

Senate Standing Committee on Economics
ANSWERS TO QUESTIONS ON NOTICE
Innovation, Industry, Science and Research Portfolio
Additional Estimates Hearing 2009-10
10 February 2010

AGENCY/DEPARTMENT: COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION

TOPIC: Water Recycling

REFERENCE: Written Question –Senator Eggleston

QUESTION No.: AI-91

What are the costs associated with recycled water compared to desalination and other methods of providing potable water?

ANSWER

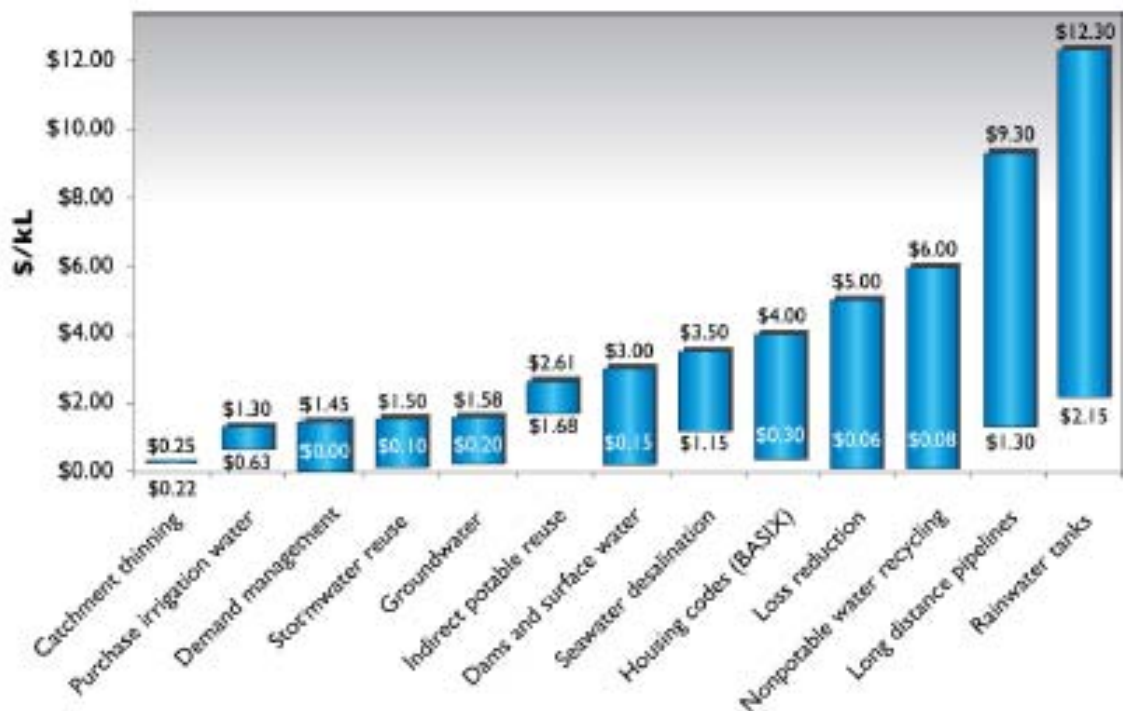
The Costs associated with the provision of potable water supplies from different sources will vary significantly between different cities and individual locations. It is difficult to provide a definitive cost comparison. Key variables influencing lifecycle costs include:

- The capital cost of the treatment plant, the length of delivery pipelines that need to be constructed and the difficulty of construction.
- The ongoing operating costs of water treatment and transport. Although both processes rely on reverse osmosis membranes, the energy intensity for seawater desalination is significantly higher because of the much higher salt levels in the feedwater. Pumping costs are primarily energy related and influenced by the length of delivery and the pumping lift to the end users of the water. In some cases this can be more than the costs of treatment.

A 2007 review¹ of desalination plants around the world indicates that on average the capital cost represents 52 per cent of the lifecycle costs, energy 23 per cent, labour 10 per cent, chemicals 8 per cent, and membrane replacement 5 per cent.

The graph below provides a comparison between different alternative water supplies (both potable and non-potable) showing a range of costs for all options, prepared by Marsden Jacobs for the Department of the Prime Minister and Cabinet. The original document can be sourced at: <http://www.environment.gov.au/water/publications/urban/securing-urban-water.html>.

¹ Adham, S. (2007) Desalination, AWA Membranes Specialty Conference II, February 21–23, 2007, CD-ROM, Melbourne, Australia.



Source: Marsden Jacob Associates analysis based on water supply plans for Sydney, Adelaide, Perth, Newcastle (Originally produced for Marsden Jacob Associates, 2006, *Securing Australia's Urban Water Supplies: Opportunities and Impediments*, paper prepared for Department of the Prime Minister and Cabinet, and recent NSW Treasury cost estimates. Lower bound of indirect potable reuse estimate based on Toowoomba. Figures for rainwater tanks based on Marsden Jacob Associates (2007). *The cost-effectiveness of rainwater tanks in urban Australia*, paper prepared for National Water Commission, 22 February 2007) Note: Comparable costings for Melbourne are not available and no costings are available for Queensland.