

Australian Water Information Advisory Council

The importance of water information to national water reform

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Chair

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water *information*

Data ↪ Information ↪ Insight

Outline of presentation

- Personal experience with data (flood estimation)
- Water information needs (generally)
 - The opportunity that exists now
 - The National Plan for Water Security
 - Benefits from a collaborative approach
- About AWIAC
- Conclusion

Flood estimation

For design hydrographs, normal to use a rainfall-runoff model to estimate catchment response to rain.

- (1) For model calibration, need catchment rainfall and flow data (for large events)
- (2) No site or local data? Can adopt published regional parameters for the model

Method (2) much easier than Method (1), but with significantly less confidence in the results

Example 1974

[Ex-student turned consultant]

The 'perfect job':

- Client – big mining company
- open cut site next to a stream (levee needed)
- 'no data'!!

Example 1974 (cont)

‘Perfect’ because:

- use back-of-the-envelope calculation for design flood peak (empirical maximum formula– 10 minutes!)
- expect a conservatively high levy
- fees based on percent of installed cost
- hence minimum time spent, maximum return
- Win Win!!

Example 2007

- Flood estimate needed on river with flow gauge just upstream of site
- Consultant used a regional procedure to estimate flood model parameters
- Thus ignored local data
- **WHY!!**

For design flood estimation:

- Getting data sets together (from different sources), checking them (and fixing errors), changing data formats (etc) typically takes about half of the total effort

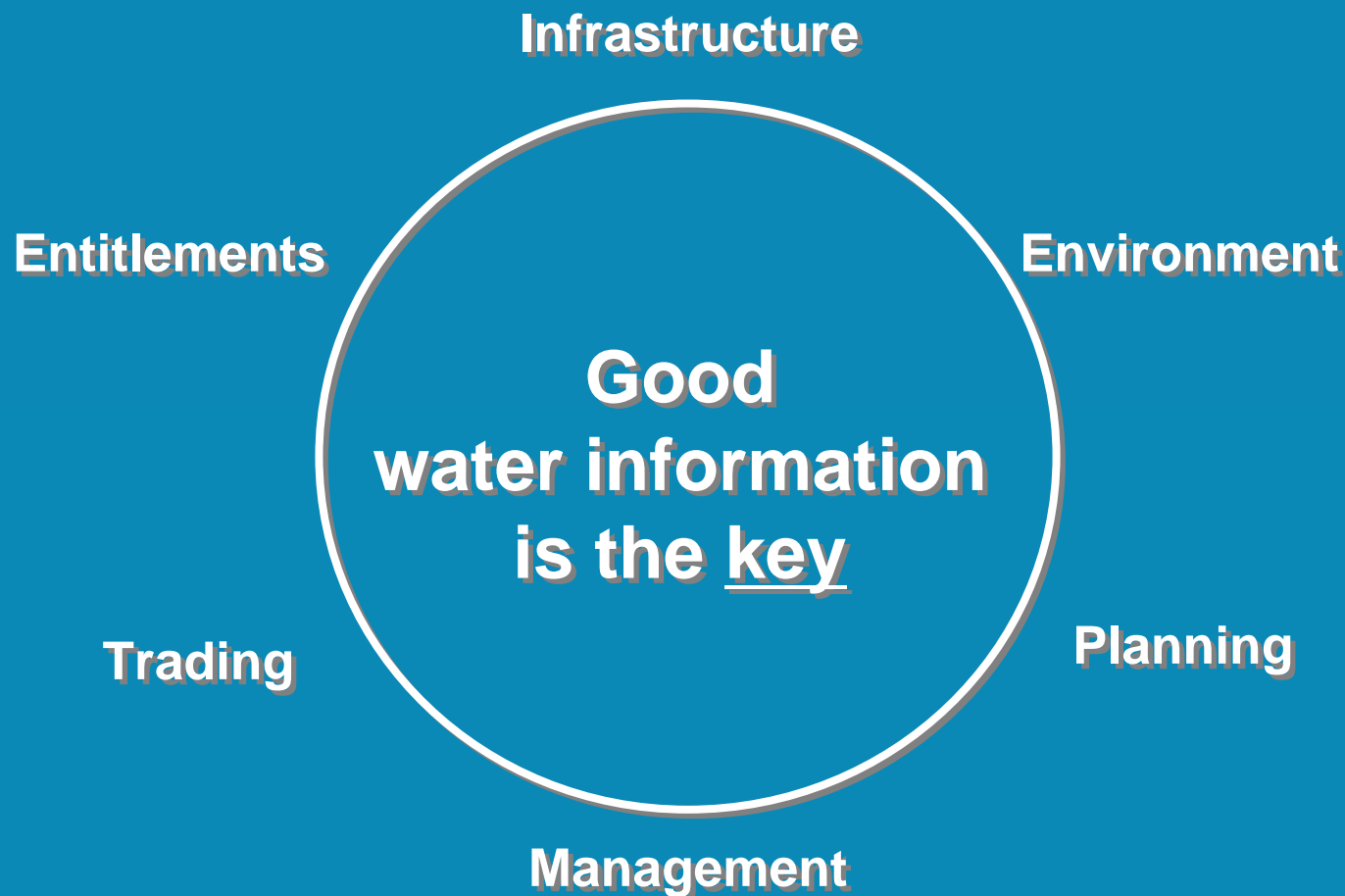
A long held dream:

a one-stop shop of rainfall and flow data, checked for consistency, in a standard format
– plus display and basic analysis software

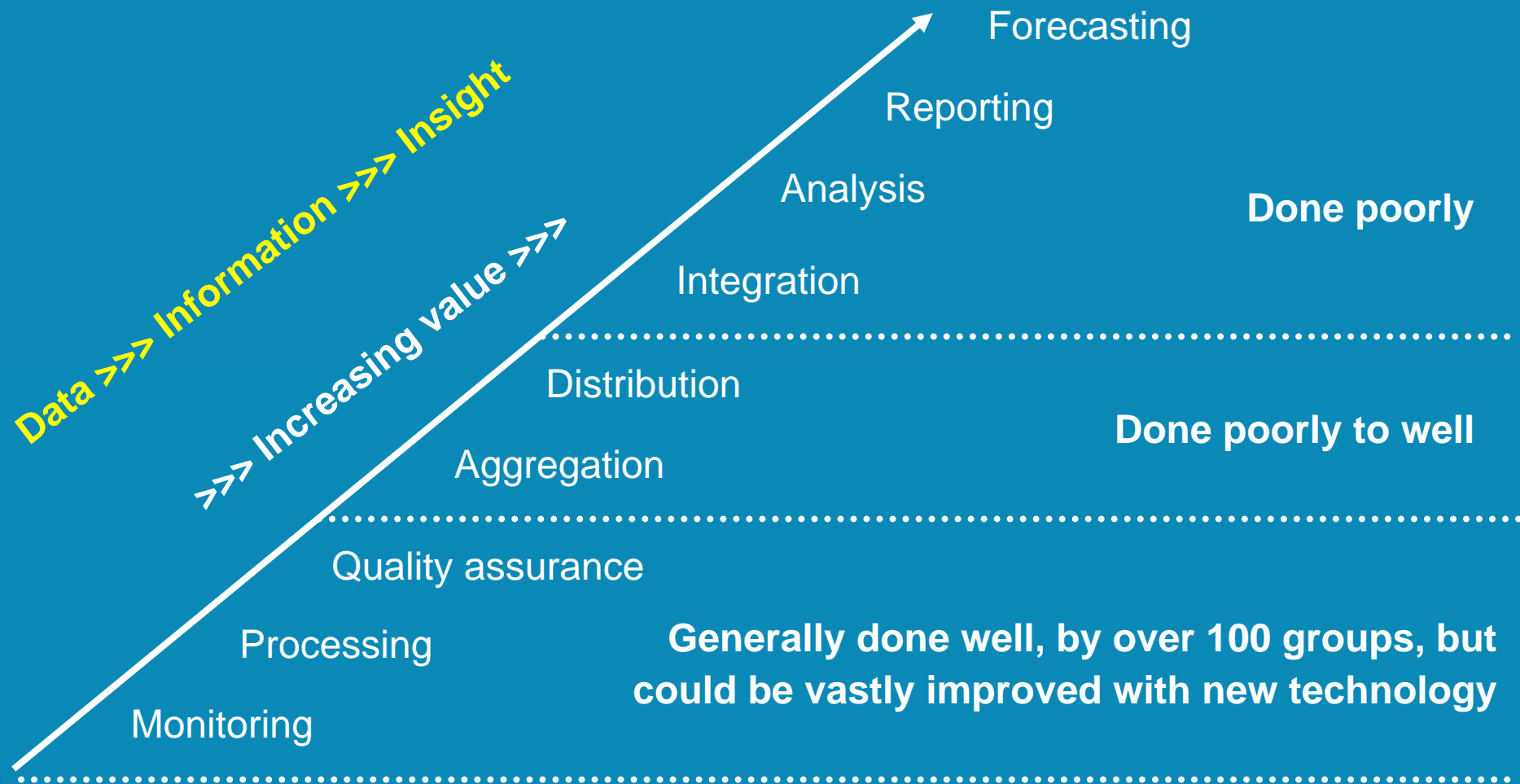
Water information needs

- infrastructure sizing
- planning
- water trading
- providing for environmental flows
- management
- allocation/entitlements

Sustainable water resources management



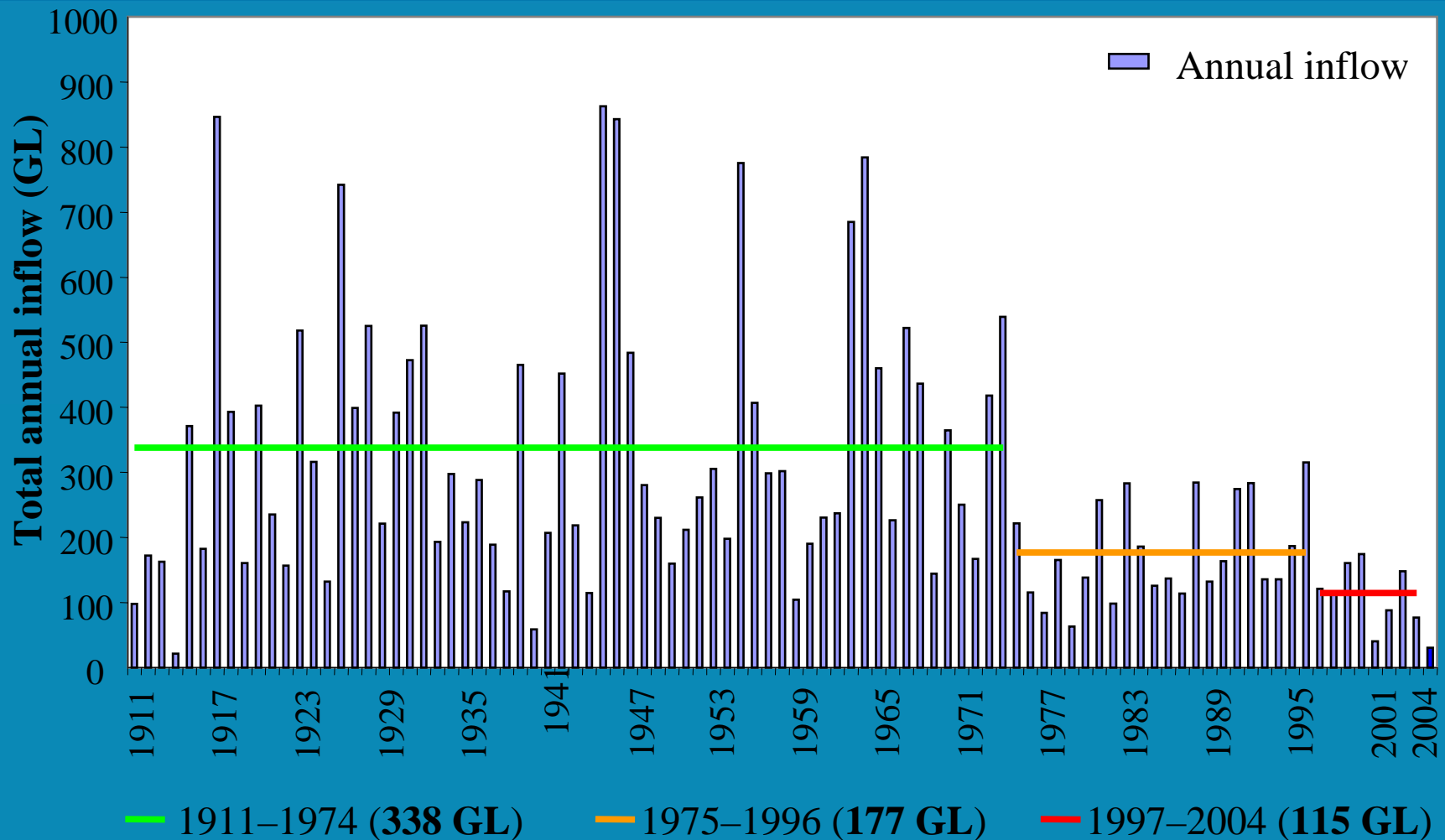
The water information value ladder



The opportunity

- Drought inspired

Declining annual inflows to Perth's dams.

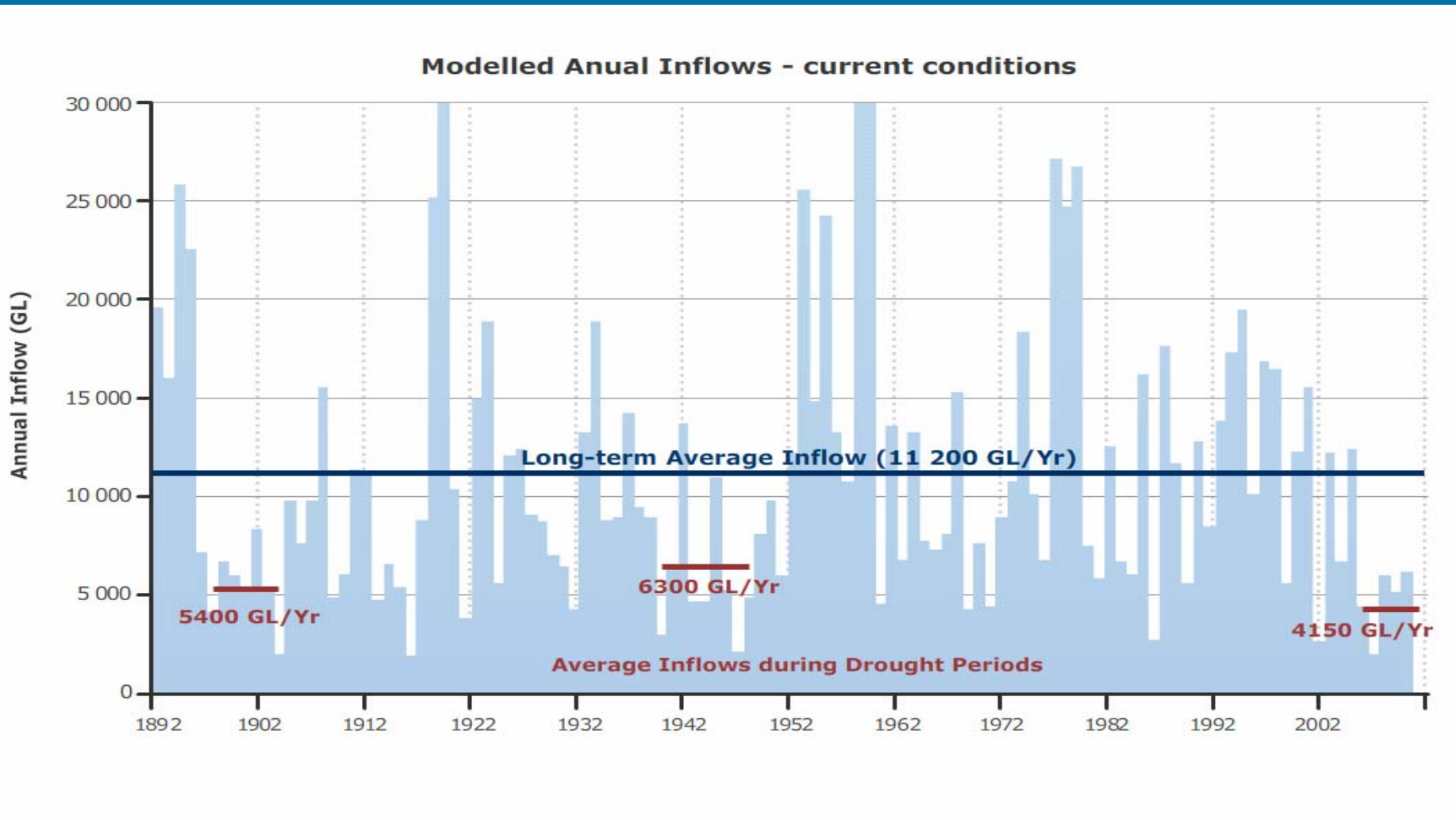


1911–1974 (338 GL)

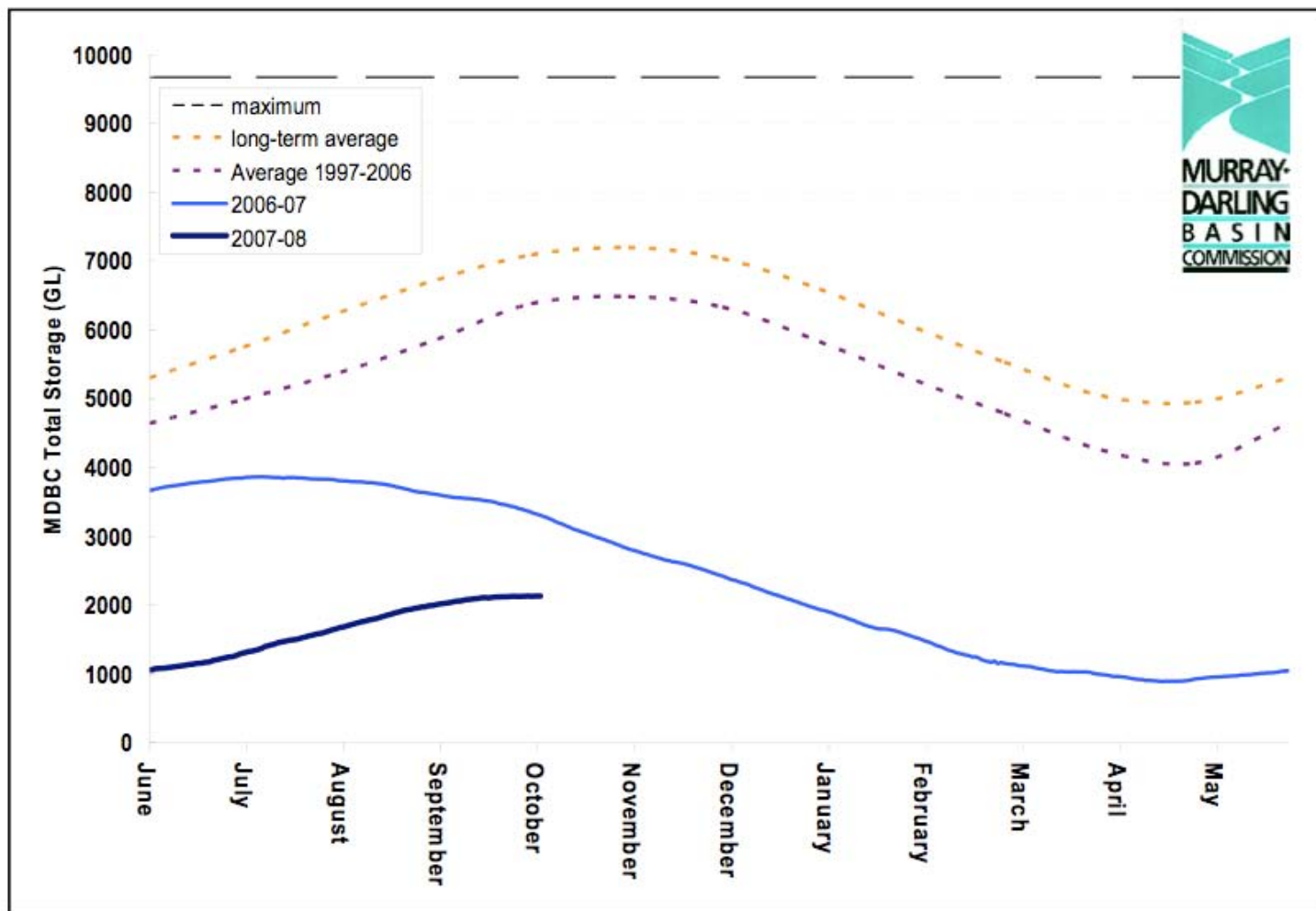
1975–1996 (177 GL)

1997–2004 (115 GL)

Historic sequence of MDB system inflows.

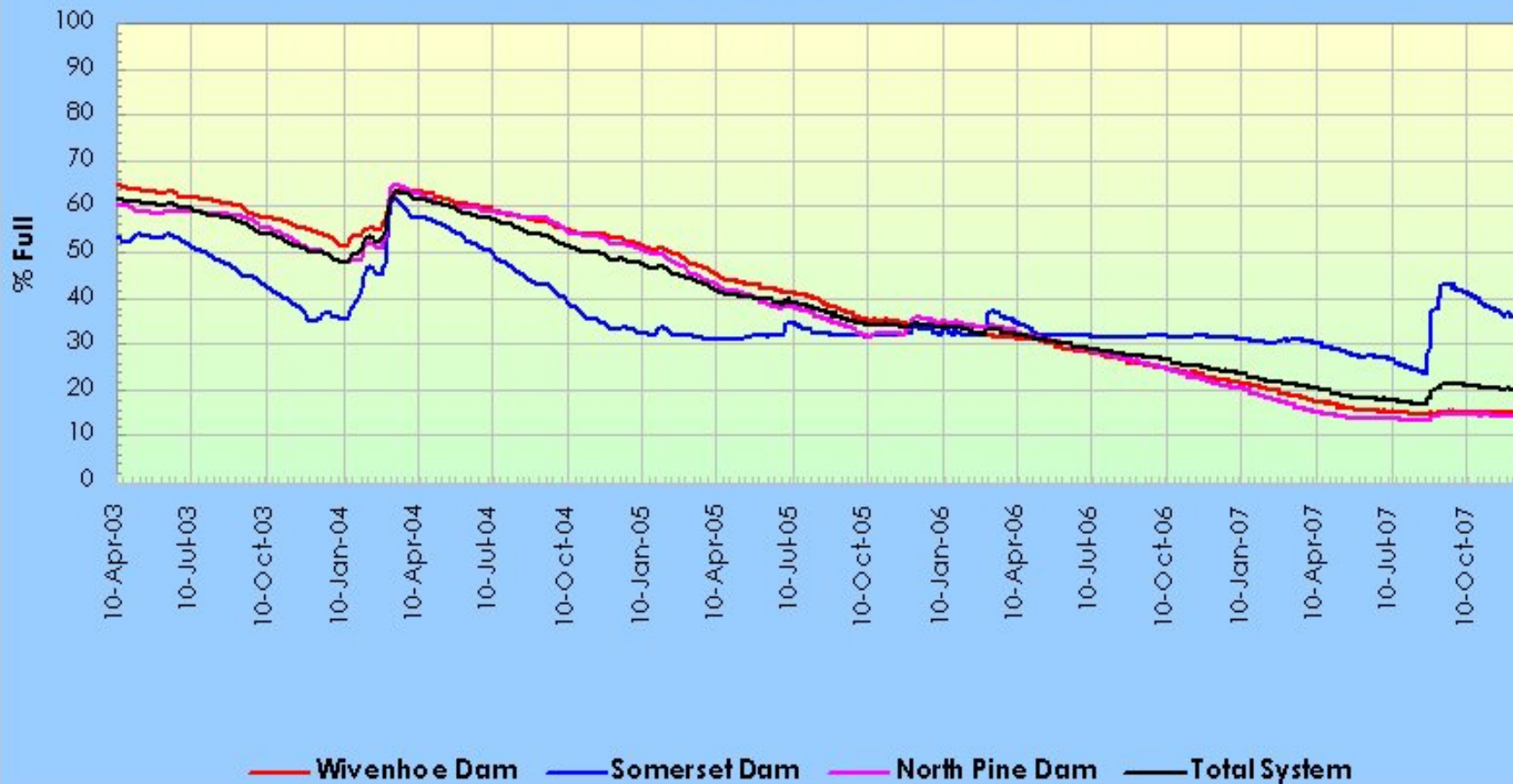


Water storage volumes in the MDB system.

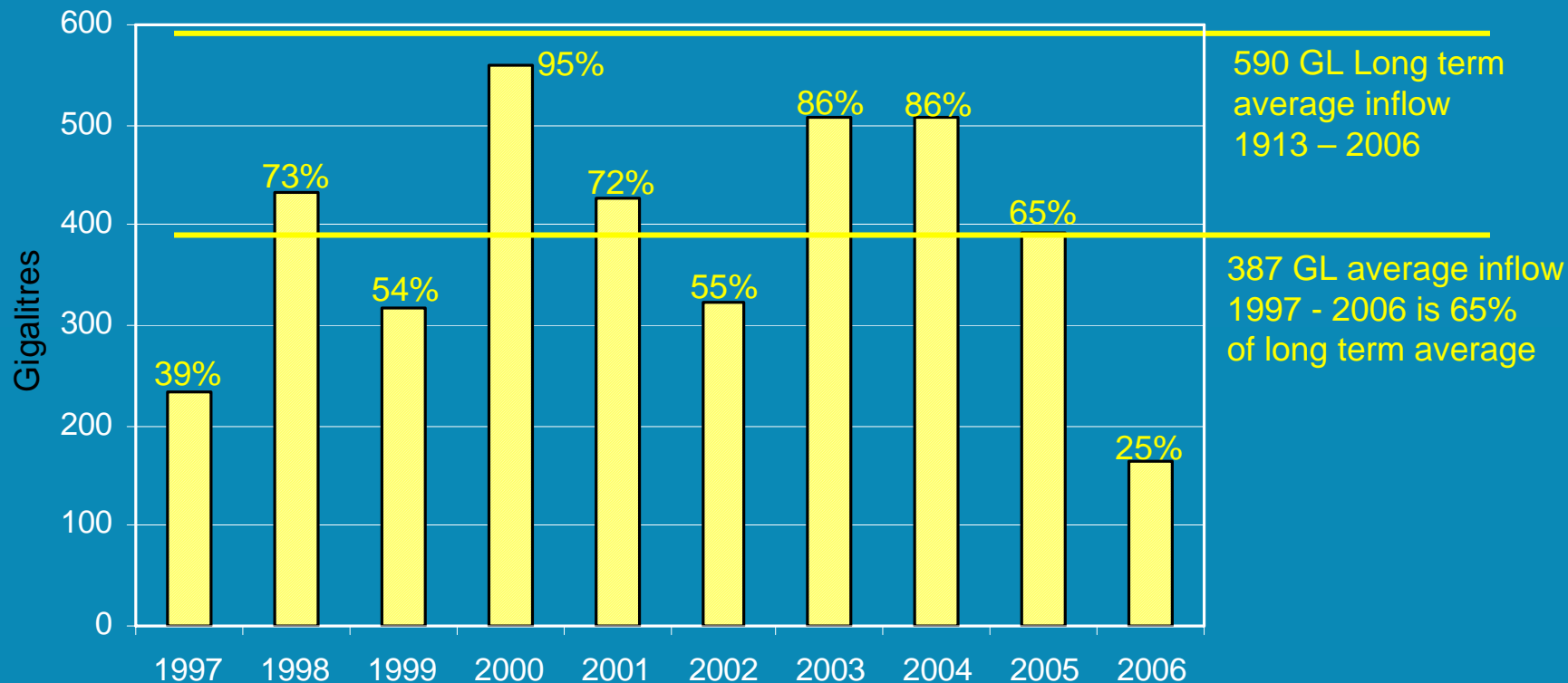


SEQ WATER

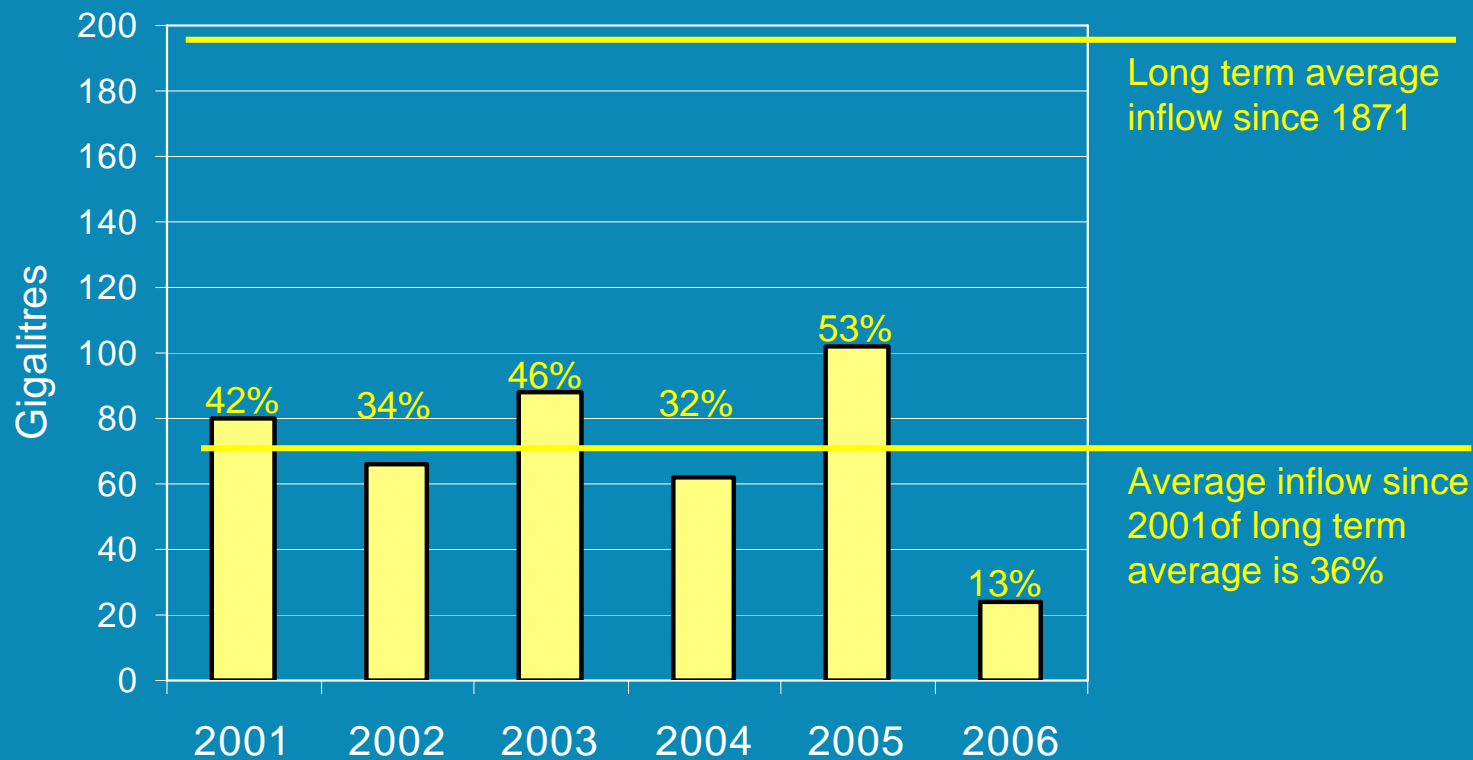
Wivenhoe, Somerset and North Pine Dams



Annual inflows to Melbourne's storages



Annual inflows to Canberra's storages



The opportunity

- Drought inspired
- Political support locked in
- Big dollars on the table

Chance for a major improvement in water information data in Australia

The national water plan

- **\$10b over 10 years to reform water management**
- **Accelerates the National Water Initiative**
 - Australia's water reform blueprint
- **Supported by enabling legislation**
 - Water Act 2007
 - (passed in Aug 07; to be proclaimed in Mar 08)

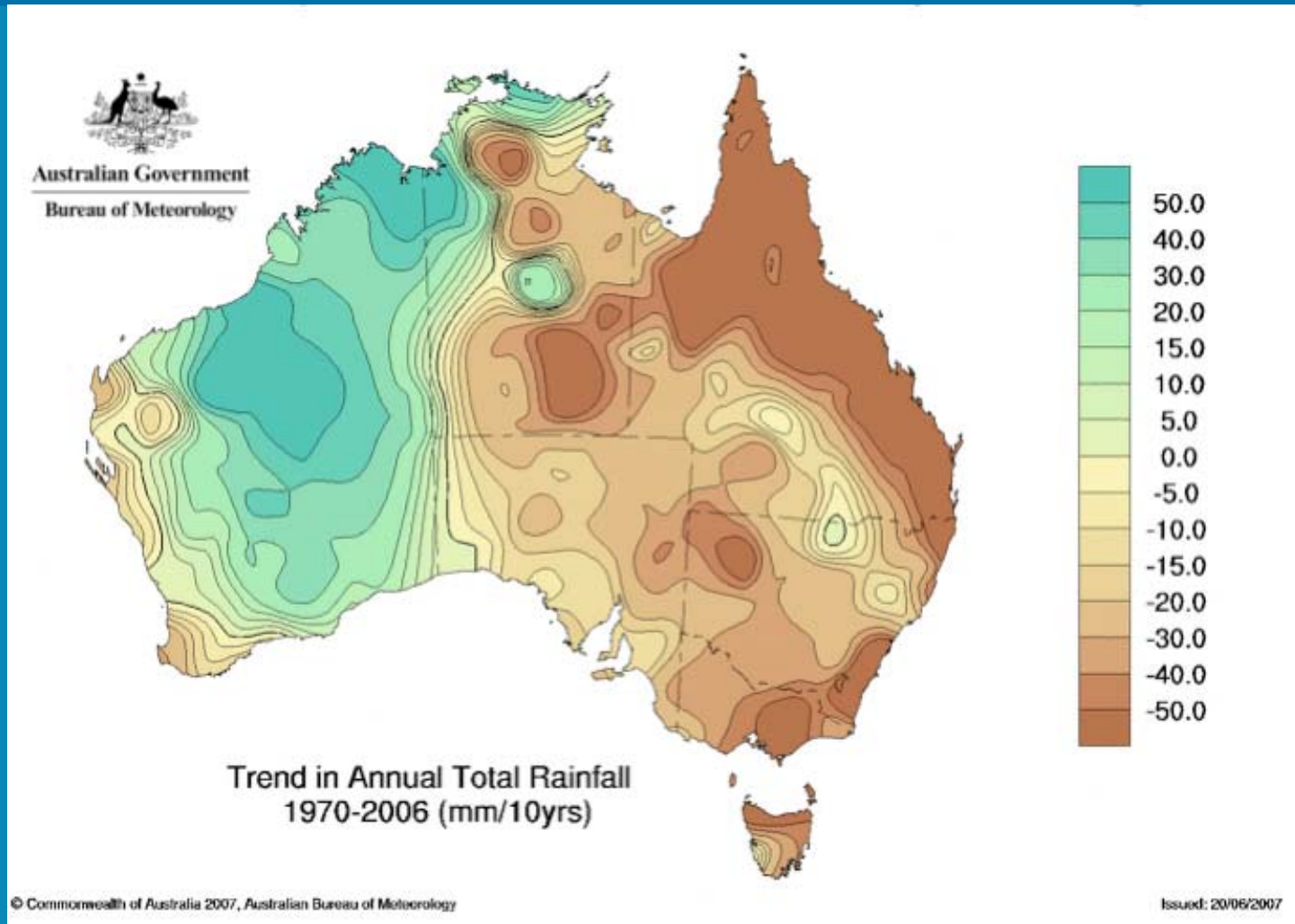
Current elements of the national water plan

- A new Murray-Darling Basin Authority
- MDB water purchases and structural adjustments
- National irrigation delivery system upgrades
- National on-farm water savings measures
- MDB river system improvements
- ACCC oversight of MDB water charging and market rules
- National water use metering and telemetry
- **National water information program**
- Understanding the potential of Northern Australia
- Reducing groundwater losses in the GAB

The Water Information Program

- Water information database held by Bureau of Meteorology
 - establish national standards
 - high level of data integration
 - impartiality (and authority) of the organisation ...

Trend in annual rainfall across Australia.



The Water Information Program

- Water information database held by Bureau of Meteorology
 - establish national standards
 - high level of data integration
 - impartiality (and authority) of the organisation
- Investment in new measurement technologies
- Investment to fill information gaps
- Enhanced information display and analysis
- Free access

The sort of questions we need to answer

- How much water is available in different parts of the country today (and how does it compare with history)?
- How much water is likely to be available in the coming days, weeks, months and years?
- How much water is the environment getting?
- How is water quality changing?
- How much water is being intercepted by farm dams and various land management changes?

Benefits of the 'cooperative' model

- major synergies from a collaborative approach to water information (State and other collection agencies, and the Bureau), including:
 - unified investment in new technologies
 - standardised data formats
 - rationalised software for display, analysis, and distribution

[Similar to USA approach]

Australian Water Information Advisory Council (AWIAC)

TOR:

- Provide strategic advice to the Bureau on emerging water information needs across the water sector.
- Advise the Bureau on how to maximise the value of its water information activities across the water sector.
- Evaluate the Bureau's contribution to NWI and national water plan objectives.
- Assist the Bureau by providing advocacy across the water sector for its new water information mission.

AWIAC members

- Russell Mein (Chair)
- James Horne (Dept of Environment and Water Resources, AG)
- Ken Matthews (National Water Commission, AG)
- Rob Freeman (Dept of Water, Land and Biodiversity Conservation, SA)
- Warwick Watkins (Department of Lands, NSW)
- Ross Young (Water Services Association of Australia)
- Jolyon Burnett (Irrigation Australia Limited)

Conclusion

- Reliable water information is the key to water management
- The opportunity is here now for a major improvement in the quality, usefulness, and availability of water information
- The Water Information initiative can deliver on this
- A collaborative approach will bring much benefit