

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

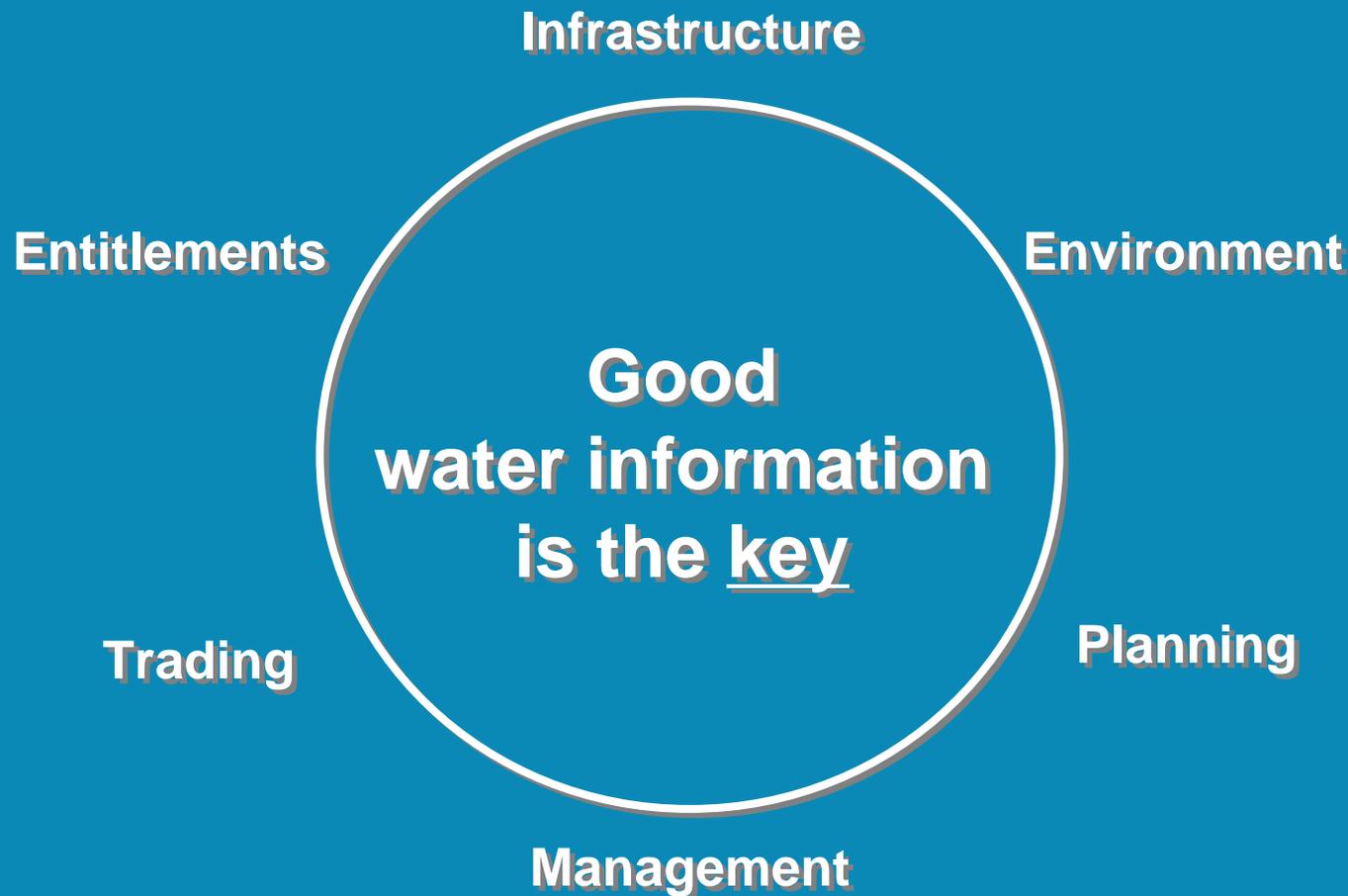
A long held dream:

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

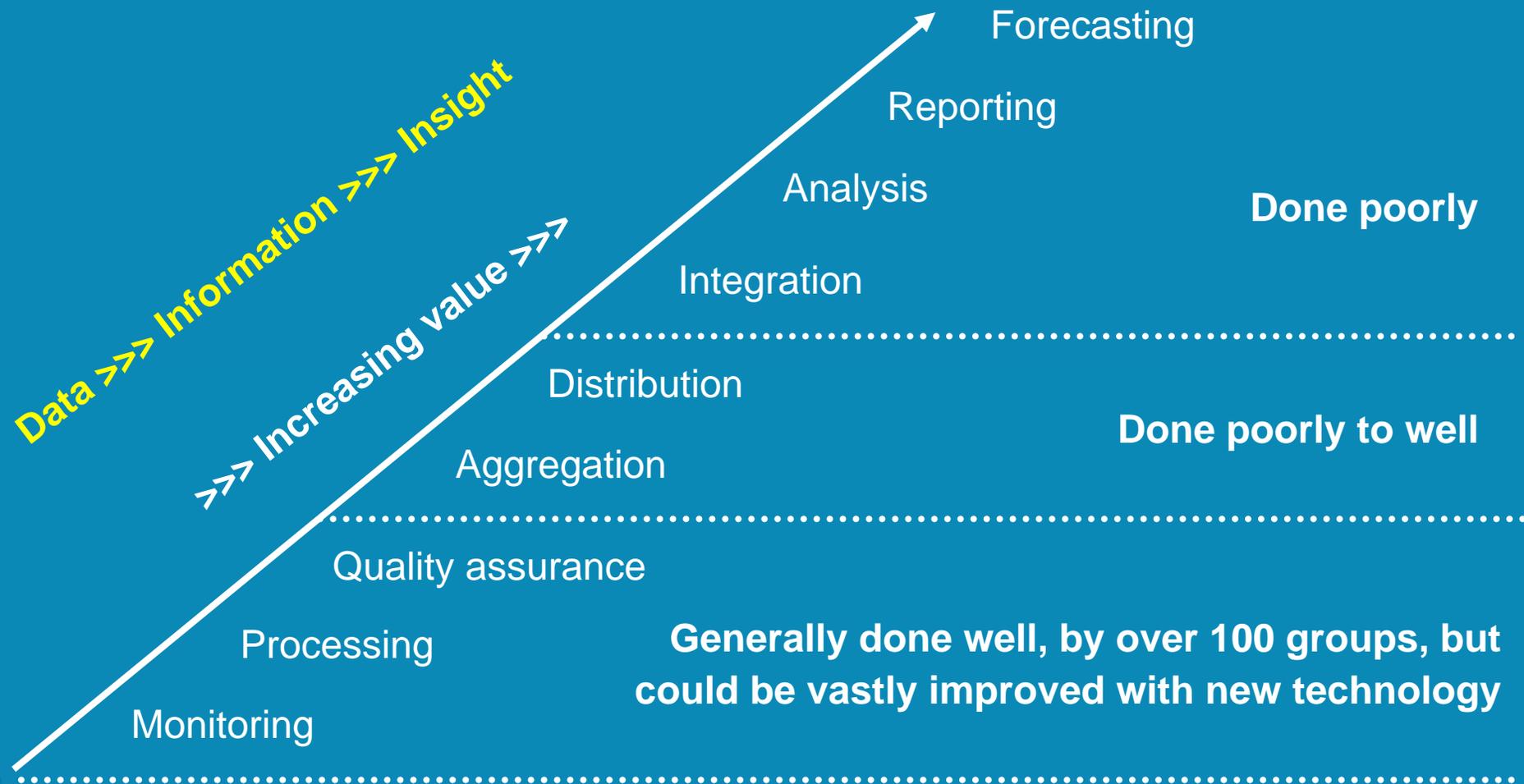
Water information needs

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

Sustainable water resources management



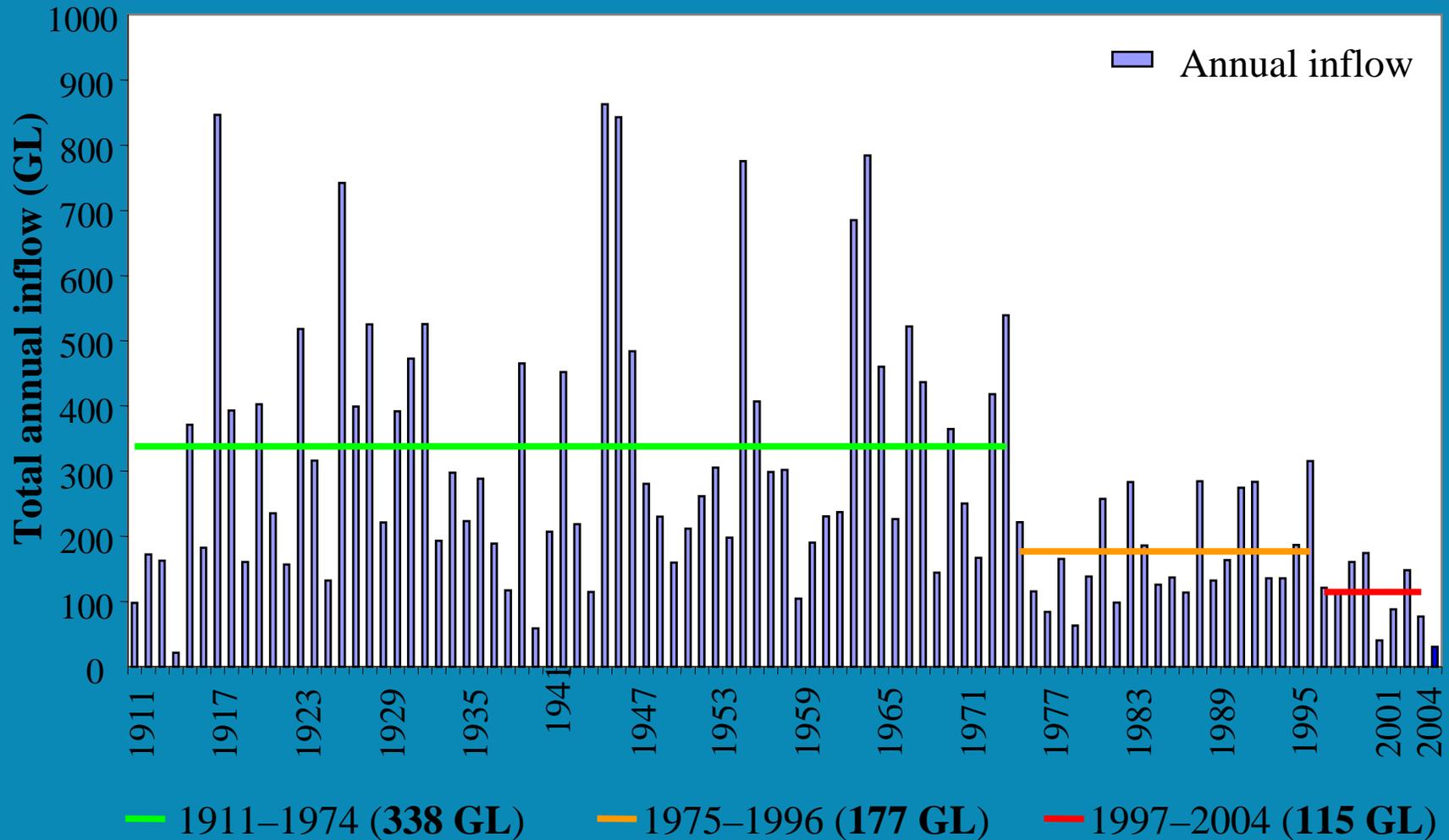
The water information value ladder



The opportunity

- Drought inspired

Declining annual inflows to Perth's dams.



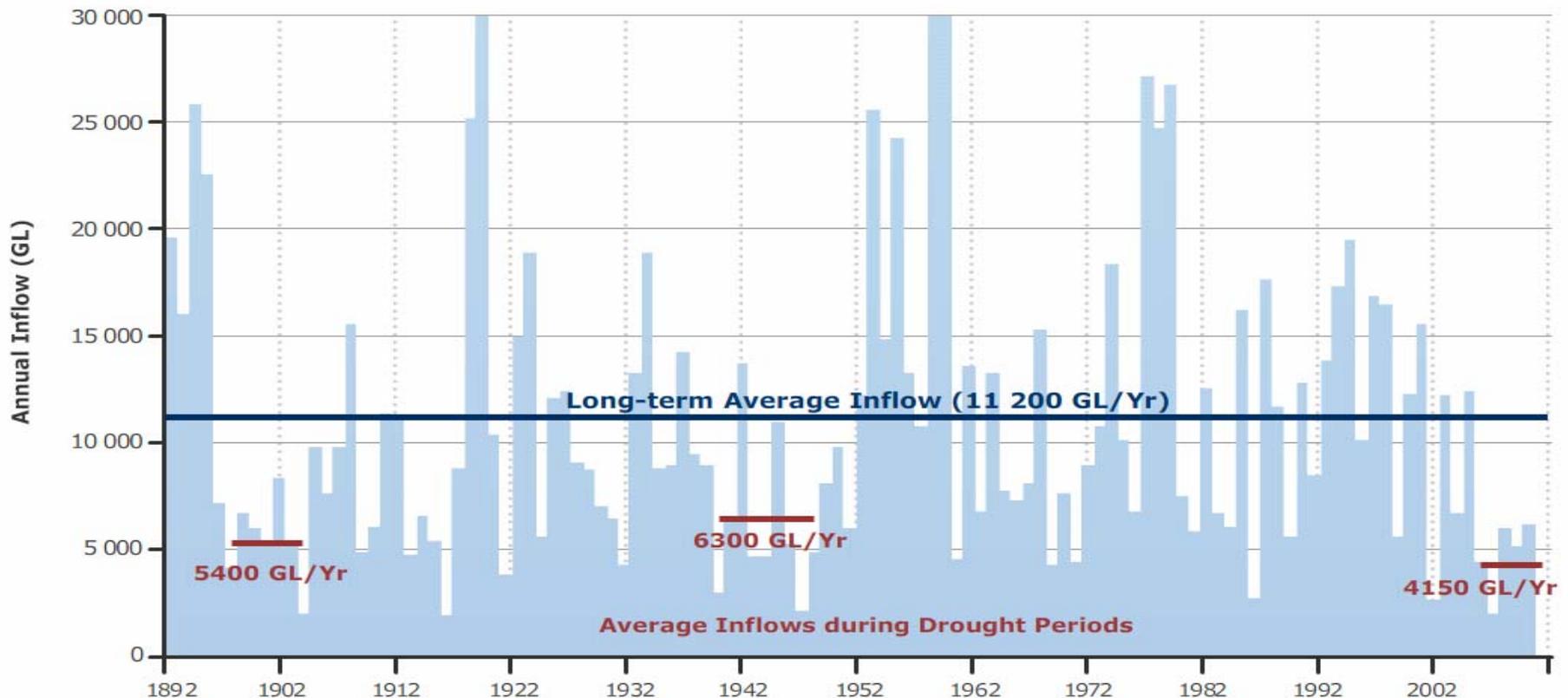
1911–1974 (338 GL)

1975–1996 (177 GL)

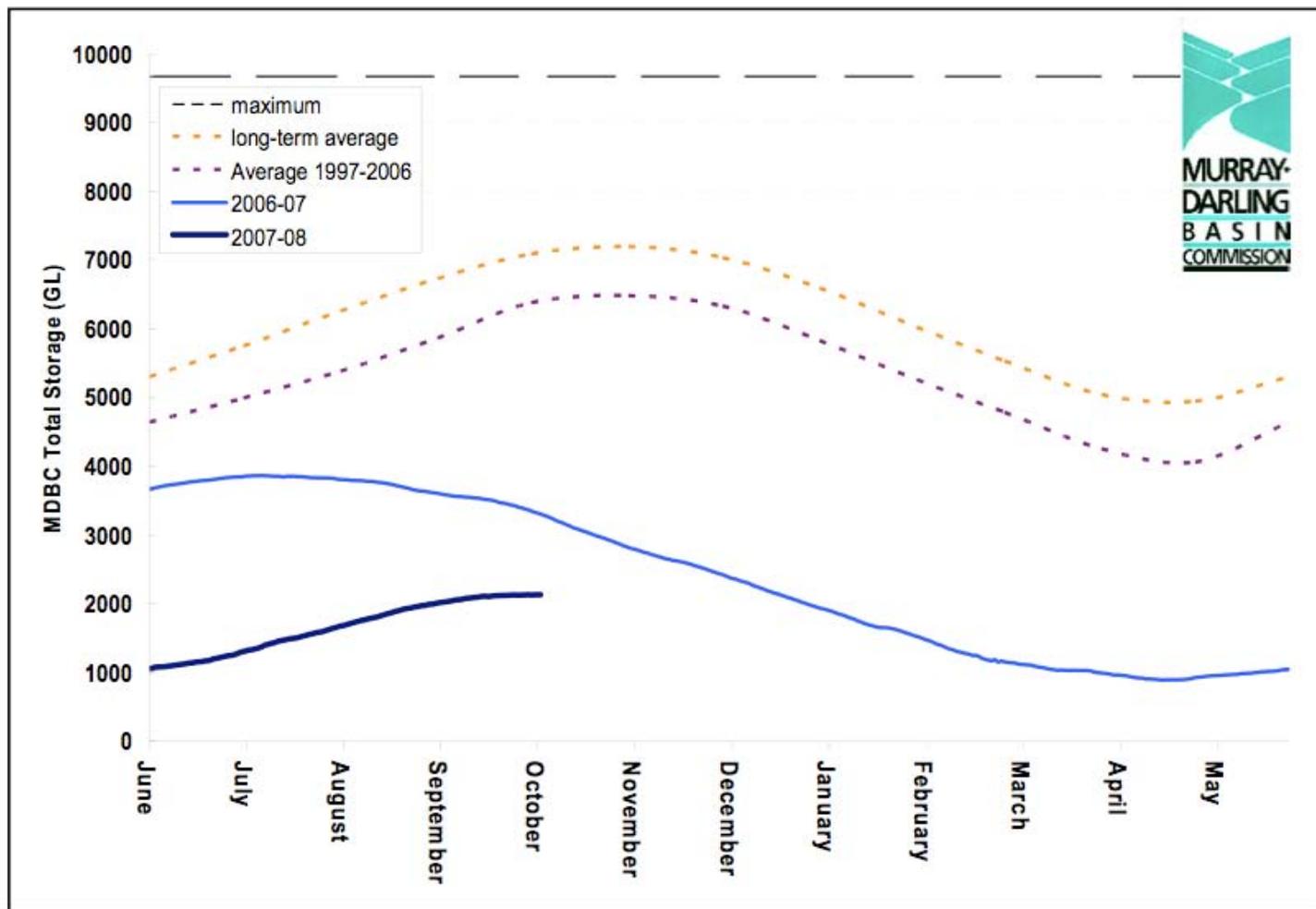
1997–2004 (115 GL)

Historic sequence of MDB system inflows.

Modelled Annual Inflows - current conditions

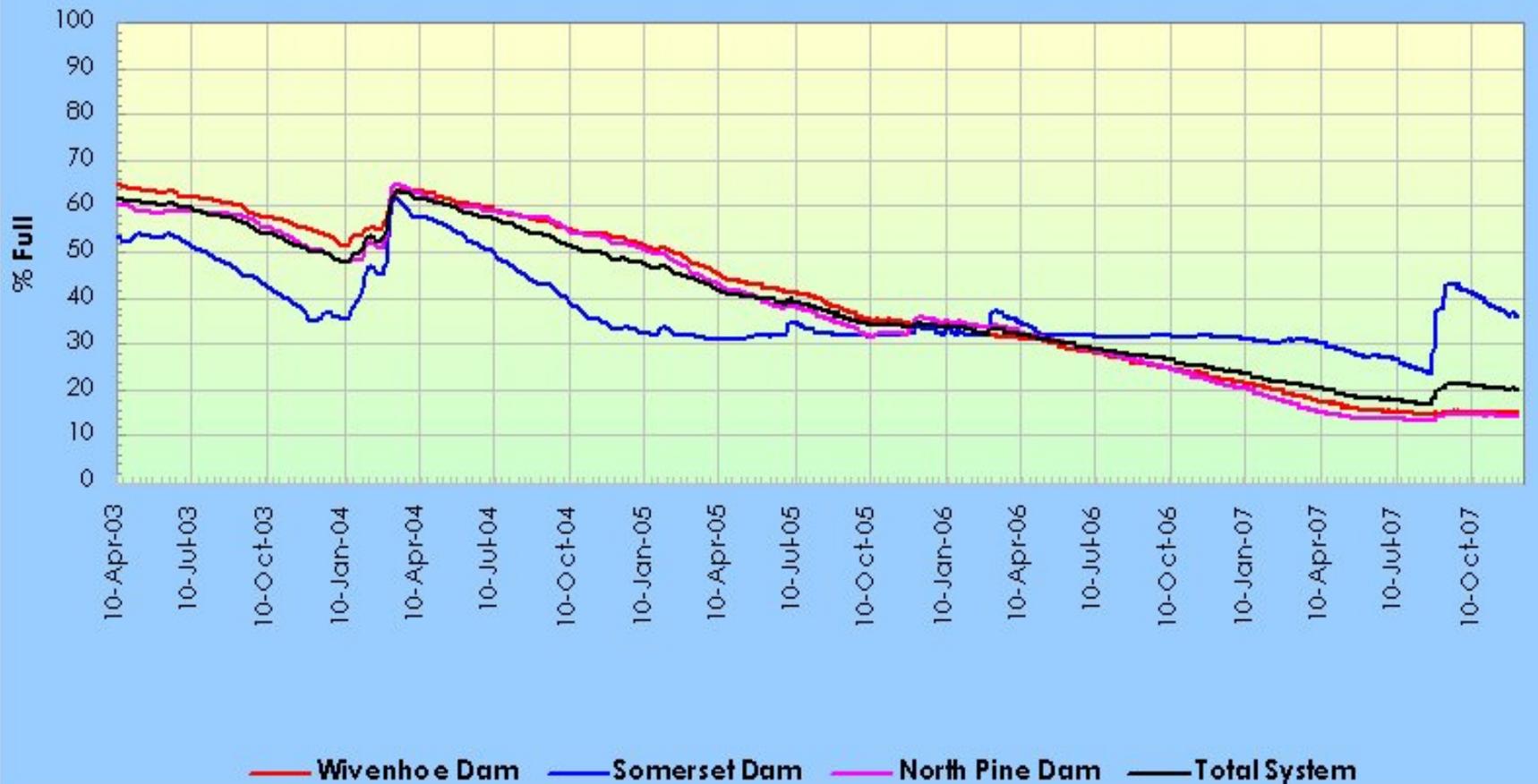


Water storage volumes in the MDB system.

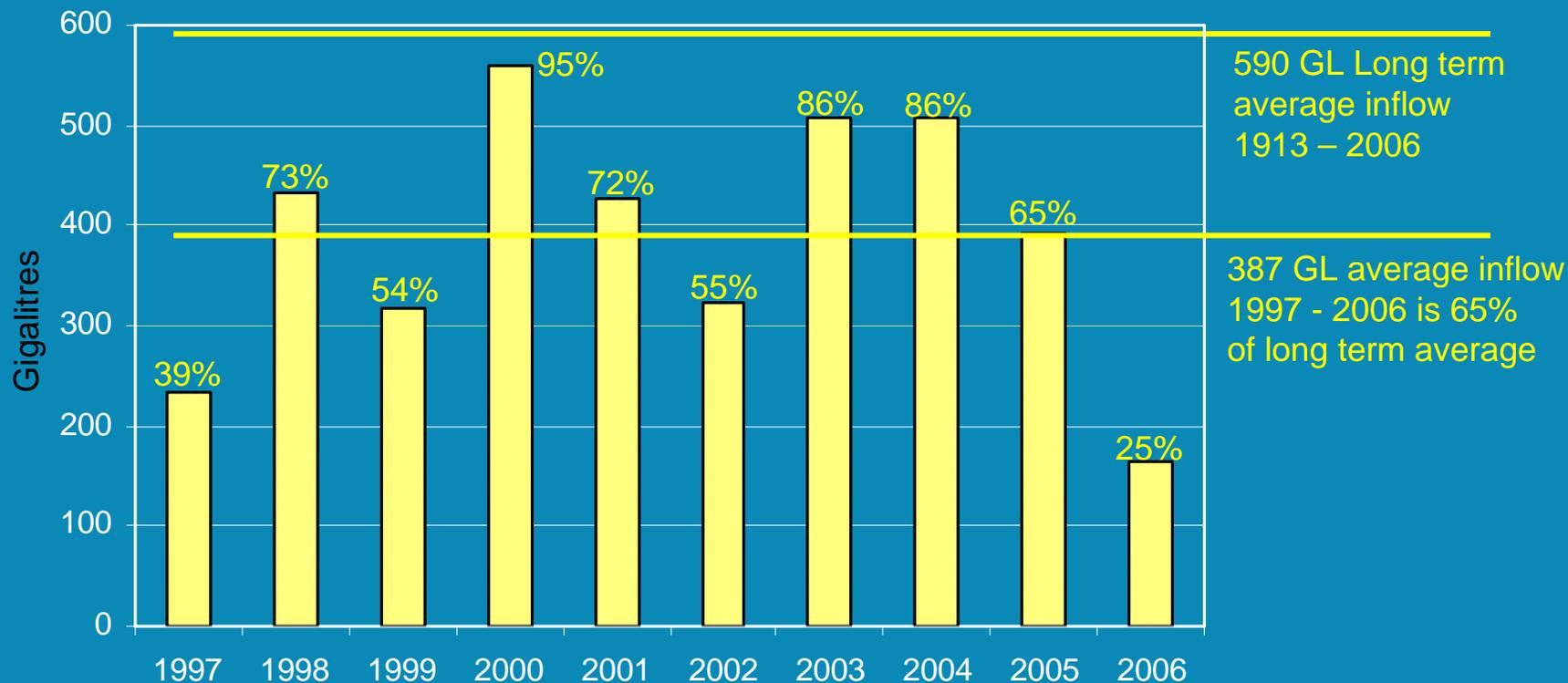


SEQ WATER

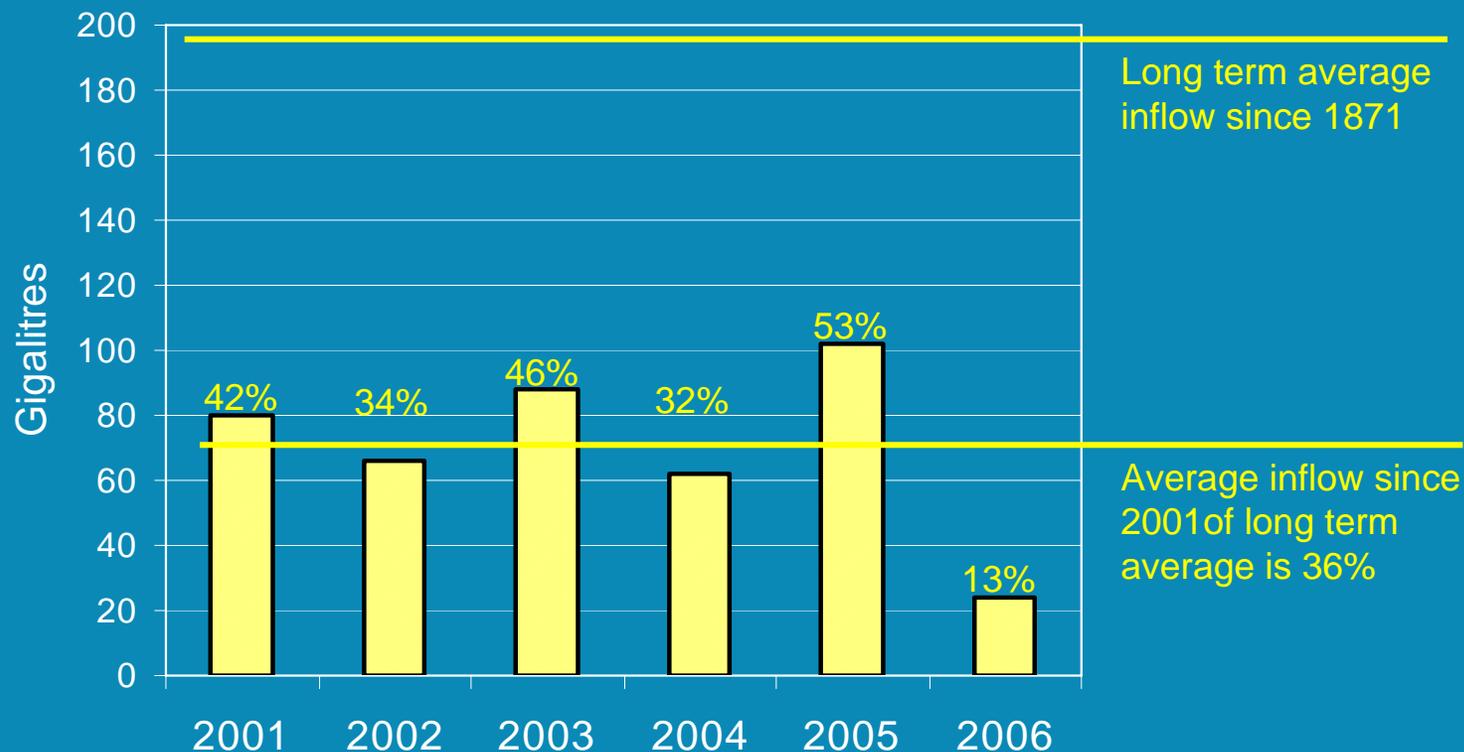
Wivenhoe, Somerset and North Pine Dams



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)

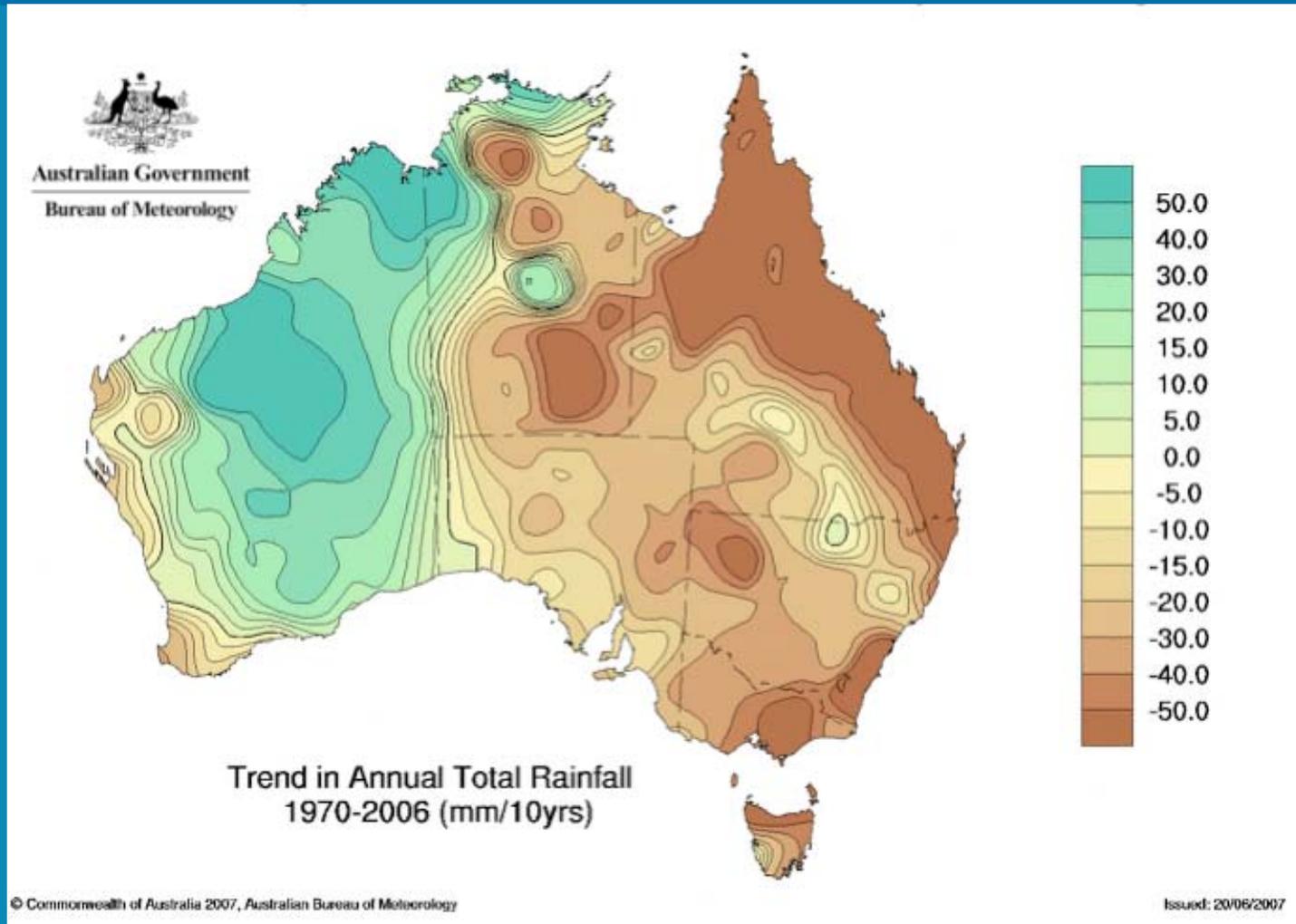
Current elements of the national water plan

- 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