

Climate Change, Drought, Flood and the Murray Darling Basin

(An Overview of Water Resource Management in Australia)



Climate Change in Australia - Future

Climate Change projections suggest by 2030:

- Significant decreases in mean rainfall to Southern Australia – up to 10% decreases in some regions
- Little change to mean rainfall in Northern Australia, BUT frequency of extreme rainfall events will increase
- Increases in mean temperature - ranging from 0.3 to 2.0°C depending on the region

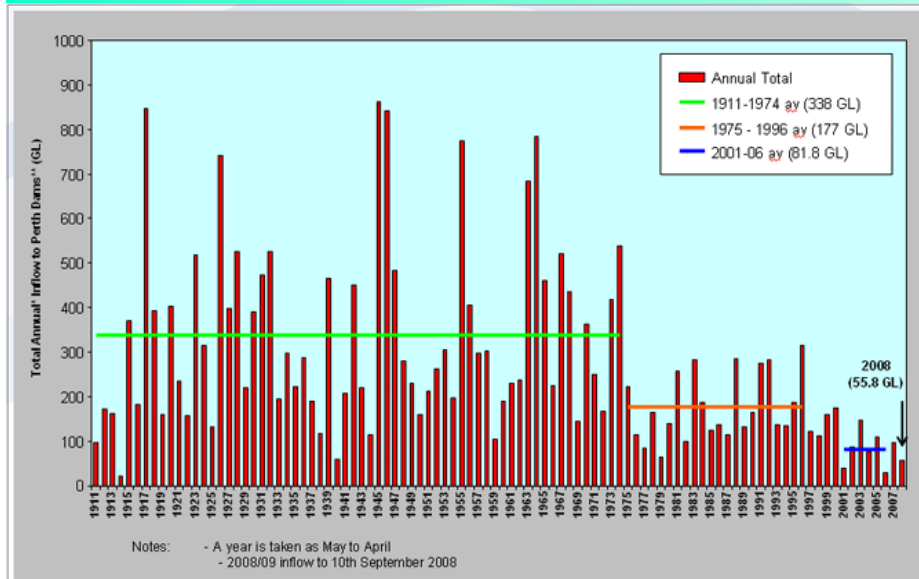
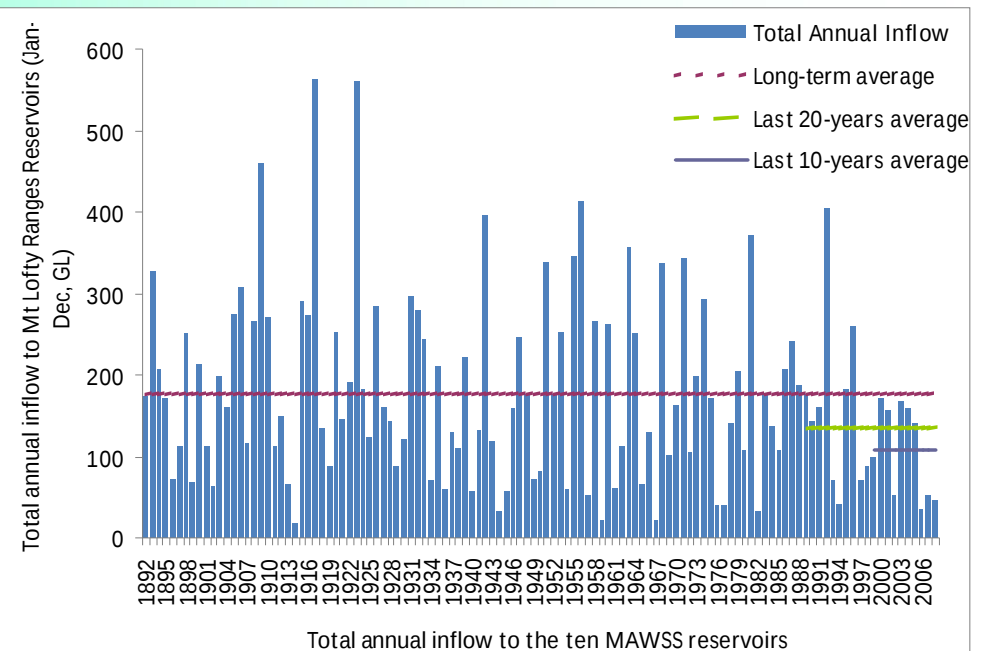


Climate Change in Australia

Step Change

- Current observations also indicate that change is not gradual
- Significant intervention is required as response

Inflows to Metro Adelaide Reservoirs, 1892-2008



Inflows to Perth Dams, 1911-2008

(Source: www.watercorporation.com.au)

MDB Drought an Insight into Climate Change

- Millennium drought in SE Australia is an indication of “worst-case scenario” for projected Climate Change
- Drought has provided insight into mechanisms and policies needed to respond to Climate Change in Southern Australia



The Murray-Darling Basin

14% of Australia

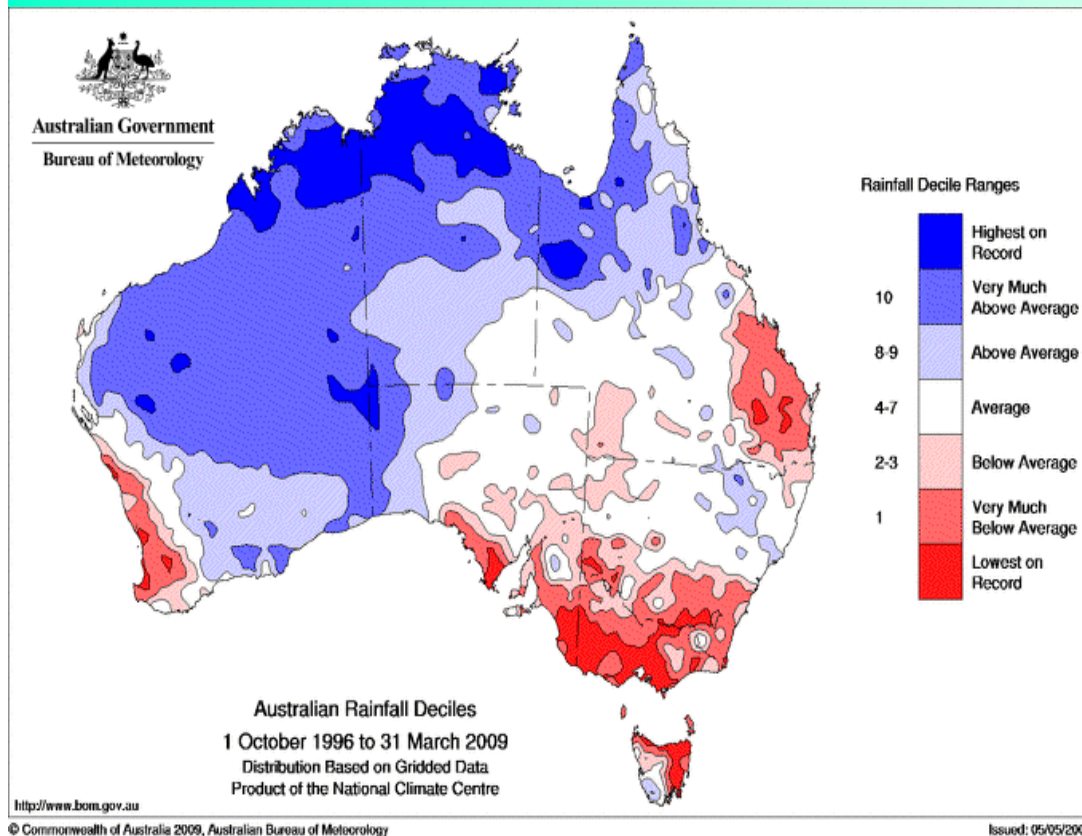
1 million square kms

2 million people

2 major river systems

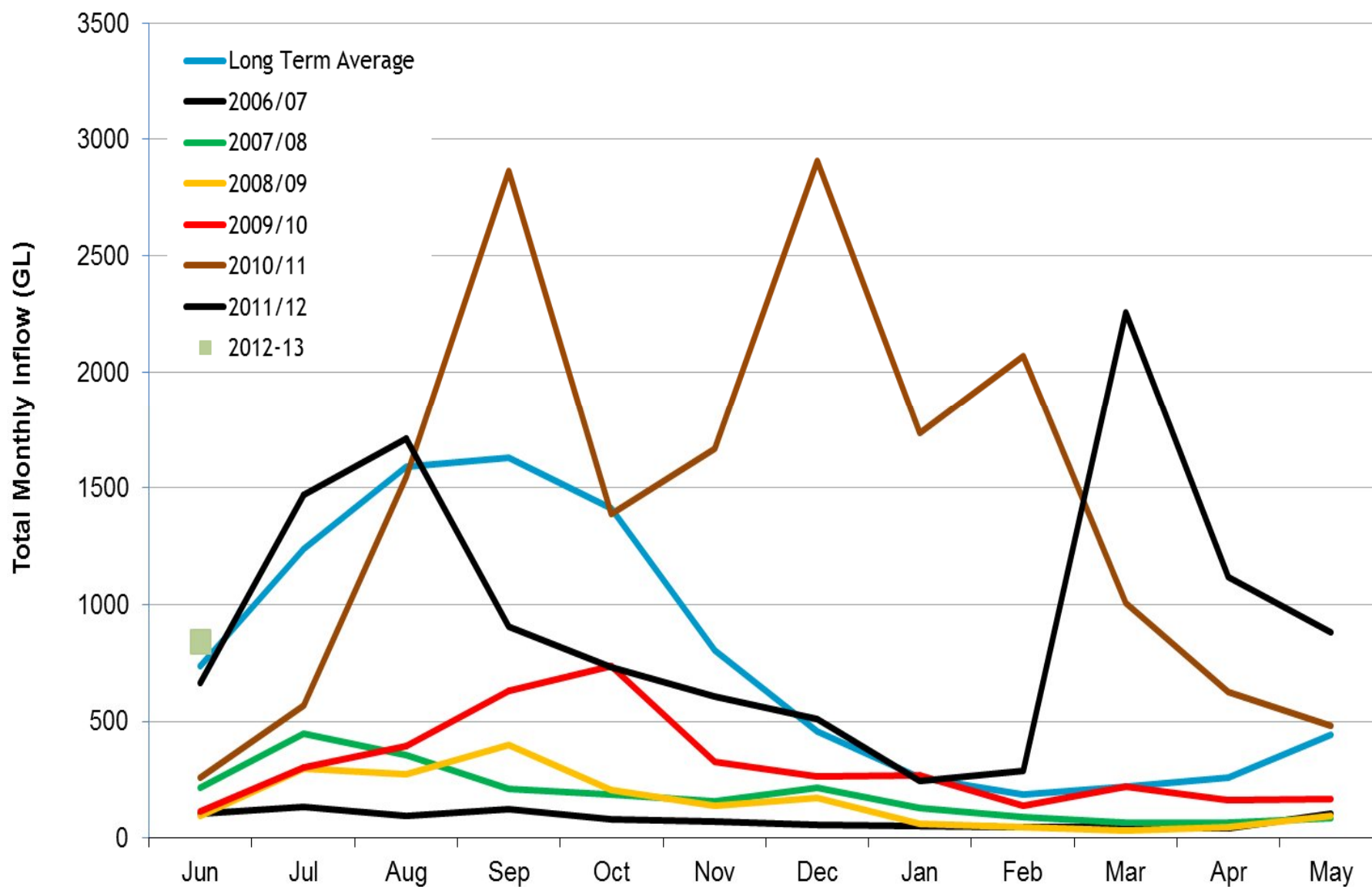
-Murray River 2530 kms

-Darling River 2740 kms



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River Murray Inflows (excluding Menindee Lakes and Snowy Mountains Scheme)



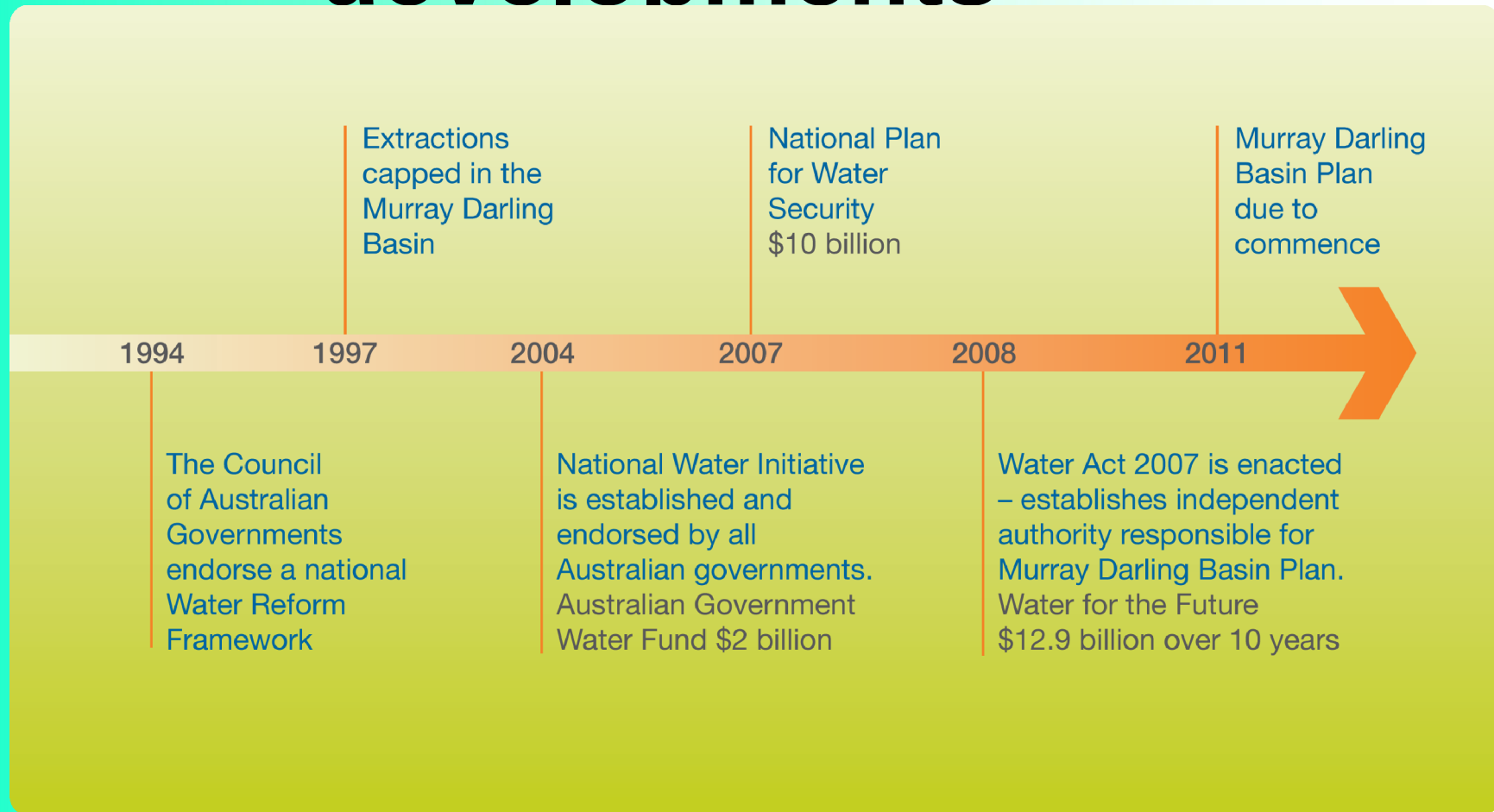
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Major Policy Initiatives

- Major initiatives :
 - **National Water Initiative**
 - Water allocation planning
 - Water licensing
 - Separated water rights
 - Cultural Access to water
 - **Sustainable Yields**
 - **Water Act and Constitutional Referral of powers**
 - **Water markets**



National policy developments



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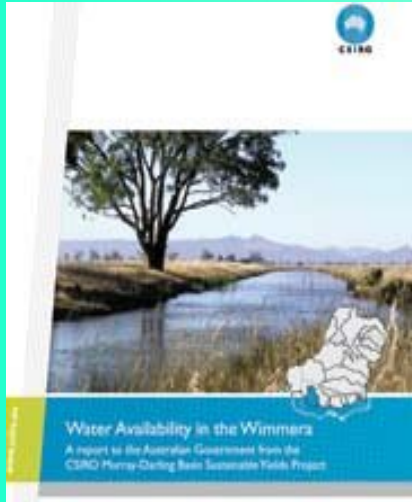
Australia's agreed water policy objectives

- ≈ Water security
- ≈ Water use efficiency
- ≈ Water for the environment
- ≈ Sustainable supply
- ≈ Tradability of water
- ≈ Better metering and water accounting
- ≈ Improved science, socio-economic input to decisions
- ≈ Better, more participatory, water decision making

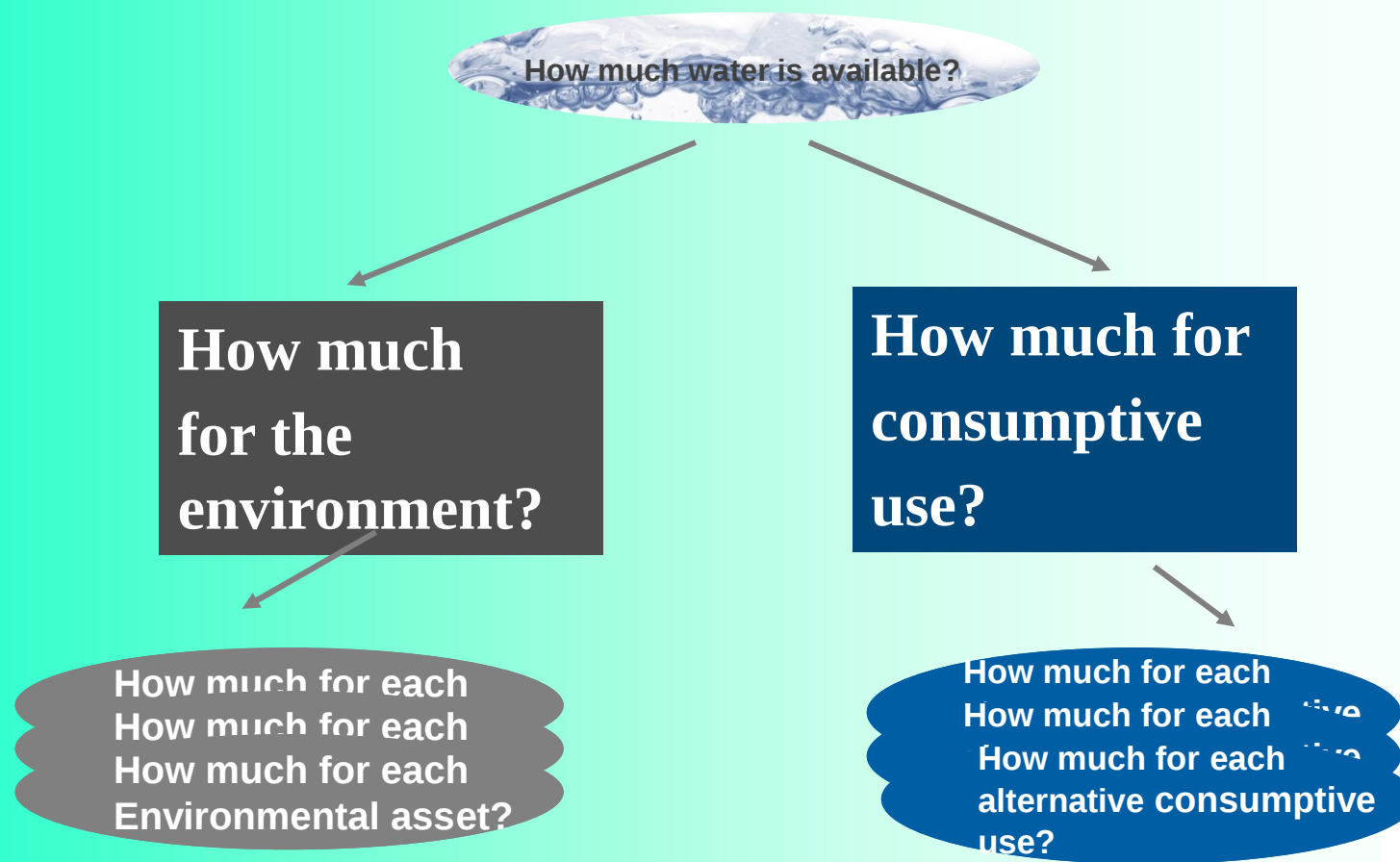


Murray-Darling Basin Sustainable Yields Project (CSIRO)

- Reported on current and future water availability
 - Reported on future risks to water availability, including climate change and development scenarios
 - 4 years in 100 unable to meet requirements for Adelaide



The Central Issue in Australian Water Management



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Water Act 2008

The Water Act requires that the environmentally sustainable level of take or amount of water used for consumption must not compromise:

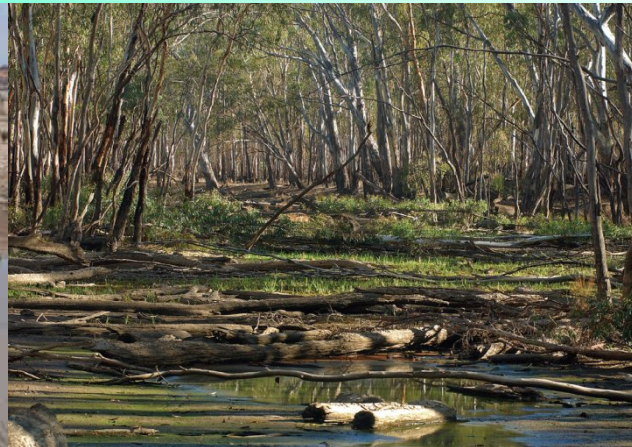
- key ecosystem functions
- key environmental assets (including water-dependant ecosystems, ecosystem services and sites with ecological significance)
- the productive base of the water resource
- the key environmental outcomes for the water resource.

The Basin Plan provides the framework: three stages of consultation

- Guide, Draft and Legislative Instrument (tabled in Cmth Parliament)



River Murray near Paringa



Water Market

- Significant trade in 2006-07 worth \$1.7b
- Drivers of the market
 - Open and free trade
 - Critical human needs
 - Agricultural and irrigation development
 - Environmental requirements (Living Murray, Cmth purchase and Water for Rivers-Snowy)
 - Speculators
- Tagged Trade and Exchange Rate Trade
- Revised MDB Agreement provides SA with storage capacity and enable carryover
- Market confidence through supervision of ACCC



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Water trading

From this



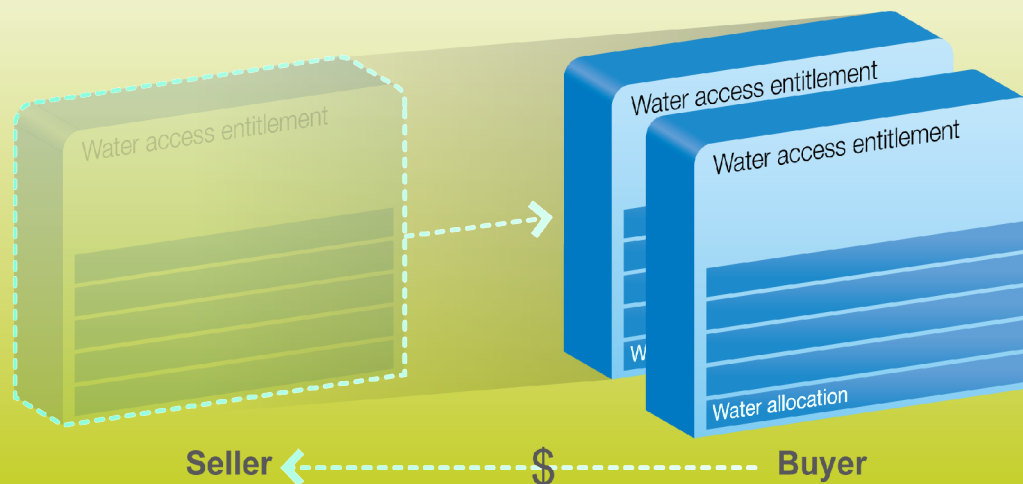
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Water trading

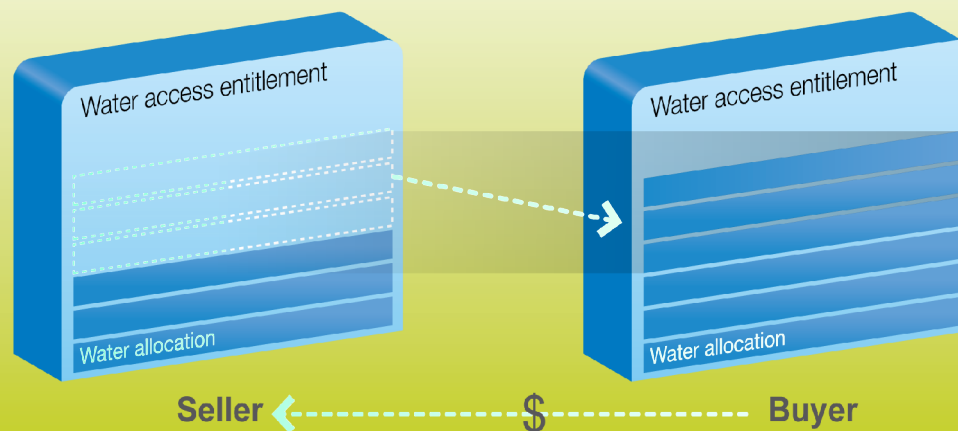
Water access entitlement trade

transfer of ownership of the right to a perpetual share of the consumptive pool.



Water allocation trade

transfer of ownership of the right to a specified volume of water allocated to a water access entitlement.



Future directions: continuing to work on the basics

- ≈ Deal with overallocation
- ≈ Improve water planning
- ≈ Improve water markets
- ≈ Improve environmental water management
- ≈ More secure urban water, efficiently produced
- ≈ Improve data, science, knowledge & public understanding



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But then came flood:



Victoria



Queensland



Inquiries

Vic & Qld Inquiries

4 Reports

445 Recommendations



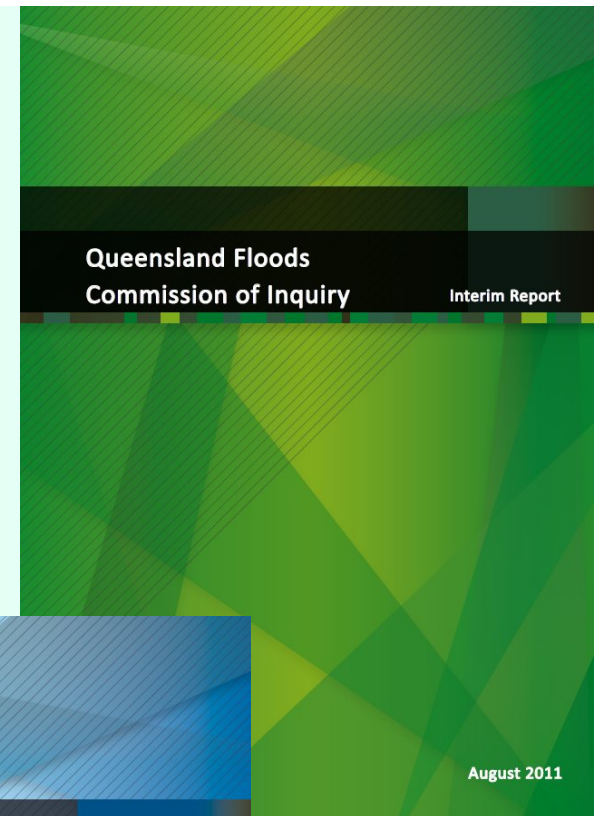
Review of the 2010–11 Flood Warnings & Response

Interim Report by Neil Comrie AO, APM
30 June 2011



Review of the 2010–11 Flood Warnings & Response

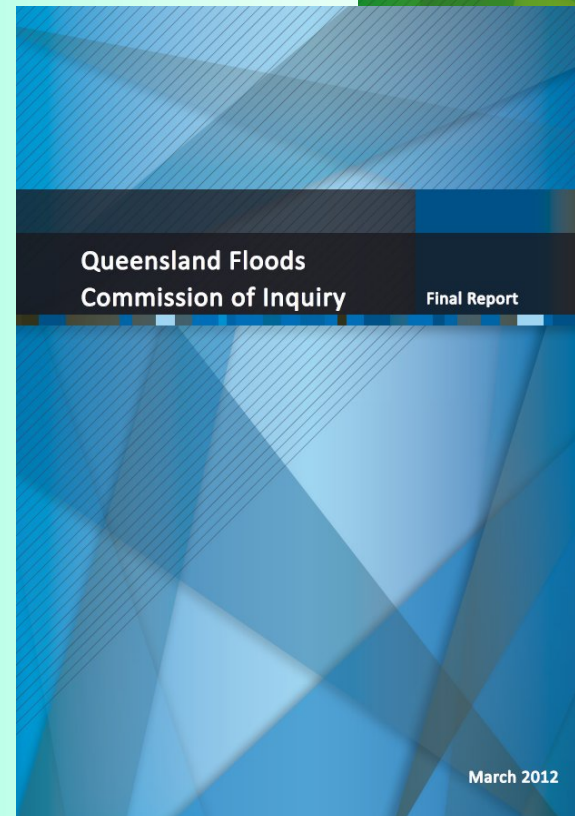
Final Report by Neil Comrie AO, APM
1 December 2011



Queensland Floods Commission of Inquiry

Interim Report

August 2011



Queensland Floods Commission of Inquiry

Final Report

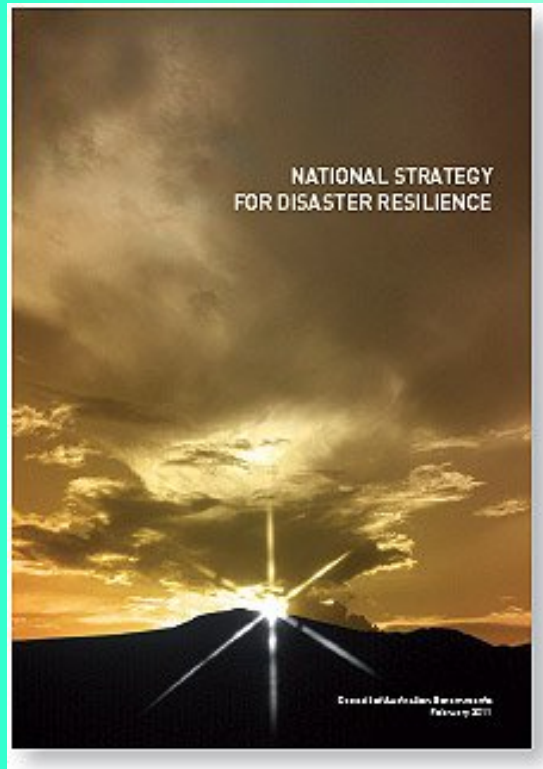
March 2012



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National Strategy for Disaster Resilience

7 Themes of Flood Inquiries Taskforce



Flood & Drought

Some Thoughts

‘there is a risk that the recommendations made here will be enthusiastically taken up in the short term, but, absent another flood disaster in the next few years, priorities will drift and the lessons will be forgotten.’

QFCI final report

“A drought is a lack of water, but not necessarily a disaster. Whether or not a drought becomes a disaster depends on how people have been managing their land before the drought.”

Lloyd Timberlake



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Conclusion

- Water management shaped by scarce and variable supply
- Current reforms aim to ensure a secure, efficient and sustainable water supply for competing demands
- A mix of policy settings is required
- Addressing overuse only gets harder the longer you wait
- Rural water markets can work and can deliver big benefits
- Current challenges such as increasing demand and competition for water will be exacerbated by climate change
- We have an appropriate response - reforms provide a platform for adaptive management
- But implementation is critical – it needs to be improved and accelerated



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