non-residential consumers. Residential consumers pay a fixed fee and non-residential consumers pay a fixed fee plus a fee per fixture after the second one.

Water pricing in the ACT consists of three parts – a fixed 'supply' charge, the Water Abstraction Charge and the tariff for water usage. The tariff includes a variable component, set at different prices depending upon usage.

The fixed supply charge is \$125, plus 43c per kL up to 175 kL and then \$1.05 per kL thereafter. This form of pricing is called "an increasing block pricing with a fixed component". It is arguable that using a similar pricing structure for the WAC may be more effective demand management tool than simply keeping a single rate and increasing it overall. Price increases will then hit higher users more, though this needs to be balanced against the potential higher level of need in households with larger numbers of people living there or with specific needs for higher non-discretionary water usage

The Water Abstraction Charge (WAC) developed from an Environmental Works Charge (EWC), which was introduced in around 1997. This was a flat fee of \$40 per customer and was paid as part of the sewerage charge. In 1999, the EWC was replaced by the WAC, which was initially set at 10c per billable kilolitre (kL) of water and was intended to bring the price of water in line with the reforms adopted by the Council of Australian Governments in 1994 as part of National Competition Policy Reform. The ICRC lists the WAC's purposes as promoting more efficient use of water and providing some return for the community on one of its most valuable resources. In the 2003-2004 Budget, the Government announced that the WAC would increase to 20c per kL from 1 January 2004, and then increase to 25c per kL from 1 July 2004.

On 10 October the ICRC put its recommendation to the Government. It recommended that it "the WAC to apply during the current first half of the 2003-04 financial year could be as high as 18 cents per kilolitre (compared to the existing 10 cents a kilolitre), and from 1 January could be at least 20 cents a kilolitre".

The ICRC also recommended that the WAC be determined on an annual basis and that it [the WAC] will include amongst other things water supply costs such as "funding of water management and demand management programs in the ACT".

*Recommendation four:
ACTCOSS and the Conservation Council recommend that the Government use revenue raised by the Water Abstraction Charge to invest in a significant demand management program. In the first instance it is recommended that priority be given to investing in those on low incomes or living with disadvantage.*

The current water pricing structure has a downward curve. Overall ACTCOSS and the Conservation Council want to see a pricing package for water that is stepped in an upward fashion and combined with tools to assist those – such as larger families or low income earners who may be unduly disadvantaged by such pricing changes. Points of usage and how many steps is an area that ACTCOSS and CCSERAC will be investigating further, as well as the best ways of obtaining a pricing structure with an upward curve.

The ICRC Issue Paper on the WAC noted the relatively higher impact of a WAC increase on a low-income family under the current flat rate structure, as well as its perverse impact as a demand management tool.

The two examples of households using 175 kL and 400 kL showed that a flat rate 10c per kL WAC resulted in:

- a 19% effective increase in cost for the 175 kL user; and
- a 9% increase for the higher user.

To keep their bills at the same level, the higher user would only have had to have a 4.5% decrease in their water usage, whereas the lower user would have to make a 16% decrease. The conclusions of the ICRC were:

That even for relatively small increases in the effective price of water, households on limited budgets could face potential difficulties staying within their budget. Further, given the elasticity estimates ... a 19% increase in price would only result in a 4.2% decrease in consumption. This is far less than the 16% necessary in the first example.

The ICRC did not support a stepped WAC on the grounds of administration. This creates an extra burden for people on low incomes as fixed charges discriminate against them the most. Flat rate charges are discriminatory and unfair and that a flat WAC discriminates against people on low incomes. Given the discriminatory nature of the flat WAC the imperative for stepped pricing on the other components of the price is paramount.

There is significant evidence that simply increasing water prices for non-commercial residential users will not be either equitable or effective on its own. Even the ICRC has favourably quoted the NSW Independent Pricing and Regulatory Tribunal's conclusion in its review of metropolitan water agency prices, when it said:

"It is sometimes suggested that price should be used as the means of reducing water users' demand. Whilst the Tribunal could consider raising the prices for demand management purposes, it is far from convinced that this is either appropriate or likely to be successful in the absence of other initiatives."

The ICRC prefaces this by commenting that:

"Water is a good with low elasticity of demand. A study undertaken by ACTEW indicates that in the ACT ... increasing prices by 10% will result in a 2.2% reduction in demand."

Only in conjunction with a substantial and significant demand management program should we as a community look at increasing the price of water as a means to reduce demand. ACTCOSS and CCSERAC accept that some price increase at the high usage end may be justified on demand management grounds. However, increased water charges alone are unlikely to be effective and run the risk if they are across the board of causing hardship to low income earners or others affected by poverty. Initiatives to reduce water use, including via appropriate price structures for water are essential to achieve reductions in the ACT's water consumption. The key is determining the right mix so that environmental outcomes are achieved in a socially equitable manner.

Recommendation five:

ACTCOSS and the Conservation Council recommend that price increases of water only be considered in conjunction with a mix of other measures to ensure they do not cause hardship to low income earners or others affected by poverty.

ACTCOSS and the Conservation Council also recommend that those with a higher non-discretionary use of water such as large families be protected from 'high use' price increases, by appropriately targeted and easily accessible rebates or concessions.

Impacts of prices increases on tenants and unmetered properties

Where individual metering or billing does not occur, the use of price as a signal to behaviour change is essentially irrelevant. In the case of dual occupancy blocks and multiple buildings on a single block, a flat fee of \$200.25 plus the WAC is payable, whatever the water usage is. Flat complexes are metered as one block for the usage and abstraction charge, then a deemed rate is used to arrive at a Unit charge. The deemed rate is 175 kL, which is also used as the charge for unmetered properties.

In those cases where deemed rates are used, water conservation efforts by individual owners have little or no impact on the amount billed. The absence of any price benefit mitigates against the use of price as a demand management strategy at all in these cases. In the absence of cost pressures to change water behaviour, the Government needs to make a concerted effort to change behaviour.

CCSERAC and ACTCOSS advocate that the Government review the current policies in place in relation to unmetered, "deemed use" and flat rate usage arrangements, in the light of the need to encourage water conservation. The inability to feedback figures on reductions or increases in use means a household's own usage patterns cannot be effectively used to influence their actions. This requires separate conscious strategies, either to provide the information required over time through the introduction of volume measuring, or to put in place alternative strategies which do not rely on usage feedback.

The situation of consumers in public housing at the moment, even where there is a separate meter, is that consumers are not separately billed for their water usage. It is 'rolled' into their rental. Such a lack of feedback means that individual households do not receive any information about their water use.

Where consumers are in the private market, the WAC and the fixed price for water is charged to the land owner - the landlord. Water charges can be passed on, but at present this is ad hoc and unregulated. The decision to pass water charges directly to tenants should be disclosed at the time of signing a lease, and agreement reached on the responsibilities of both parties. The best way to ensure this occurs would be to specifically include water billing arrangements in all tenancy agreements.

There is also a concern that, where responsibility for water use falls on the tenant, they may not be able to reduce water use because of the infrastructure of the accommodation, such as shower heads, taps, opportunities for recycling, etc. Landlords also need information and incentives on upgrading the water efficiency of their properties.

ACTCOSS and CCSERAC advocate that the Government undertake research into the best ways of influencing the behaviour of tenants and landlords to conserve water.

ACTCOSS and CCSERAC suggest that the Government disaggregate the rental paid in public housing, to provide consumers with an idea of their water usage, and a financial incentive to reduce their usage.

ACTCOSS and CCSERAC further advocate that the Government, as landlord, implement all the water conservation strategies that it is asking private householders to undertake across all public housing sites in the ACT.

Where tenants are billed by their landlord for water usage, rather than by the retailer, ACTCOSS and CCSERAC advocate that the Government seek advice from the ESCC about whether there is a need to amend the scope of its powers to address this apparent inequity.