

Issues brief — water workshop

An edited version of the issues brief for workshop presenters

The ACT Government has long been aware of the need to improve the sustainability of Canberra. In 2004 it published an ecological footprint for Canberra which revealed that *“...because of our affluence, the density of our city and our location we are consuming at levels which are slightly higher than nationally, and that the land required to maintain our lifestyle is greater than the area of the ACT”*.

An update of that footprint was released in August 2008 as part of the *ACT State of the Environment Report 2007/2008*. This showed that while Canberra has improved in some areas, such as water conservation, other areas required improvement. The report also revealed the ACT's ecological footprint had increased by 15% per person since 1998.

The report warns that we need to accelerate our actions on all these fronts while still maintaining community wellbeing, and improving our management of ecological systems.

Issues and/or themes nominated for discussion at the water workshop were:

1. *Awareness of and respect for water*

Our thoughts about water are usually informed by a broad range of cultural cues in language, behaviour, rituals and custom. Also, being around places with water can, over time, impress on people an unspoken but implied awareness of water. This tacit awareness can make it difficult for many people to question the status quo or ‘business as usual’. Such a level of reflection is not automatic, and indeed, most projects where consultation is involved are usually not aimed at this level. By their nature, they cannot be. There is little space in formal public discourse to discuss the nature of water, and the nature of our beliefs about it.

This theme recognises that water can be understood in multiple ways—intellectual, physical, emotional, and spiritual, as well as the more functional and utilitarian ways we are more familiar with. All of these are significant in defining our relationship to water, yet rarely are the former talked about and even more rarely, taken seriously in planning projects.

An important task for this workshop is to elicit some of this awareness of water. It needs to be evaluated in light of the Sustainable future goal to promote sustainability in Canberra, and, how this should inform the development of planning instruments such as the Territory Plan.

2. *Integrity of the hydrological cycle*

It is critical to have an understanding of local hydrological patterns, but most people don't routinely think of water as being part of an interconnected cycle.

Hydrology is a relatively new science, compared to the more traditional sciences. In Australia, hydrology is even more youthful, which is surprising given our status as the driest continent on the planet. Hydrology became a recognised discipline in Australia in the late 1950s and early 1960s.

Hydrological patterns for Canberra are going to change. Robust science is needed to underpin our planning assumptions about how much water there is likely to be flowing through our small spot on the globe, while also recognising the uncertainties that go with it. As noted in CSIRO's recent report on the Murrumbidgee catchment, ‘The largest sources of uncertainty for future

climate results are the climate change projections (global warming level) and the modelled implications of global warming on regional rainfall. The results from 15 global climate models were used but there are large differences amongst these models in terms of regional rainfall predictions.¹ This uncertainty also needs to be communicated well to Canberra's citizens, to assist them in participating in the lengthy debates to come.

Cities make fundamental alterations to the hydrological cycle. To supply Canberrans, four dams have been constructed since 1928. With Canberra's population expected to grow by up to 71 000 people by 2023, changes will continue. In addition, the nature of the hydrological cycle will change as a consequence of expected climate change, affecting the capacity of existing dams to maintain supply at the level we are accustomed to. Dams are not only constructed for sustenance purposes. Canberra is in fact designed around a major intervention in the hydrological cycle, with the creation of Lake Burley Griffin. Whether for recreation, aesthetics or supply, all of these hydrological interventions have ramifications for the quantity and quality of water, and the hydrologic integrity of the catchment.

Given that Canberra is planned to increase, how can we better protect the integrity of the hydrological cycle and to restore connections to it where it has been altered? What does this assumption mean for other aspects of city planning, such as housing design and infrastructure provision?

3. Quantity and quality of water

Preserving the integrity of the hydrological cycle leads to questions about the quantity and quality of water available for all species. Only between one and two percent of global water supplies are available for consumption as potable water and maintenance of this is essential for life. The quality of available water is just as important as the quantity, and is just as critical to all the other species which depend upon water for survival.

Urban development affects the quality of water as it transits through our area, and affects downstream species and communities. The 2003 State of the Environment (SOE) report found that on average, Canberra's urban area made a low impact on water quality in the Murrumbidgee. It also noted the best water quality was from forested catchments and the worst from developing urbanised areas. The report also detailed the extensive changes to water quality arising from both drought and bushfire in its reporting period, and recommended the establishment of a long term (i.e. 30 years plus) and comprehensive monitoring system be set up. Water quality in Canberra's urban lakes continues to be a matter for concern, indicating a need for more intensive management of urban run off. The 2008 SOE indicated that salt (from detergents) was a major domestic contaminant, and indicated a number of ways monitoring could be enhanced to help decision making.

It was also noted that during the reporting period, dam storage levels dropped by half, reflecting the impact of severe weather events. This massive drop kick-started the ongoing debate about water security in Canberra. Since the introduction of restrictions, Canberrans have reduced their consumption by approximately 20%.² The combination of drought and the drop in quality following the Canberra firestorm illustrated some of the issues raised in the first theme of awareness of water.

4. Water in the landscape

¹ CSIRO, Water Availability in the Murrumbidgee: A Report to the Australian Government from the CSIRO Murray Darling Basin Sustainable Yields Project, June 2008, p.ii.

² SOE, 2008, key findings

Water is a potent tool in making adaptable, soulful and liveable cities and landscapes. With the expectation that water supplies will diminish over the long term, or at the very least to fluctuate, how can we best use the water we have?

One answer is to become transparent about how and why we value water within the landscape. The Culture and Knowledge workshop was particularly interested in probing questions about relationship and connection to places. Water within the landscape provides space for recreation and contemplation, which are essential parts of re-envisioning our overall relationship with the natural world.

The urban ecology of Canberra is inherently connected to the role of water in the landscape. Water sustains ornamental gardens, food gardens, community gardens, natural watercourses and waterholes, bushland and public parks and reserves, all of which need to be considered as making a contribution to a 'sense of place'. ACTEW recognises aspects of this point through their recent project to capture community feelings about the Cotter catchment. While a highly important part of Canberra, there could easily be more work of a similar nature to elicit community valuing of Canberra's hydrological assets.

The ACT has adopted the principles of Water Sensitive Urban Design (WSUD), and applied them to new areas of development. WSUD seeks to minimise the impact on hydrological processes while still delivering high quality urban environments which support economic and social well being. In particular, WSUD focuses on the ways in which the urban landscape can perform multiple functions, such as stormwater management, provision of recreational space, off reserve habitat and groundwater recharge. The reworking of the Territory Plan provides an opportunity to further embed WSUD.

The problem for most of Canberra's urban form remains. This workshop provides an opportunity to generate a variety of short, medium and long term strategies to retrofit the existing urban fabric.

5. Minimising use and the creative re-use of water

Canberra undertook most of its urban growth in more optimistic decades. Its structure was confirmed with plans during the 1970s and 1980s, which did not have water scarcity or climate change as overriding issues. As a result, we have inherited an urban form that is vulnerable to the predicted impacts of climate change. The Biennial Assessment of progress under the National Water initiative (NWI) found that while jurisdictions had made good progress on urban water issues, the pressure on supplies had also intensified, requiring a new set of actions. The NWI considered that these new actions should cover diversification of supply, the principle of full cost recovery, a review and rationalisation of water restrictions, the integration of water sensitive urban design into schemes and liaison between energy and water retailers.

In July 2003, the ACT government set a policy target of achieving a 12% per capita reduction in water consumption by 2023. The policy target for increasing reused water was 20% by 2013, from 5% in 2003. In terms of reuse, maintenance of public health standards is critical. There is strong opposition to the use of recycled water for drinking, and other Australian communities have experienced acrimonious debate on this issue. There are a variety of different applications for reused water, for example, at the hectare scale the Canberra golf course is partly maintained by recycled water, while at the domestic scale opportunities depend on household size and configuration.

We are seeking innovative short, medium and long term strategies to address water use at local, regional and city wide scale. What sort of scale should we focus on to reduce our water use? What intersections are there with energy use? It takes energy to transport, process and

reclaim water. How can we build infrastructure that will use less energy and therefore reduce the major factor driving the threat of water scarcity.

6. Governing the people who consume water

Given that the principal recommendation of the 2007 ACT SOE was to develop an integrated water catchment management policy, what contribution can a statutory planning scheme review make to water governance? Given that the statutory planning scheme is part of the hierarchy of governance, the answer must be that its role could be both significant and synergistic.

Australians in general operate in a regulatory framework that views water as a commodity to be traded. While some may disagree with this at a philosophical level, this is the arrangement endorsed through the Council of Australian Governments (COAG), and agreed to the NWI. The NWI is the national policy framework which guides the activities of state and territory governments in relation to water.³ It considers that planning is important, but its work program prioritised solving the barriers to water trading first. Unlike some jurisdictions in Australia, Canberrans are affected by the difficulties inherent in multi-level governance and trans-boundary issues regarding water, given that our water supply is principally sourced from the Murray Darling Basin (MDB). This connects us, albeit distantly, with the residents of Adelaide, as well as inland towns in southern Queensland such as Dalby. As the governance arrangements for the MDB are in a state of flux, depending upon the creation of a new catchment wide plan, our own governance structure will have to adapt to the new plan and cap. This development, announced in 2007 was the latest in a long line of major policy developments in all jurisdictions driven by the experience of drought.

This theme demands that we also consider the social equity issues inherent in access to water. Who can access water and how much will it cost? How should it be delivered? What kind of water should be delivered? How much should it cost? How should new infrastructure be delivered? What kind of infrastructure do we need? Given that inappropriate regulatory instruments can impede innovation, what is the optimal arrangement for Canberra? Some current problems stem from regulatory regimes that provided incentives for the consumption of water, which then encouraged the creation of more large scale infrastructure. This produced a self-perpetuating cycle, and locked many Australians into a situation of centralised supply, reducing resilience and capacity to adapt easily.

The goal should be a Territory Plan that can adapt to changing environmental and social circumstances, and is founded on principles of transparency, equity and access. Few would argue with this goal, but many will argue about what that means in reality.

³ For the full listing of objectives, see <http://www.nwc.gov.au/www/html/672-objectives.asp?intSiteID=1>