

PLANNING & ENVIRONMENT COMMITTEE
OF
THE ACT LEGISLATIVE ASSEMBLY

INQUIRY INTO WATER USE AND MANAGEMENT

SUBMISSION BY
THE HORTICULTURAL SOCIETY OF CANBERRA

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The Horticultural Society of Canberra

The Horticultural Society of Canberra (HSOC) is the oldest and largest organisation representing gardeners in Canberra. It was formed in 1929 to promote gardening in the newly established national capital and assist development of its 'garden city' character. It has about 400 members and its current objectives are the 'encouragement, improvement and development of horticulture'. The Society promotes diversity in the practice of horticulture, and thus considers that people should have the opportunity to choose the style of garden they want. The Society recognises that gardening is a much valued form of recreation for a great many people, and a garden is a treasured amenity of their home.

The Society's activities reflect these values and objectives. It publishes 'The Canberra Gardener', a four-hundred page volume now in its ninth edition and a leading reference for local gardeners. It organises regular flower shows, information meetings and garden tours. It has contributed over \$25,000 and substantial volunteer support towards developing and maintaining a demonstration rose garden at Weston, within the xeriscape garden that was jointly developed by ActewAGL and CIT's School of Horticulture.

Summary of the submission

The submission focuses on the possible impacts of water restrictions on Canberra's gardens and urban landscape. It notes that there is not enough factual information publicly available about these impacts, notwithstanding their potentially serious nature. The submission then discusses the likely impacts of the severe (Stage 4) restrictions currently in prospect. It concludes that such restrictions, if prolonged, could lead to serious and long-lasting damage to gardens and the urban landscape: many plants in public areas normally watered would die and private gardens would lose many plants and be badly degraded. The submission argues that the Government should give higher priority to avoiding such an outcome.

The submission also discusses the case for restrictions as a part of water policy. It argues that they are an inefficient and arbitrary way of rationing water when it is scarce, and that market forces should be allowed to determine how water is distributed in these circumstances. That is, prices for water should be able to rise in

response to the excess demand. This would provide a direct and immediate incentive to economise in the use of water, and would give those who place a higher value on water an opportunity to buy it and use it in accordance with their own priorities. The submission recommends that the Government should prepare a public discussion paper on options for introducing a more market-oriented approach to water pricing in the ACT, including the scope for a system of water trading.

The submission thus relates mainly to paragraphs (e) and (f) in the terms of reference for the Committee's inquiry ('the relative merits of staged water restrictions as compared to a permanent water conservation strategy' and 'maintaining the health of trees, sporting fields and gardens and the city's Bush Capital character').

Impacts of water restrictions

Published information

There is insufficient factual information publicly available about the impacts which water restrictions have so far had on Canberra gardens and the urban landscape (that is, parks, public gardens and streetscapes), and there has been insufficient analysis of the possible impacts of continuing restrictions. As these impacts are potentially severe, this paucity of information is a serious deficiency, in HSOC's view, for a city that since its inception has promoted its garden character and green credentials, and derives much of its special attraction from these qualities.

The Government's main document on its water policy, 'Think water, act water', addressed the broad context for water planning, the objectives to be pursued and the various measures to be adopted. But although a major objective of the policy is to reduce water use, and restrictions have been the most significant measure to date for achieving this, the document refers only briefly to restrictions and does not discuss their possible effects¹.

The most detailed analysis so far of the possible effects of water restrictions on the ACT is in a report prepared in 2005 by the Centre for International Economics (CIE)

¹ ACT Government, 'Think water, act water', April 2004, Vol.2, p.20.

for ACTEW, to assist its investigation of future water supply options². This report estimated the total costs for the ACT of five different levels of restrictions. It concluded that the cost of spending one year at a level of restrictions approximately equivalent to the present Stage 3 would be \$81 million (2005 prices), and that this would rise to about \$163 million for restrictions equivalent to the present Stage 4³. HSOC estimates that the costs of restrictions to date – that is, over the five years from December 2002 to December 2007 – would have been approximately \$170 million, based on figures in the CIE report adjusted for the periods that different levels of restrictions applied.

CIE estimated that households bear from about half to three quarters of the total costs of restrictions, depending on the level of restrictions. Essentially, it estimated the opportunity costs of restrictions – that is, the inconveniences and other costs imposed on households by restrictions (eg, through time-consuming watering by hand and distributing household grey water in gardens). It also drew on surveys of householder attitudes to water pricing and ‘willingness to pay’ to avoid restrictions. The CIE estimates of household costs corresponding to the figures above are:

	Total cost for all households	Average cost per household
	\$ million	\$
One year at current Level 3	41	411
One year at current Level 4	77	769
Actual restrictions from Dec 2002 to Dec 2007 (HSOC estimate)	112	1,120

CIE has recently revised upwards some of the estimates it made in 2005 of the costs of restrictions, particularly at higher levels⁴. Its initial assessment of what householders would be willing to pay to avoid restrictions was partly hypothetical, in that the householders surveyed had little or no experience of restrictions at the time

² Centre for International Economics, ‘Economic Benefit-Cost Analysis of New Water Supply Options for the ACT’, April 2005.

³ Ibid, p.36.

⁴ See ACTEW, ‘Water Supply Security for the ACT and Region’, July 2007, p. 42.

of the survey. They could therefore have seen restrictions as a remote eventuality, and been disinclined to show much enthusiasm for paying to avoid them. What householders will actually pay to avoid the real and immediate prospect of a seriously deteriorating garden is likely to be much more than they would notionally offer to pay to avoid an uncertain and remote prospect of this.

HSOC thus supports the view expressed in a recent report on water issues for the ACT Government that 'it is vital to assess [the costs of restrictions] accurately in a way that reflects community attitudes (including experience of recent restrictions)', and that this process 'could include engaging the community in careful examination of the costs of different frequencies, durations and severities of restrictions'⁵. Such an investigation should occur before Stage 4 restrictions are imposed.

HSOC comments

Stage 4 restrictions

This submission focuses on the possible effects of Stage 4 restrictions because they have been foreshadowed by ACTEW⁶, and they could if prolonged seriously degrade Canberra gardens and the urban landscape. The focus on Stage 4 does not imply a view on the part of HSOC that lesser restrictions are acceptable. As the CIE estimates quoted above indicate, restrictions have already imposed significant practical, day-to-day costs on Canberra householders.

Stage 4 restrictions prohibit any use of mains water on gardens. This is a very severe reduction in water supplies from Stage 3, which allows each household up to 18 hours of watering each week. Although most householders would not for practical reasons water their gardens as much as this, the essential point is that Stage 3 has enabled gardens to be roughly sustained, and Stage 4 would not allow this.

⁵ Water Security Task Force Chief Minister's Department and Water Security Task Force Advisory Panel, 'Next Steps to Ensure Water Security for the ACT Region', September 2007, p.26).

⁶ Earlier this year ACTEW foreshadowed that Stage 4 restrictions could be introduced in August 2007, possibly for the duration of summer. Its current expectation (December 2007), is that they could be introduced in March 2008.

Over 65,000 Canberra households (or 56 per cent) will be particularly affected by Stage 4, as this is the number that rely principally on mains water for their gardens⁷. The impacts of Stage 4 on individual gardens will depend on a variety of factors such as the garden environment (aspect, topography, soil types), design and age (types and densities of plants and their maturity) and gardening practices (eg, mulching). Most gardens in Canberra were established before restrictions were envisaged, when water was more abundant and cheaper than at present. This is reflected in choices of garden styles and the extensive planting of exotics, many of which would be vulnerable to severe reductions in summer water supply. There has been only a marginal increase in recent years in the proportion of ACT households reporting the planting of natives or other low-water consuming plants to conserve water (from about 11 per cent in 2001 to nearly 15 per cent in 2007)⁸.

One factor bearing on how gardens might be affected by Stage 4 will be the amount of water that can be obtained from other sources, such as rainwater tanks or re-use of household grey water. Tanks could not be expected to contribute much overall, as only about 8 per cent of ACT households have installed rainwater tanks, and only 3 per cent report that tank water is a main source of water for gardens⁹. On the other hand, 63 per cent of ACT households use grey water (almost all on gardens) and for 21 per cent of households this is the main source of water for gardens. It is difficult to judge how much more water should be expected from this source: there are obvious practical limits to the amount of grey water a household can collect and distribute. There are also issues about the longer term effects of grey water on plants, and health constraints on the way it is used. Use of untreated grey water can cause a build-up of salts in the soil and can be harmful to plants.

In the light of these points, HSOC concludes that the imposition of Stage 4 restrictions would mean that the majority of gardens would depend largely on natural rainfall for their water; and that over a summer of such restrictions many smaller plants and shrubs established when mains water was much more plentiful

⁷ Australian Bureau of Statistics, 'Environmental issues: People's views and practices', March 2007, 4602.0. A further 21 per cent of households rely mainly on rainfall for their gardens, and 21 per cent rely mainly on grey water (see below).

⁸ Ibid.

⁹ Ibid.

would probably die. Of the larger shrubs and small trees that survived, many would be severely stressed.

The restoration of a badly degraded garden is potentially very costly. Even for a small garden, the cost of replacing many small plants could come to hundreds of dollars; and for a larger garden with many large, mature plants the cost could total many thousands of dollars, particularly if the replacements are wherever possible of similar size to the plants lost. There is also the cost in time and labour of physically re-establishing plants. Finally, there are the very real but intangible costs to the householder from the deterioration of a valued amenity of the home, and from frustration with the need to restore a garden in which much time and money may already have been invested over a long period.

The amount of water that would be saved if Stage 4 restrictions were imposed for the duration of a summer is relatively small. According to ACTEW, gardens account for 39 per cent of total household water use, which in turn accounts for 54 per cent of total urban use of water in the ACT. Summer use of water is about 70 per cent of total annual use. Applying these figures to Canberra’s total consumption of water in 2006 (55gl) suggests that about 8gl would be saved from garden watering by imposing Stage 4 restrictions over one summer. This is equivalent to about 15 per cent Canberra’s total annual consumption of mains water and 4 per cent of the total amount of water normally available from dams for human use (see table below).

	Gigalitres per year
Water normally available in ACT catchments from rainfall	494
Water entering and leaving ACT via Murrumbidgee River	386
Water dedicated to environmental flows	269
Water available from dams for human use	222
ACT use of water –	
Gross (without restrictions)	65
Net (after re-cycling)	35
Estimated saving of garden water from Stage 4 restrictions over one summer	8

Source: Water Security Task Force Chief Minister’s Department and Water Security Task Force Advisory Panel, ‘Next Steps to Ensure Water Security for the ACT Region’, September 2007, p.6.

In short, Stage 4 restrictions could impose a very high cost on Canberra's gardens and urban landscape in order to save a relatively small amount of water. This raises a question about the Government's priorities.

Priorities for the distribution of water

The Government states in 'Think water, act water' that the highest priority should be given to supplying water for 'environmental flows' – that is, water for rivers and streams in the ACT to sustain their ecosystems: '*Protection of environmental flows as a first priority is an important principle of the Water Resources Act...In the ACT, water can only be used for other purposes once environmental flow requirements have been met*'¹⁰ (our italics).

HSOC strongly supports the objective of sustaining the ACT's riverine environment. But it considers that this objective should be balanced with the need also to sustain the ACT's urban environment. A need for balance is evident, in HSOC's view, in the first objective for the management of ACT water resources stated in the Water Resources Act: 'to sustain the physical, economic and social well being of the people of the Territory while protecting the ecosystems that depend on those resources'.

The importance of parks and gardens to the quality of urban life has been long and widely accepted as an axiom of town planning and city management. It has been central to the design and development of Canberra. It features prominently in the city's self image and ongoing promotion of its special attractions. It has been demonstrated yet again in a recent study of urban planning in Australia and other countries¹¹. But in view of the statement quoted above from 'Think water, act water', HSOC considers that the Government should explicitly and formally recognise that the sustainability of the urban environment is just as important as the sustainability of the natural riverine environment, and that parks and gardens are vital elements of that urban environment.

¹⁰ 'Think water, act water', Vol.1, p.11.

¹¹ Tony Hall, 'Where have all the gardens gone? An investigation into the disappearance of back yards in the newer Australian suburbs', Griffith University, Urban Research Program, Research Paper 13, August 2007.

Reasons for water restrictions

ACT Government

The Government introduced the current system of water restrictions in December 2002, as an expedient and prudent response to the severity of the emerging drought in the region and falling levels of water in ACT dams. Bushfires early in 2003 then exacerbated the problem by badly degrading the ACT catchment. Restrictions may also have been seen by some in the community – not altogether rationally - as an appropriate response to the prospect of climate change. The Government later decided to make some lower level restrictions permanent, as part of a program of ‘water efficiency’ measures described in ‘Think water, act water’¹².

Subsequently, in 2005, water restrictions were built into the analysis of future water infrastructure options in the ACT because of economies they could yield: by reducing demand for water, restrictions offered scope for delaying or scaling down future infrastructure investment¹³. Such analysis raised a question about what would be ‘acceptable’ levels for the duration, frequency and severity of water restrictions during times of drought¹⁴; and ACTEW concluded, mainly from the CIE study mentioned earlier and public consultation, that the community would accept restrictions up to 5 per cent of the time (which ACTEW equated to Stage 1 or Stage 2 restrictions for one summer every five years, or Stage 3 restrictions for one summer every 25 years)¹⁵.

Thus water restrictions now seem to be an established part of the ACT water management scene for a variety of reasons.

HSOC comments

HSOC considers that water restrictions can and should be avoided in the management of ACT water resources, essentially because they are an inequitable and inefficient way of managing resources. These are the widely accepted grounds for objecting to restrictions in general, in preference to more market-driven policies.

¹² ‘Think water, act water’, Vol.2, p.20.

¹³ ACTEW, ‘Future Water Options for the ACT Region in the 21st Century’.

¹⁴ *Ibid.*, p.v.

¹⁵ *Ibid.*

As the Government's Task Force noted recently, the ACT's regime of water restrictions is often considered a 'blunt' instrument which is 'highly regulatory and provides users with very little choice in prioritising the use of limited water resources'¹⁶.

In their current form in the ACT, water restrictions arbitrarily target external use of water – notably parks and gardens. They limit the freedom of individuals to choose when and how they water their gardens; and at their most severe levels, they potentially limit the types of gardens people have or even whether they have a garden at all. These are not minor limitations on individuals' freedom of choice. It is difficult to justify having such restrictions in the ACT at any time, and particularly over the longer term, given that the territory is 'water rich but storage poor' (ACTEW) and currently uses only about 6 per cent of the water normally available to it from rainfall in the ACT's catchment¹⁷.

Restrictions are also an inefficient way of managing water resources because they can encourage uneconomic investment in water supply. For example, 42 per cent of the ACT households with rain water tanks have cited water restrictions as the main reason why they installed tanks¹⁸. But the estimated cost of a kilolitre of water from installing a rainwater tank is over double the expected cost of that amount of water from the planned new Cotter Dam¹⁹.

HSOC considers that the management of ACT water resources should be primarily influenced by market forces, in accordance with the principles of the National Water Initiative endorsed by the ACT Government. These principles include the pricing of water to reflect its full economic costs, including environmental costs associated with supplying it. HSOC further argues that the prices of water should also be responsive to demand, particularly at times when the demand at full-cost prices exceeds the supply of water. Rising prices would at such times be a more efficient and equitable method than restrictions for determining the distribution of scarce water, because they would directly increase incentives to economise on water and

¹⁶ Water Security Task Force Chief Minister's Department and Water Security Task Force Advisory Panel, 'Next Steps to Ensure Water Security for the ACT Region', September 2007, p.26.

¹⁷ Ibid., p.6.

¹⁸ Australian Bureau of Statistics, op.cit..

¹⁹ ACT Government, 'Think water, act water', Vol.2, p.16.

also give those who place a higher value on water opportunities to buy it and use it in accordance with their own priorities.

The practicalities of more flexible water pricing are complex, and some of them are discussed in a recent report of the ACT's Independent Competition and Regulatory Commission²⁰. Nevertheless, water conscious authorities elsewhere in Australia and overseas are introducing more economic and flexible methods of water pricing, including systems for water trading. A recent joint task force representing government and industry bodies in Australia has emphasized the need for 'improved pricing arrangements' and 'expansion of water trading' (including in urban situations)²¹.

HSOC therefore considers that the Government should prepare a public discussion paper on options for introducing a more market-oriented approach to water pricing in the ACT, including the scope for a system of water trading.

Conclusions

The demand for water in Canberra currently exceeds the supply mainly because of an abnormally severe drought in the region. As a result, the distribution of scarce water has become an issue; and attention has focused on water restrictions because they are the main measure used by the Government to address distribution problems. While the drought is ultimately the main source of the problems discussed in this submission, the system of restrictions exacerbates the costs of the drought to the community, essentially because it constrains people's options for responding to water scarcity in ways they individually judge best.

The more severe level of water restrictions which is now a realistic prospect – Stage 4 – could cause serious, costly and long-lasting damage to Canberra's gardens and urban landscape, and thereby degrade a major feature of the city that has long been one of its defining qualities. Until recently, there seems to have been little official recognition of the potential impacts of restrictions on Canberra, and in particular, insufficient analysis of how they might affect parks and gardens.

²⁰ ICRC, 'Water & Wastewater Price Review', Working Conclusions, Report 9, September 2007, pp.69-72.

²¹ Barton Group, 'Australian Water Industry Roadmap – A strategic blueprint for sustainable water industry development', May 2005, pp.4, 9.

HSOC considers that the Government should urgently prepare a public discussion paper on options for introducing a more market-oriented approach to water pricing in the ACT, before introducing Stage 4 restrictions. This could explore the scope for more flexible pricing of water particularly in times of scarcity, and examine more efficient and equitable alternatives to the 'blunt and highly regulatory' instrument of restrictions.