

Finding innovative ways to reduce water use by 30 to 50%

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Living with 30 to 50% less water

Take home messages

- If we want the Murray & Darling to remain iconic Australian inland rivers we need to reduce water extraction by 30 to 50%
- The biggest improvements can come from the biggest users
- Urban water use is relatively small and very high value
- Urban “cool & green” is possible with improved urban irrigation
- Pasture irrigation is the biggest water use - & the lowest value
- Viable, long term irrigated agriculture is possible with targeted rehabilitation, area consolidation, improved distribution
- The current “buyback and update” has only a limited chance of delivering

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Defining where to reduce water use

- Focus on South Australia and its relation to the Murray and Murray Darling Basin
- Focus on Adelaide as a significant urban area with water demand for households, sewerage, outdoor areas, industry
- While “every little bit helps”, the innovation most needed is to realize that “the biggest gains will come from the biggest users”



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Why plan to reduce our water use from current sources by 30% to 50%?

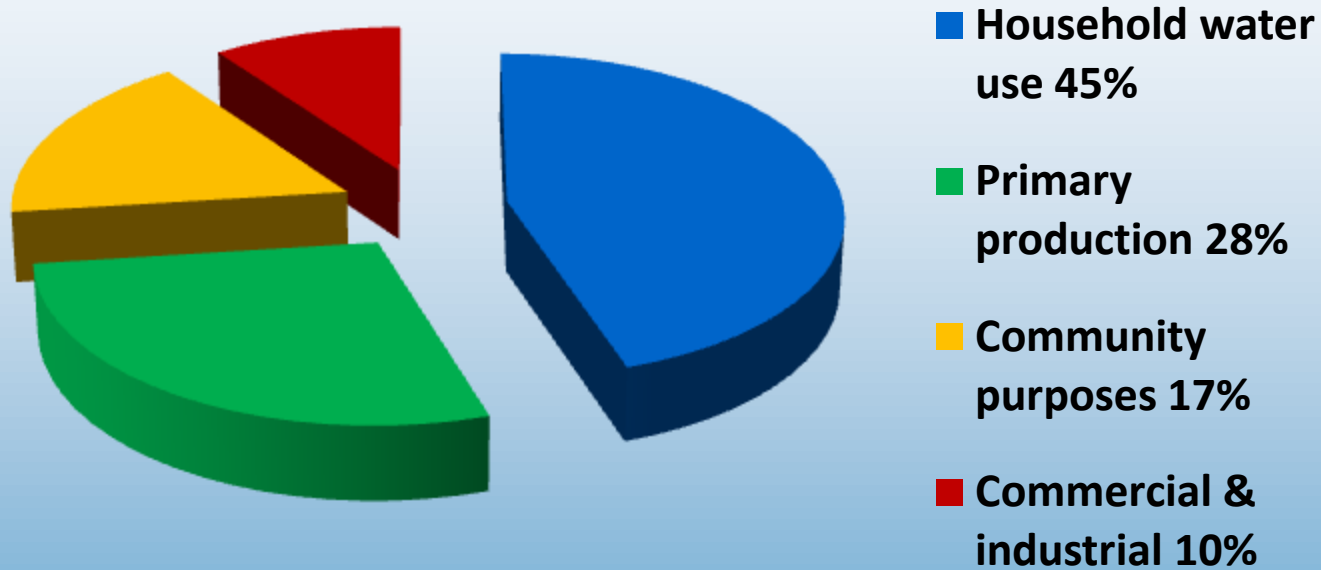
- Maintaining current levels of extraction will seriously compromise –
 - the environment of the river and the floodplains,
 - water supply security,
 - irrigation dependent communities because of high variability of supply.
- Current effects and projected trends strongly indicate reduced inflows to storages and supply systems from –
 - changed land use (e.g. pastures to forests),
 - increased vegetation after bushfires,
 - farm dams,
 - reduced rainfall.

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Urban water use

Greater Adelaide area water use (all sources)

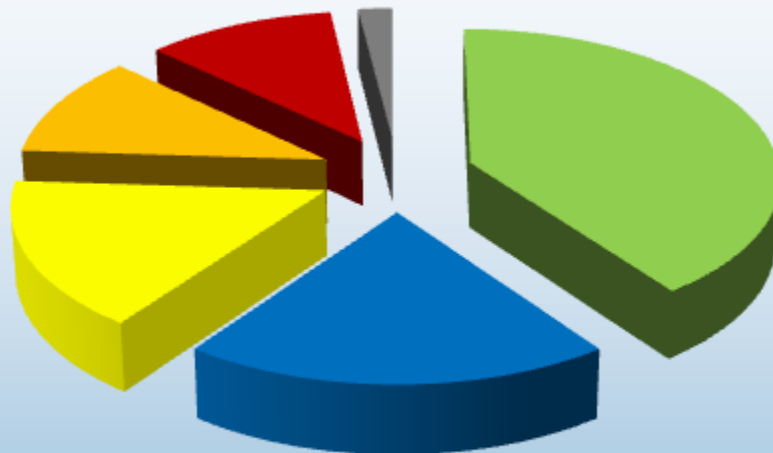


Primary production (94 GL)
= irrigation (farm dams, bores, recycled)

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Household water use

Adelaide household water use



- Garden and outdoor 40%
- Bath and shower 20%
- Laundry 16%
- Kitchen 11%
- Toilet 11%
- Other 2%

Melbourne household water use



- Outdoor use 44%
- Bathroom 20%
- Toilets 15%
- Laundry 12%
- Kitchen 9%

Largest discretionary use is garden and outdoor use

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Urban – cool & green vs concrete & cacti

We can reduce our external need for water

- Increase the use of available resources
 - Recycle, capture stormwater, desalinate saline sources
- Decrease the net amount consumed
 - We have been improving!
 - Amount consumed per head of population has remained steady over the last decade
 - Decrease the amount used for parks, ovals and gardens
 - Irrigated Public Open Spaces (IPOS) – measuring for best practice
 - Household garden use
 - improved irrigation technology, design and installation is readily available but maintenance is weak.
 - remote and automatic climate based irrigation controllers are being trialled and could/should be introduced

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Urban – cool & green v's concrete & cacti

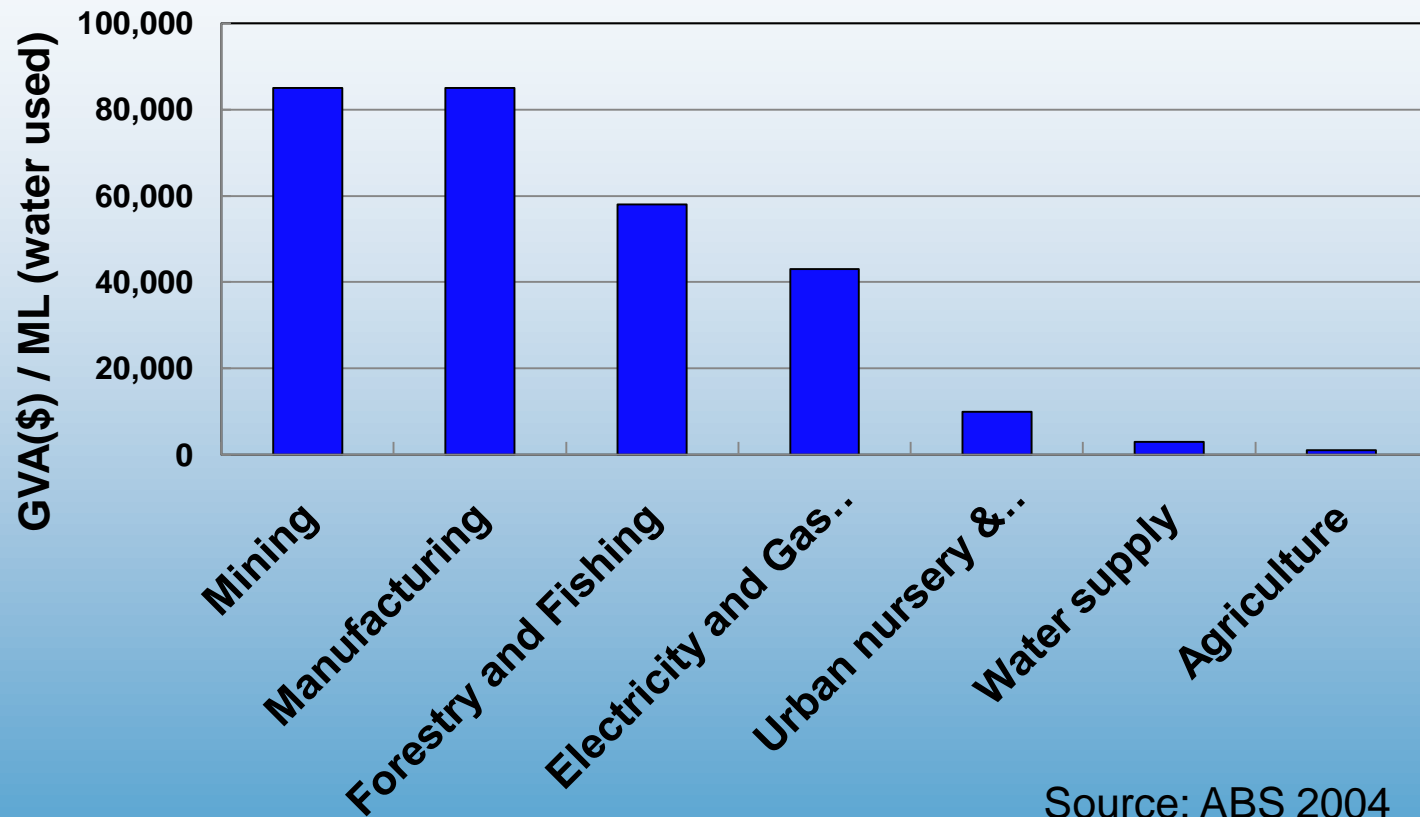
- Conflict of interest in water supply entities is constraining – like a partially applied handbrake!
 - Water supply entities – less water supplied, less money
 - One alternative is increased efficiency / less maintenance costs – possible to greatly improve supply systems - (Optimatics)
- Is it possible to significantly reduce net water requirement?
 - Yes, but
 - maybe only a 10 - 20% decrease below current
- How much is water worth in an urban/industrial setting?

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How many \$'s does water use generate?

Gross value added per ML water used



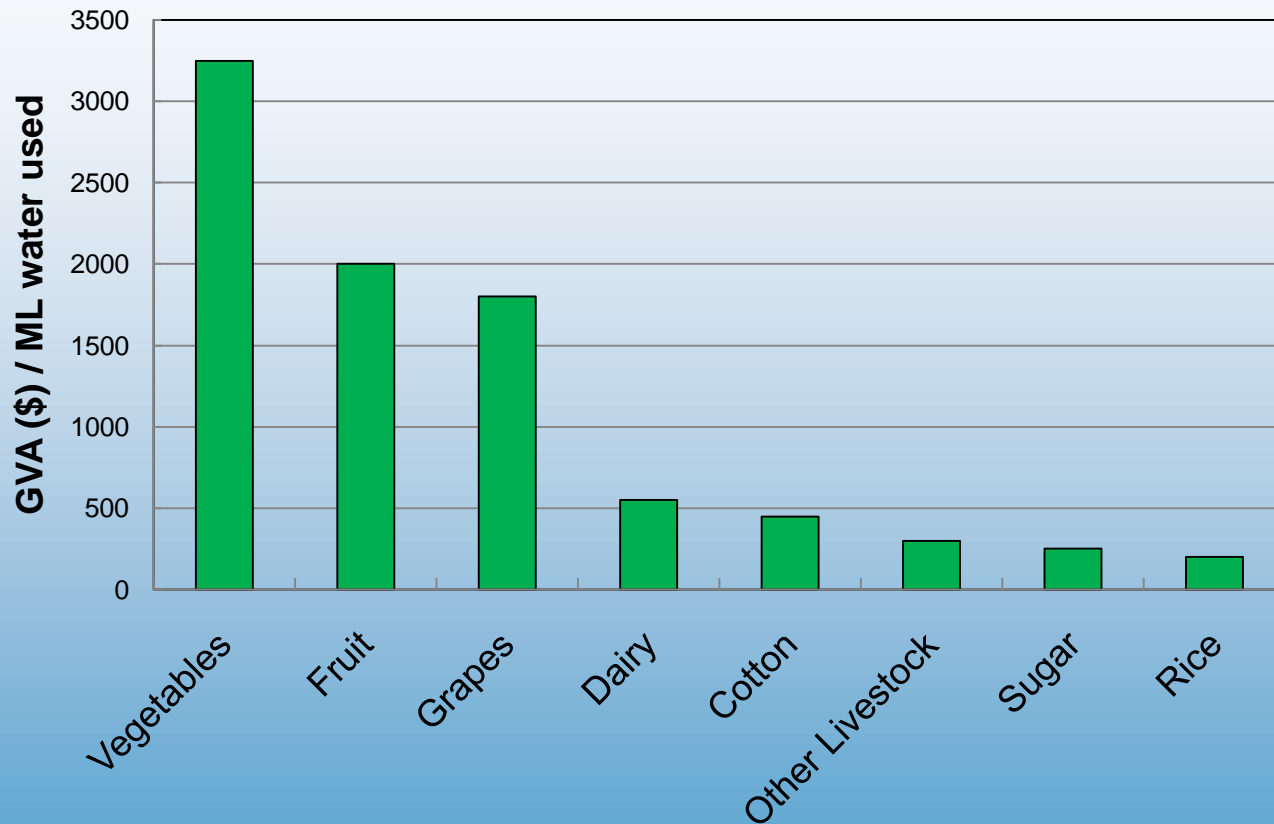
Source: ABS 2004

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How many \$'s does water use generate?

Gross value added per ML water used



Source: ABS 2004

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Water extraction in the Murray-Darling Basin

	Irrigation (GL)	Other (GL)
Total MDB		
2001/02	10960	607
2006/07	4667	567
SA		
2001/02	494	127
2006/07	377	250
Adelaide		
2001/02		82
2006/07		203

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MDB water used in SA

Adelaide's water requirement is small relative to the MDB resource and other current uses.
Water restrictions in Adelaide will not "save the Murray"

Significant reductions in water use for irrigation will be necessary.
This is the purpose of the Australian Government's "water buyback" scheme.

Will the "buyback" and delivery refurbishment give
a) enough reduction and
b) long term viable irrigated communities?

- Probably not on both counts!

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What do we want for our irrigated communities?

- Viable for the long term
- Highly reliable irrigation allocations
- Significant improvement in delivery and application systems
- Regionally diverse and highly productive commodities - vibrant

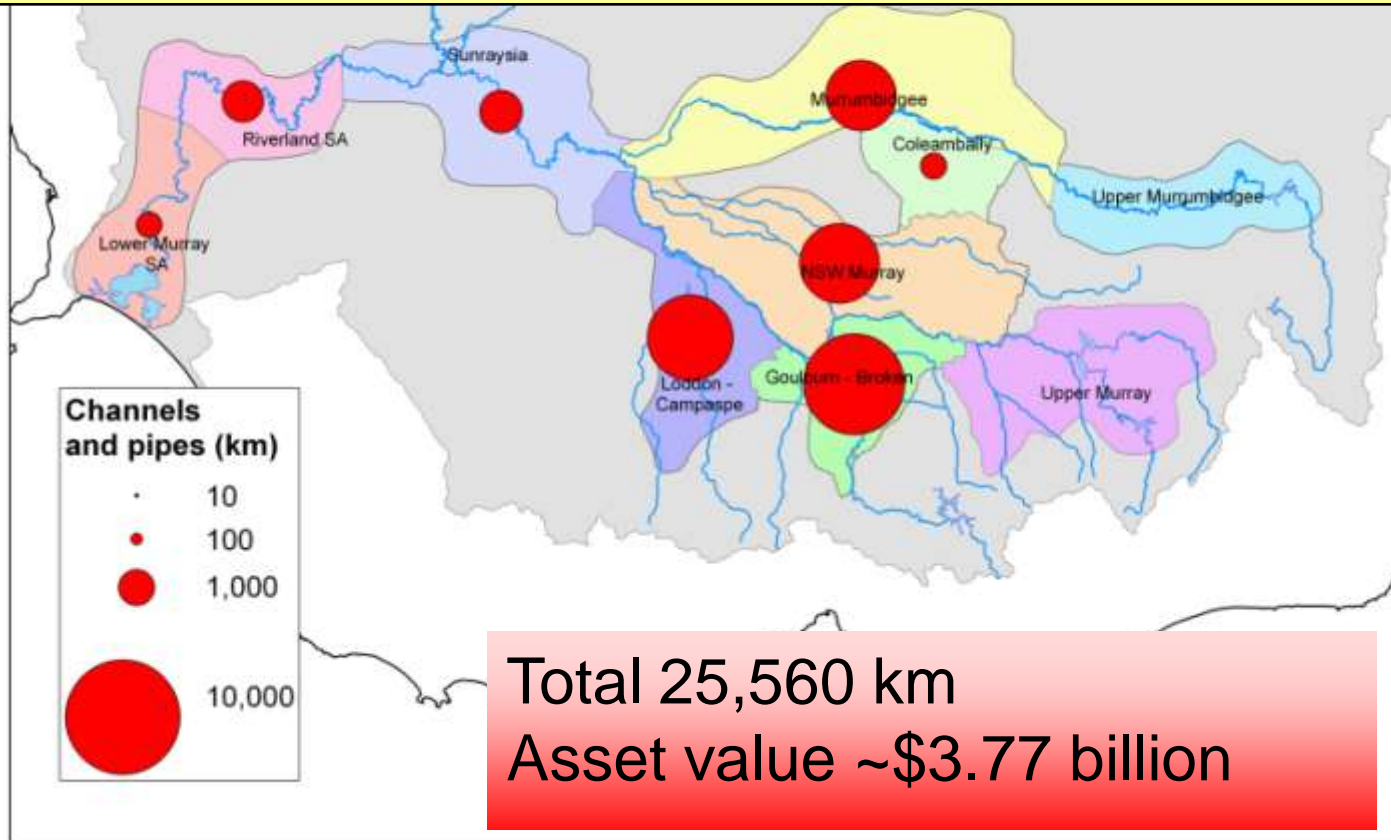
- To achieve this we will need to:
 - consolidate irrigated areas in the right places
 - Redesign irrigation delivery and application systems
 - Skill up operators and service agents

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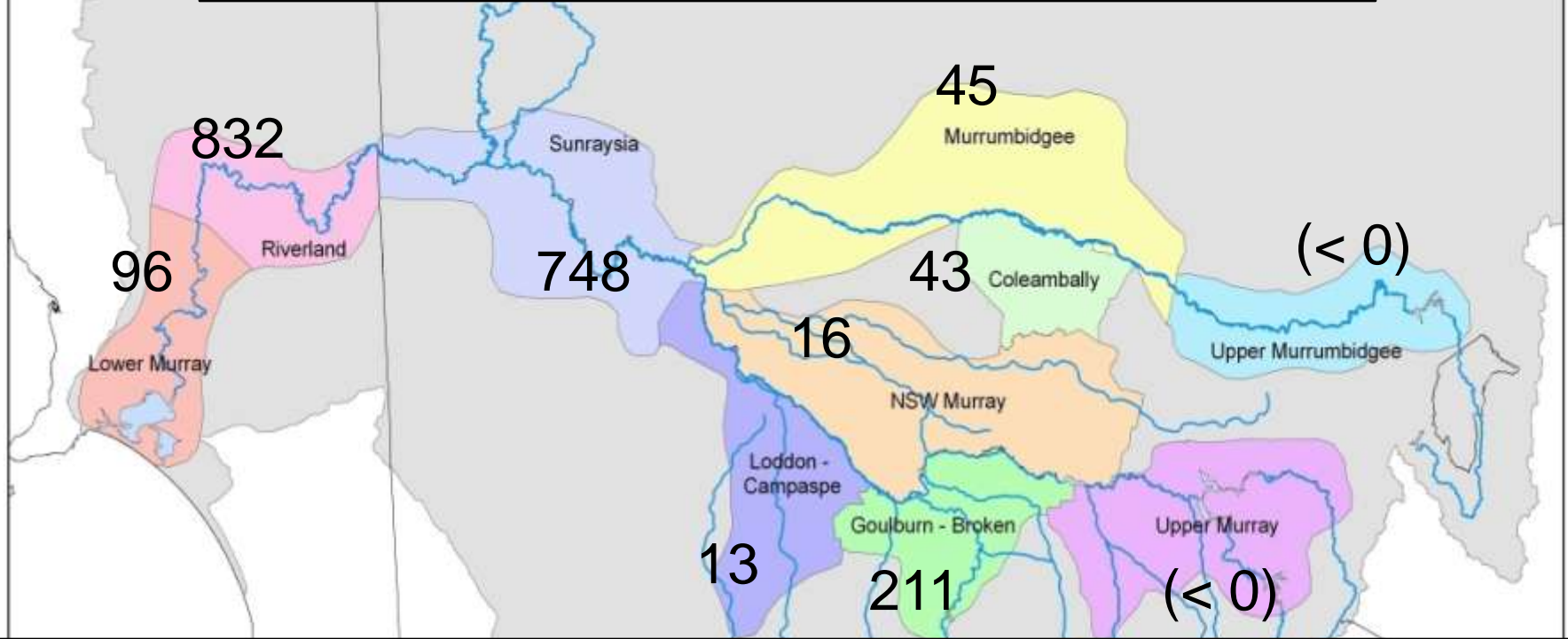
Length of irrigation supply and drainage channels

Redesign and consolidate irrigation water delivery
Design major systems to deliver 30% less water

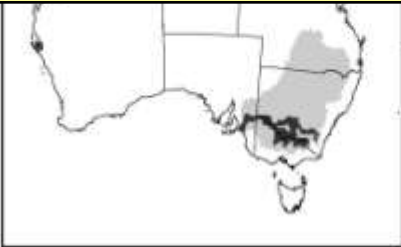


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Profit (\$) per ML water (1995 – 2001)

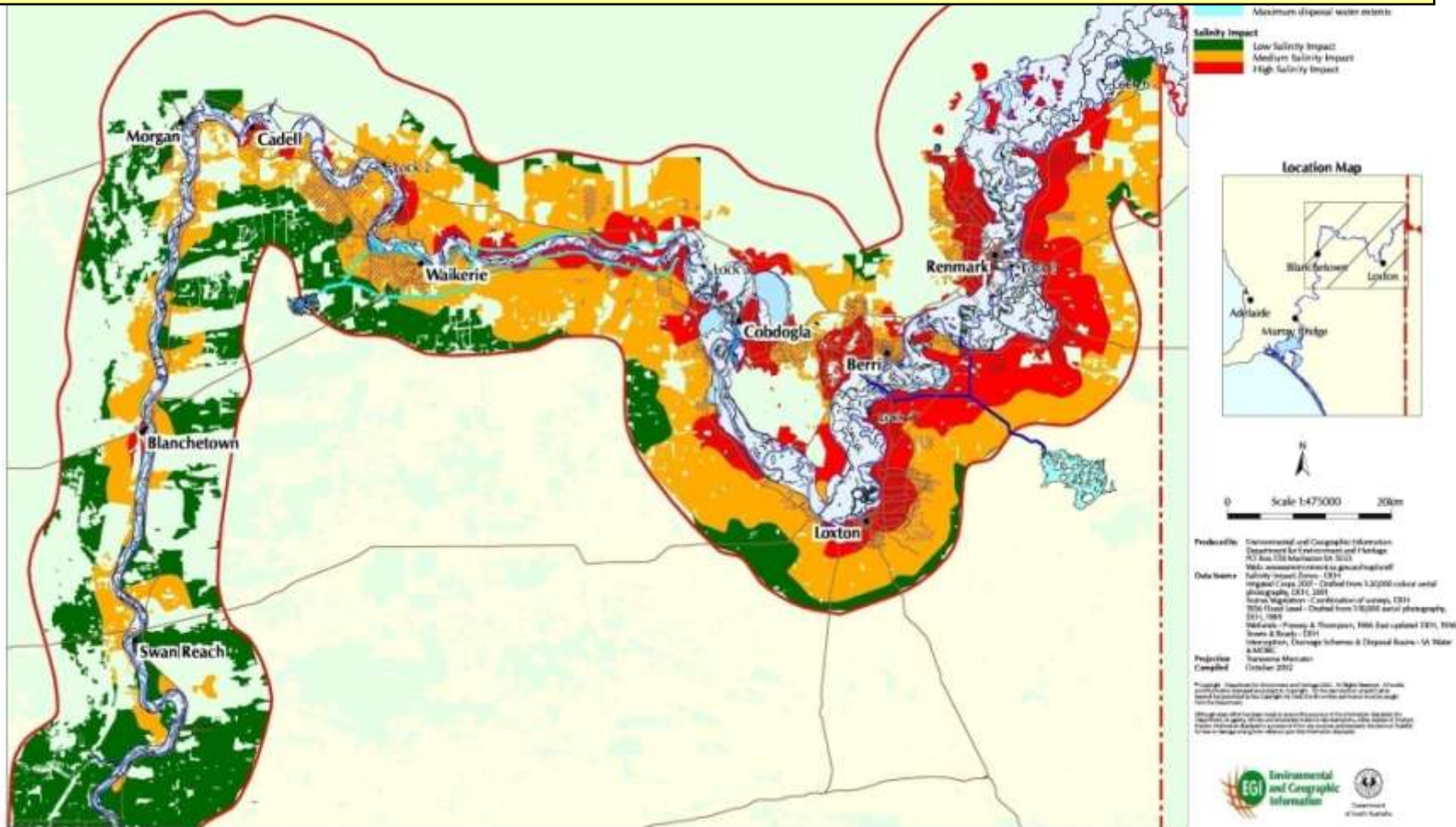


Preferentially support those regions and systems that - have a better chance of being financially viable



Preferentially support those regions and systems that
- have a better chance of being environmentally viable

Relocate irrigation out of high salinity impact zones



Irrigated regions – viable and vibrant

- With an irrigation extraction of 5,500 GL (~ allocation of 2006/07) what will irrigation look like?
 - High security (perennial crops) ~80% allocation (mostly OK)
 - General security (annual crops & pastures) ~ 45% allocation (smaller!)
- Current “buy back” (\$3.1 billion over 10 years)
 - At best, will reduce extraction by <1,400 GL (@\$2,500 / ML)
 - Sellers will bide their time waiting for an increased price
 - Runs the real risk of delivering disjointed, non viable irrigated areas

- What’s the alternative?
 - Some market buyback, some targeted acquisition
 - Targeted refurbishment, rehabilitation, community adjustment
 - Less allocation with more rigorous measurement

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Reduce water extraction by 30 to 50 %

(from current average extraction)

- Without significant reduction in extraction we will lose the essence of the Murray
- The innovation needed is focus on large water use where significant improvement is possible (shouting “water crisis” and reducing small uses will not do it !)
- Urban – “cool and green” is possible (and economically and socially sensible) with improved urban irrigation
- Regional - without more direction, the current “buyback and update” has only a limited chance of delivering long term viability
- Regional – “viable and vibrant” is imperative and possible with targeted rehabilitation, area consolidation, improved distribution, diversity of production

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