ATTACHMENT 7

SYDNEY'S FUTURE GROWTH AND WATER NEEDS – THE WATER BALANCE

1. Sustainable Yield (Inflow)

Sydney Catchment Authority and IPART model the sustainable yield of the main water catchments of Sydney at around 590 GL/a.
Source: Page37, IPART Determination 4, 2003: Sydney Water Prices to 30 June 2005. http://www.ipart.nsw.gov.au

2. Climate Change impact on Sustainable Yield (Reduction in Inflow)

CSIRO predicts the rainfall of Sydney to reduce around 15% by 2030. Conservative reductions in average rainfall for Sydney were provided by the CSIRO for Services Sydney. These are -3% by 2020; -4.5% by 2030; -6.6% by 2040 and -9% by 2050.
Source: Media Release Reference 2004/06, 15 January 2004. http://www.csiro.au

3. Penrith Weir flows (Outflow)

The Sydney Catchment Authority has a legislated requirement to maintain flows of 50 ML/d (or 18 GL/a) across Penrith Weir.
Source: Environmental Flows, Sydney Catchment Authority.
http://www.sca.nsw.gov.au/dams/flows.html

4. Irrigation Demand (Outflow)

Irrigators, groundwater extraction, the Penrith Lakes Scheme and Industries extract around 100 GL/a from the Hawkesbury River System downstream of the dam walls.
Source: DUAP 1996, ERM Mitchell McCotter 1996 & Cullen 1995 as detailed in Table 7, Page 13, AMBS Consulting Expert Report; Experimental Environmental Flow Strategy for the Sydney Catchment Authority. http://www.sca.nsw.gov.au/publications/files/HawkesburyNepean.pdf

NSW Agriculture postulates agricultural use of water in the Hawkesbury/Nepean River system around 108 GL/a. Services Sydney uses a lesser figure of 80 GL/a for Irrigation as determined by the Healthy Rivers Commission.
Source: Appendix C, Independent Anderson Review, April 2003.
Final Report, Independent Inquiry into the Hawkesbury Nepean River System, Health Rivers Commission August 1998

5. Sydney Water Bulk Water Extractions (Outflow):

Bulk water extractions by Sydney Water from water storages were 635 GL during 2002-03 and 624 GL during 2001-02. This represents daily per capita water consumption based on the average population for these years around 415 L/c/d.

Sources: Sydney Water Annual Report, June 2003

http://www.sydneywater.com.au/html/annualreport/statistics

6. Future Sydney Water Bulk Water Extractions to 2051 with population growth, 100% success in Demand Management & 100% success with all Non–engineering solutions (Outflow)

Demand management and non-engineering solutions include rainwater tanks, re-plumbing of toilets and washing machines, water efficient showerheads and washing machines, step (or penalty) pricing and water restrictions. With 100% implementation and 100% success in all these measures, daily per capita water consumption of 415 L in 2001-02, is postulated to fall to 329 L. Using population growth figures as provided by DIPNR for independent Anderson Review (Appendix C), the following Table shows a demand growth scenario to 2051.

Description	2001	2011	2021	2031	2041	2051
Population (million) connected to SWC	3.97	4.43	4.86	5.24	5.59	5.90
Average water use – 100% success (L/c/d)	416	329	329	329	329	329
Consumption (Gigalitres per year – GL/a)	603	562	583	629	671	708

It is highly unlikely (impossible) to achieve 100% success. A more realistic success rate looking at historic performance and difficulties in converting existing dwellings would be no more than 20%. However, we use 100% success throughout.

7. Environmental Flows (Outflow)

The Water Management Act 2000 (NSW) legislate the environment as an equal customer (to humans). Annual volumes for environmental flows to the Hawkesbury/Nepean River system have been nominated by the NSW Health Rivers Commission as 165 GL/a and by IPART as around 140 GL/a. Services Sydney uses the lesser figure of 140 GL/a.

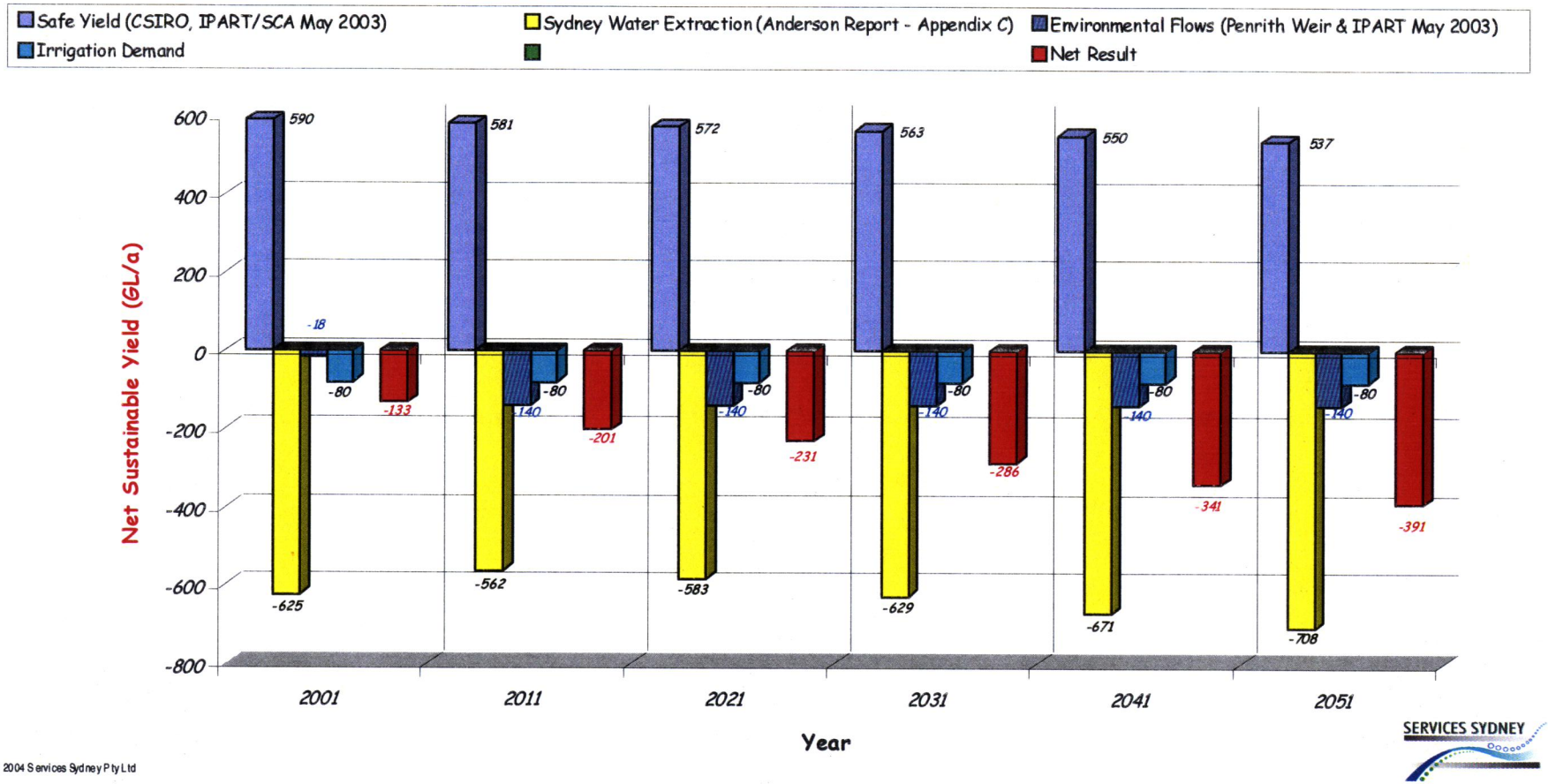
Source: Footnote 26, Page37, IPART Determination 4, 2003: Sydney Water Prices to 30 June 2005. http://www.ipart.nsw.gov.au

8. Net Result

The Net Result of Items 1 to 7 above is substantially negative (unsustainable) as shown in the diagram below. This is despite adopting a 100% success rate for demand management and 100% success for non-engineering solutions.

Demand management and non-engineering solutions, whilst commendable are costly micro-reforms. For example, rebates paid by Sydney Water on 100% success with the installation of rainwater tanks amounts to around $900m, with further 'hidden' customer costs of around $3 billion.

Water Balance with population growth till 2051, CSIRO adjusted Sustainable Yield, SWC Extractions with 100% Demand Management Success, Environmental Flows and Irrigation Needs



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