



24 February 2010

Vicki Buchbach
Committee Manager, Standing Committee on Natural Resource Management (Climate Change)
The Legislative Assembly of NSW
Macquarie Street
Sydney NSW 2000

Dear Ms Buchbach,

Re: Sustainable Water Management Inquiry

Thank you for the opportunity to make a submission to the Inquiry. The following comments are confined to general water management, since members of the Southern Sydney Regional Organisation of Councils (SSROC) are not responsible for the provision of water and sewage services to their residents.

Many issues that relate to our environment and natural resources tend to be considered in isolation, resulting in policies that do not reflect the fact that the planet is an integrated whole: the environment is the place where we live and the air that we breathe, and not a separate place that exists beyond our cities. Climate change will affect water resources in many ways, and so will other environmental processes such as the El Nino effect.

a) Impact of Climate Change on Water Resources

The Need for Local Research in southern Sydney

Water resource availability will be affected by climate change, as many researchers have demonstratedⁱ. Experience in Western Australiaⁱⁱ has highlighted that climate science is already influencing the decisions of water managers, particularly in reviewing the expected inflows to water systems – decisions that can trigger have significant investments such as for water storage facilities. There is an increasing expectation in the communities of southern Sydney that councils will act to conserve water, especially as climate change science increasingly highlights the likelihood of more frequent drought conditions. Councils in southern Sydney have responded in many ways, such as by introducing water recycling and stormwater harvesting technology and infrastructure.

However, researchers such as the CSIROⁱⁱⁱ point out that global impacts will not necessarily be directly applicable to a locality. NSW, and areas within NSW, will be affected in different ways, at different times, and to different extents. There appears to a risk of flood events occurring along the Georges and Cooks Rivers and a serious risk on the coast at Rockdale. According to the report into risks to Australia's coast^{iv} there has been little analysis of the impacts of the potential coastal inundation upon essential services including water supply. The report notes that a 2005 survey^v found the ability to provide good clean water to the community was a significant concern. It also

identifies a risk of freshwater contamination by seawater, including mains water, groundwater and aquifers.

In summary, major risks in the southern Sydney area (especially Rockdale) include:

- Contamination of freshwater
- Rising water tables, with associated risks to any sub-surface infrastructure, and
- Risks to water infrastructure such as septic tanks, sewer systems and underground tanks and pipes.

Councils are not funded to a degree that would permit them to execute or to commission the detailed and complex research required to permit them to accurately assess the risks to their specific Local Government Areas (LGAs) in detail. Such research will be necessary to enable them to develop robust plans for climate change adaptation and risk monitoring.

Increasing Groundwater Consumption

Effects of groundwater consumption need to be better understood. Consumption of groundwater will increase, but the effects on the ground and water resources generally are not well understood as evidenced by the establishment of the National Centre for Groundwater Research and Training. Developing the information necessary for more effective strategic planning necessitates detailed mapping, monitoring and testing of water resources including groundwater, and continual updating. This level of data collection and analysis is beyond the resources and the capacity of most councils, and so it is impossible for councils to assess the impacts of increased consumption of groundwater. It is possible that issues may arise in the future in relation to groundwater, such as the slowing or failure of bores upstream of new bores or more frequent contamination incidents, which may require council involvement to resolve.

b) Approaches to Management of Water Resources

The Maintenance of Local Infrastructure

Councils in southern Sydney (as other councils in Australia) are expected by their communities to provide more and more different services and infrastructure in response to both the known impacts of drought conditions and the evolving knowledge of the effects of climate change. Councils are responding with a range of initiatives aimed at educating residents and enabling them to change behaviours and to install water-saving fixtures and appliances such as low-flow showerheads and rainwater tanks.

Investment in infrastructure is difficult within the financial constraints under which councils operate. Furthermore, infrastructure investments deliver tangible assets but create an ongoing maintenance burden. The problems of financing this maintenance will only become more severe as Councils are required to respond to:

- a. increasing levels of risk to infrastructure through for example, more intensive maintenance regimes, and
- b. actual damage occurring as a result of changes due to climate change, such as cracks in stormwater infrastructure.

Impact on Financial Sustainability of Councils

With councils' incomes already constrained and fully committed, the expenditure required will further exacerbate the problem of the financial sustainability of councils. While funding sources such as stormwater levies and infrastructure grants are welcome, these are specifically targeted and will not extend to cover the this extra workload that will need become "business-as-usual".

c) Best Practice in Water Conservation and Management

BASIX and Building Design

BASIX could be improved and more strictly applied to require more efficient water use. The additional dwellings required to accommodate the growth planned for the Sydney area are subject to development controls. These should rigorously apply basic water-saving measures such as rainwater tanks, purple pipes and grey-water recycling systems. The BASIX system has been very important in bringing such innovations into the mainstream of development, and SSROC suggests that it could be further developed to bring substantially better building design principles to bear.

Water Resources and Land Release

Although buildings can be designed and constructed for efficient water use, they still require water, and very few are or could be self-sufficient in this regard. Therefore land should not be released without adequate water supply to it, and development should not be permitted without assurance of adequate water allowance. However, urban development appears to be planned for areas where there may be inadequate water provision^{vi}.

Water supply must be a key issue in identifying development zones, and the consideration must go beyond the simplistic view of water consumption by a single household. Current plans appear to assume that water is available by connection to a water main and impose a water infrastructure levy on new development. But it is necessary to consider what other function would be deprived of the quantity of water consumed by the new development, and to examine the impact of depletion of the water resource by that amount. It follows that a central account of the total of such impacts is also required: such an approach might have avoided the current situation of over-allocation of water entitlements in some areas.

The use of desalinated water should not be assumed because of the power required for the production process, which contributes to greenhouse gas emissions.

Population Growth

The Metropolitan Water Plan 2006 notes a welcome reduction in per capita water consumption over the last twenty years. However, innovations such as dual-flush toilets cannot be repeated to achieve further reductions. Additional reductions in consumption will need to be achieved by other initiatives such as consumers' reuse of their own grey-water.

SSROC would point out that government's Metropolitan Strategy includes substantial growth targets for southern Sydney. The growth plans might cause residents to wonder why they should work to reduce their per capita consumption when new suburbs and higher-density dwellings are being developed which depend upon exactly the same water sources. The emphasis on water savings directly conflicts with the emphasis on growth.

Water-Sensitive Urban Design

The area of southern Sydney (with the exception of the Sutherland Shire LGA) is primarily highly urban in nature, with little bushland or remnant vegetation. Best practice comprises mainly water-sensitive urban design, see for example the Water-Sensitive Urban Design Program^{vii}. The principles and practices covered by the program should be widely promoted, incorporated into all development controls, and retrospectively applied to existing streets, roads and highways.

d) Impact of water management process on climate change.

It is also important to note that the significance of the water cycle is such that to examine the impact of climate change on water resources is to examine only one side of the issue: what happens to our management of water resources can affect climate change. Whilst it is appropriate that interventions are targeted at specific stages of the water cycle, it is critical that overarching policy and strategies are developed in the context the full cycle and the interconnections between it and the ecosystem – including the climate – in which it occurs.

The Role of Desalination in Water Supply

The use of desalination processes to generate potable water consumes considerable quantities of power. This in turn increases our greenhouse gas emissions, and contributes to global warming and climate change. Although the power consumption of the Kurnell Desalination Plant is offset by the Capital Wind Farm, the power thus generated would substitute for power from conventional sources were it not powering the desalination plant. The original intention was for the power generated by the wind farm to be fed into the grid continuously, "When the desalination plant is on standby the wind farm will continue to provide renewable energy to the grid," according to NSW Water Minister Philip Costa, reported in the Sydney Morning Herald on 27 May 2009.

SSROC is concerned at the possibility, reported in the Sydney Morning Herald on 30 January 2010, that Sydney Water intends to change the water storage level that will trigger the use of plant from 30% to 70% after the operational phase starts. At this rate, the desalination plant will run much more frequently than was planned in 2006. Furthermore, Sydney Water's web-site states clearly that "The plant operates 24 hours a day, seven days a week", with no suggestion at all that this might cease after the initial testing period or that there is any link to the quantity of water in storage. Whether the plant operates continuously or only when storages fall below 70% capacity, Sydney Water would appear to be shifting Sydney's dependence from dams and reservoirs onto the desalination plant.

This shift implies:

- A reduction the in potential for Bungendore's production to be diverted to substitute for power from non-renewable sources, contributing to climate change;
- Less efficient use of freshwater resources, since keeping water storage levels at 70% seems inexplicable: what is the purpose of the water stored? This proportion appears to be far too high;
- Since storage levels can rise very quickly when drought conditions cease, such a large volume in reserve risks the possibility of dams actually exceeding their capacity, and water being wasted.

SSROC recommends the use the Kurnell Desalination Plant as a last resort only, when there is a real need for drinking water additional to that which can be provided from existing sources, at times of serious drought.

Conclusion

The points raised in this submission are made from the perspective of mainly urban local government stakeholders, and are important since the effects of climate change inevitably manifest themselves at a local level. SSROC would welcome the opportunity to obtain funding to execute a range of projects on behalf of our region, in particular to:

- commission robust scientific research into the local impacts of climate change on water resources, which extend beyond the boundaries of individual LGAs; and
- further develop our existing Sustainability Guidelines for Decision-Makers to enable councils within SSROC (and other urban councils) to incorporate best practices in response to climate change impacts on water resources into their everyday business.

Alternatively, SSROC would also be pleased to facilitate the participation of our sixteen member councils in similar projects executed at the State level.

SSROC appreciates the opportunity to contribute these observations to the Standing Committee on Natural Resource Management (Climate Change) Inquiry, and trusts that they will be useful.

Yours sincerely,



p.p. David Lewis
General Manager
Southern Sydney Regional Organisation of Councils

References:

ⁱ Major examples include:

CSIRO, *Climate Change in Australia Technical Report 2007*.

Intergovernmental Panel on Climate Change, *Climate Change 2007: Synthesis Report - Summary for Policymakers* .

Intergovernmental Panel on Climate Change, *Climate Change and Water – IPCC Technical Paper VI* June 2008.

ⁱⁱ Power S, Sadler B, Nicholls N, *The Influence of Climate Science on Water Management in Western Australia - Lessons for Climate Scientists*. Bulletin of the American Meteorological Society, June 2005.

ⁱⁱⁱ CSIRO, *Climate Change in New South Wales Part 2: Projected changes in climate extremes*, Consultancy report for the New South Wales Greenhouse Office, November 2004.

^{iv} Australian Government, Department of Climate Change, *Climate Change Risks to Australia's Coast – A First Pass National Assessment 2009*. Ch 5 p122-123.

^v Australian Local Government Association, *Increasing Coastal Councils Capacity to Manage the Natural Resource Base*, 2005. Referenced in iv above at ref 173 in Ch5.

^{vi} See for example, Bibby P., *Western Sydney faces water crisis, scientists warn* in Sydney Morning Herald, 7 November 2009.

^{vii} www.wsud.org