

Institutions for River Basin Management in Australia

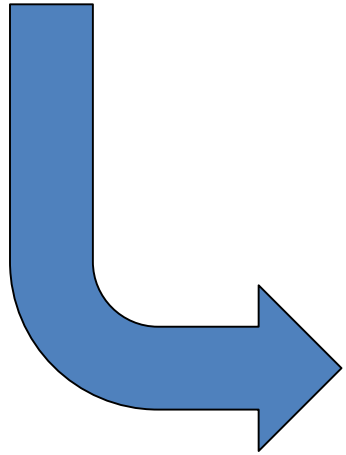
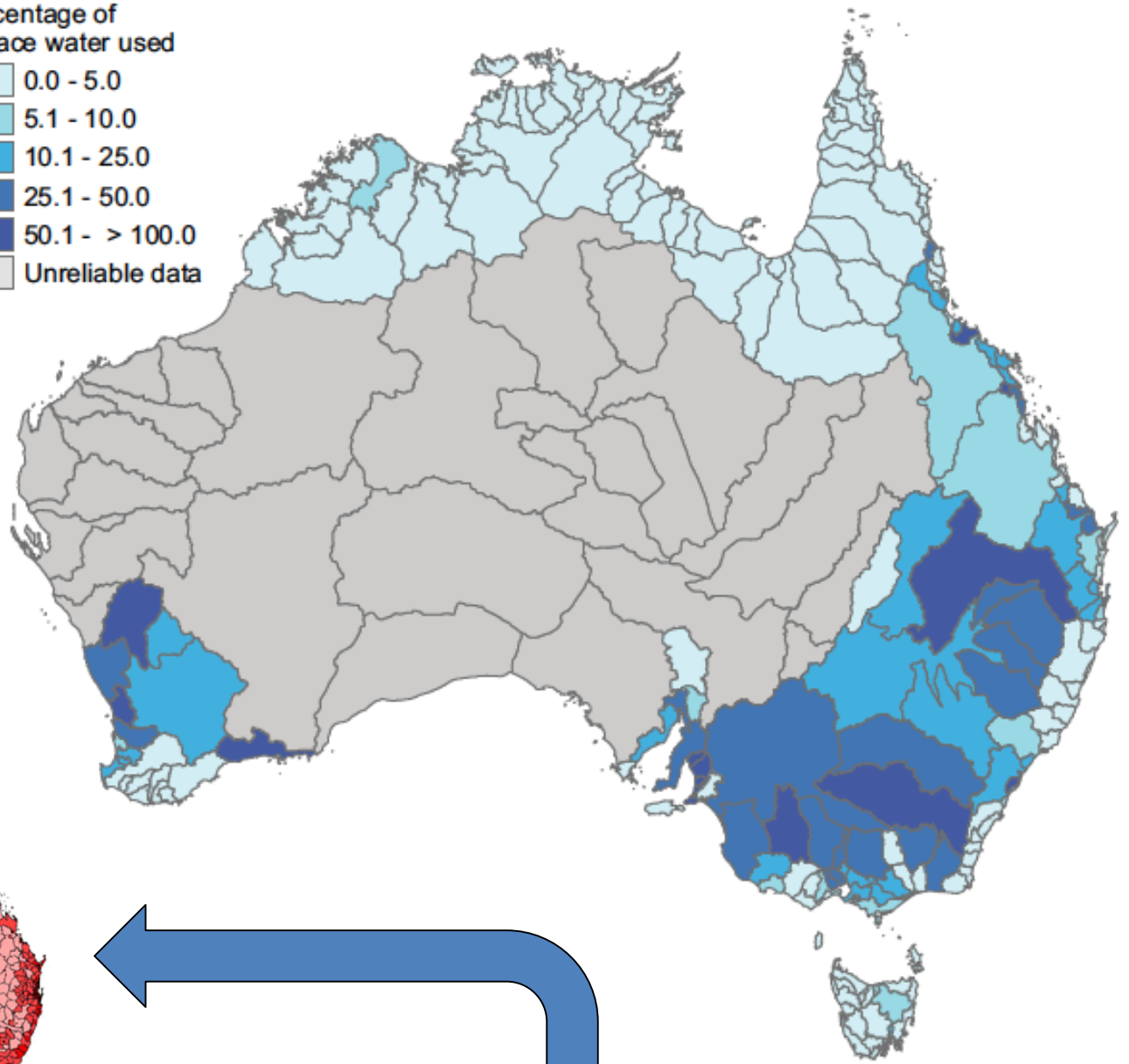
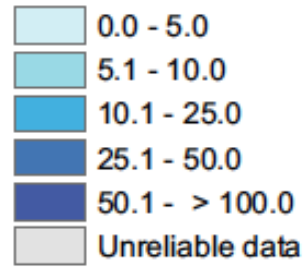
Bill Young

Lead Water Resources Management Specialist

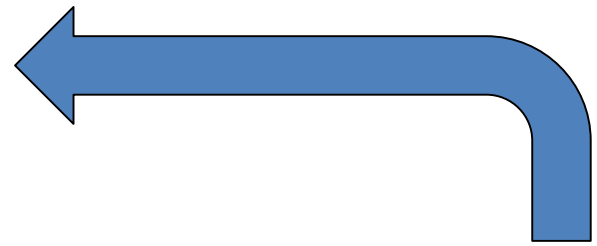
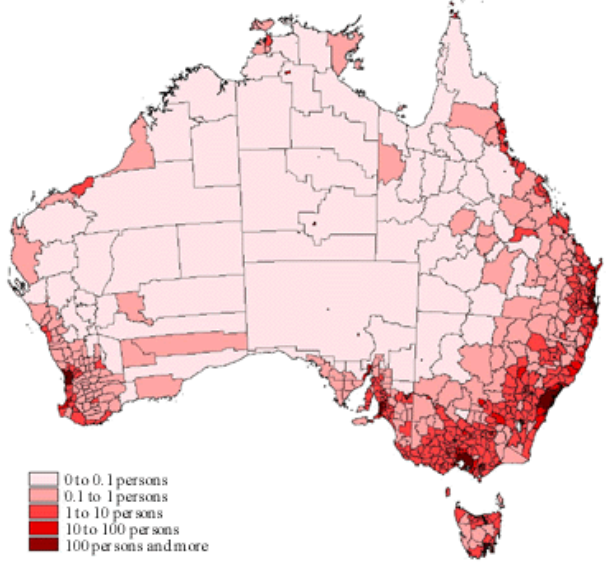
World Bank, New Delhi

Water use

Percentage of surface water used



Population Density 1996 : Persons/Kilometre Squared by SLA



Population



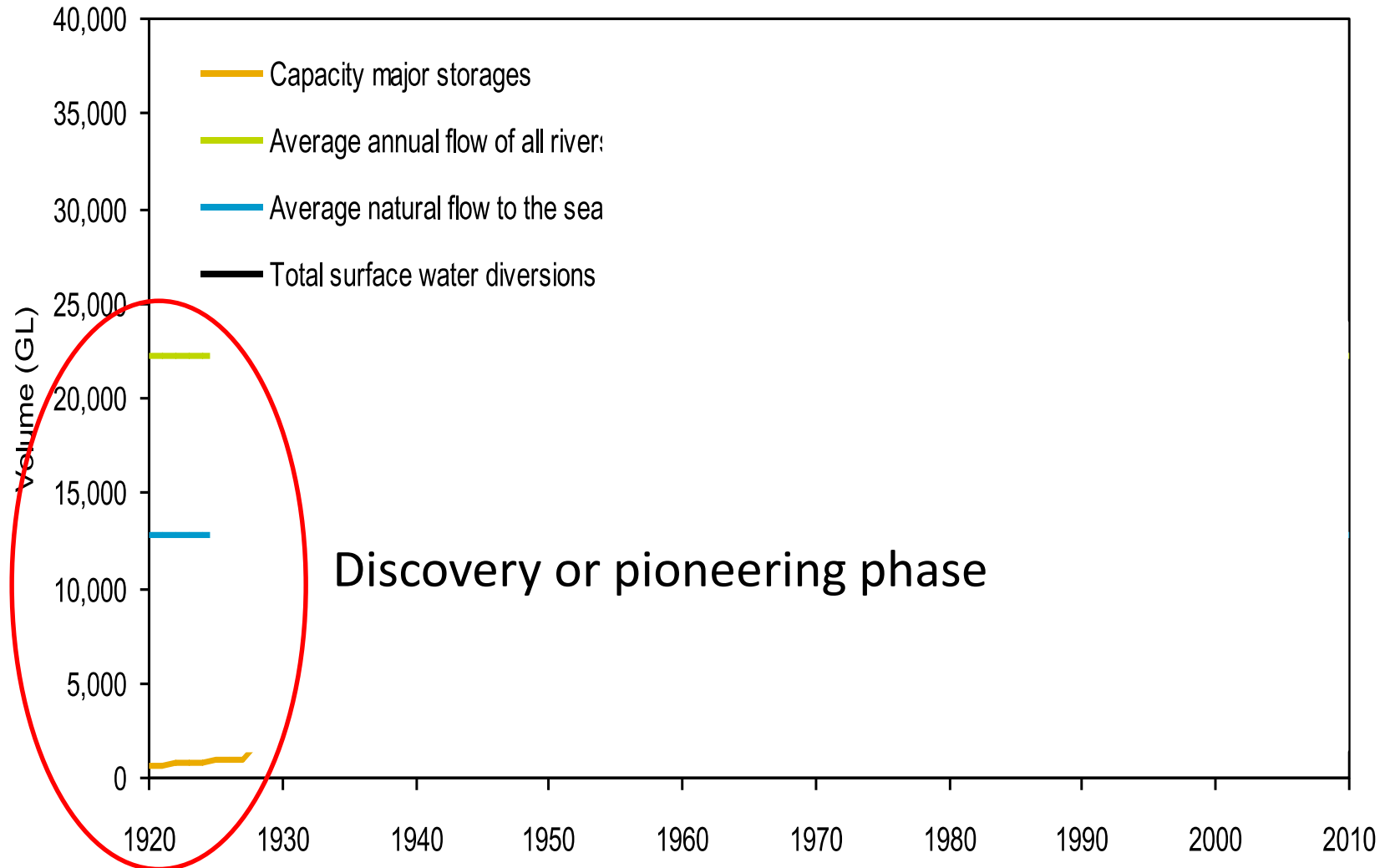
Source: CSIRO 2008 Supermodeling the Murray-Darling



A vast and diverse basin



Fit for Purpose RBM Institutions



Establishing Institutions for RBM

- 1863 – first conference on the Murray
 - Focus on navigation for inland transport
- Around Federation (1901):
 - Federation drought 1895-1902
 - 1898 – Constitutional Convention, *We ought to give the federal parliament, which we propose to call into existence; the power - when it deems fit, to legislate on this question in order to remove this fertile source of conflict and friction between the colonies* – SA Premier
 - 1902 – Corowa conference – genesis of River Murray Waters Agreement
- 1915 – Agreement signed by governments of NSW, Victoria, South Australia and the Commonwealth
- 1917 – Formation of the River Murray Commission



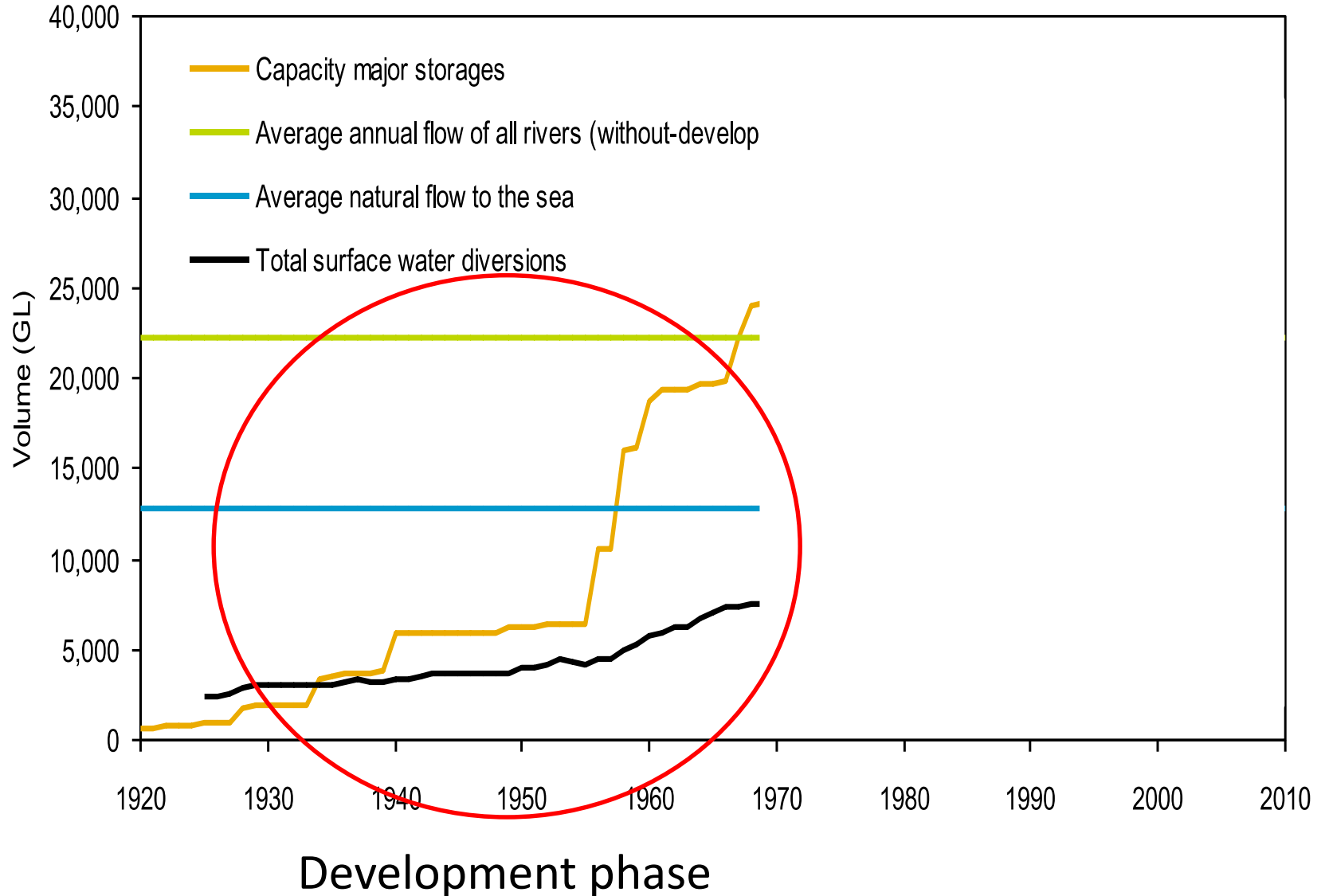
Views of the lower river at low flow prior to lock, weirs and dams

River Murray Waters Agreement

- NSW & Vic: equal share of flow at Albury
- NSW & Vic retain control of their tribs below Albury
- NSW & Vic supply SA with a guaranteed minimum flow
- (Plus investment in many new storage/regulators)



Fit for Purpose RBM Institutions

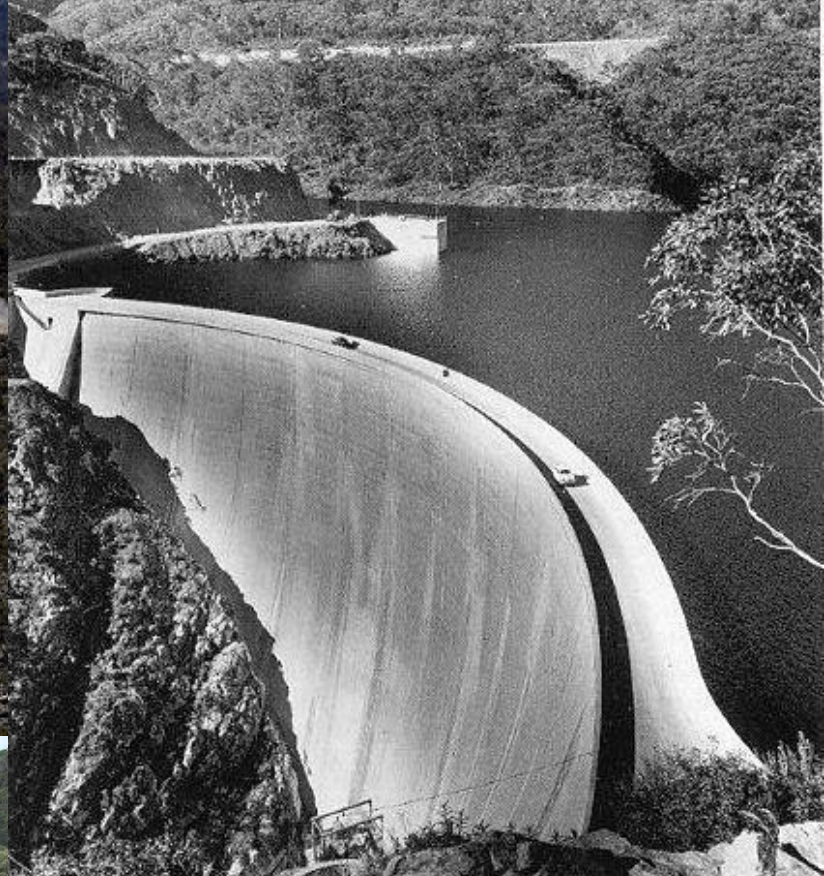


Development Phase – stable institutions

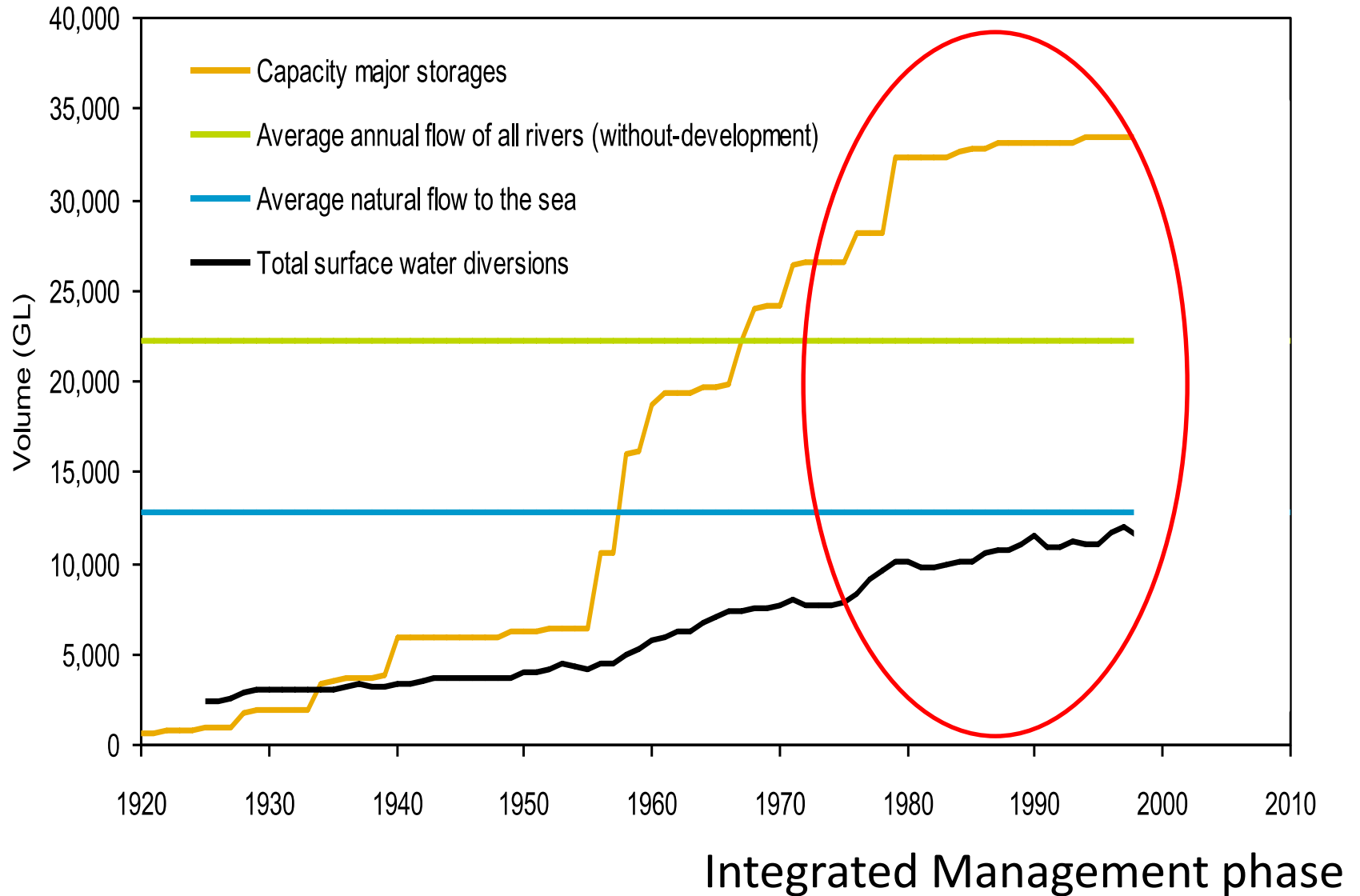
- 1920s – 1940s
 - Construction of locks and weirs for navigation
 - Hume Dam for irrigation and flood control
 - Barrages constructed at the Lower Lakes near the Murray Mouth
- 1940s & 1950s
 - Post-WWII soldier settlements, govt support for irrig development
 - Nation-building era of large dams using post-WWII immigrants
 - 1956 – biggest flood on record; demands for more storage
- 1960s
 - Development of Snowy Mountains Scheme
 - HEP & irrigation supply, several major dams and power stations



River boat
transport;
construction of
locks; early
Commissioners
meeting



Fit for Purpose RBM Institutions



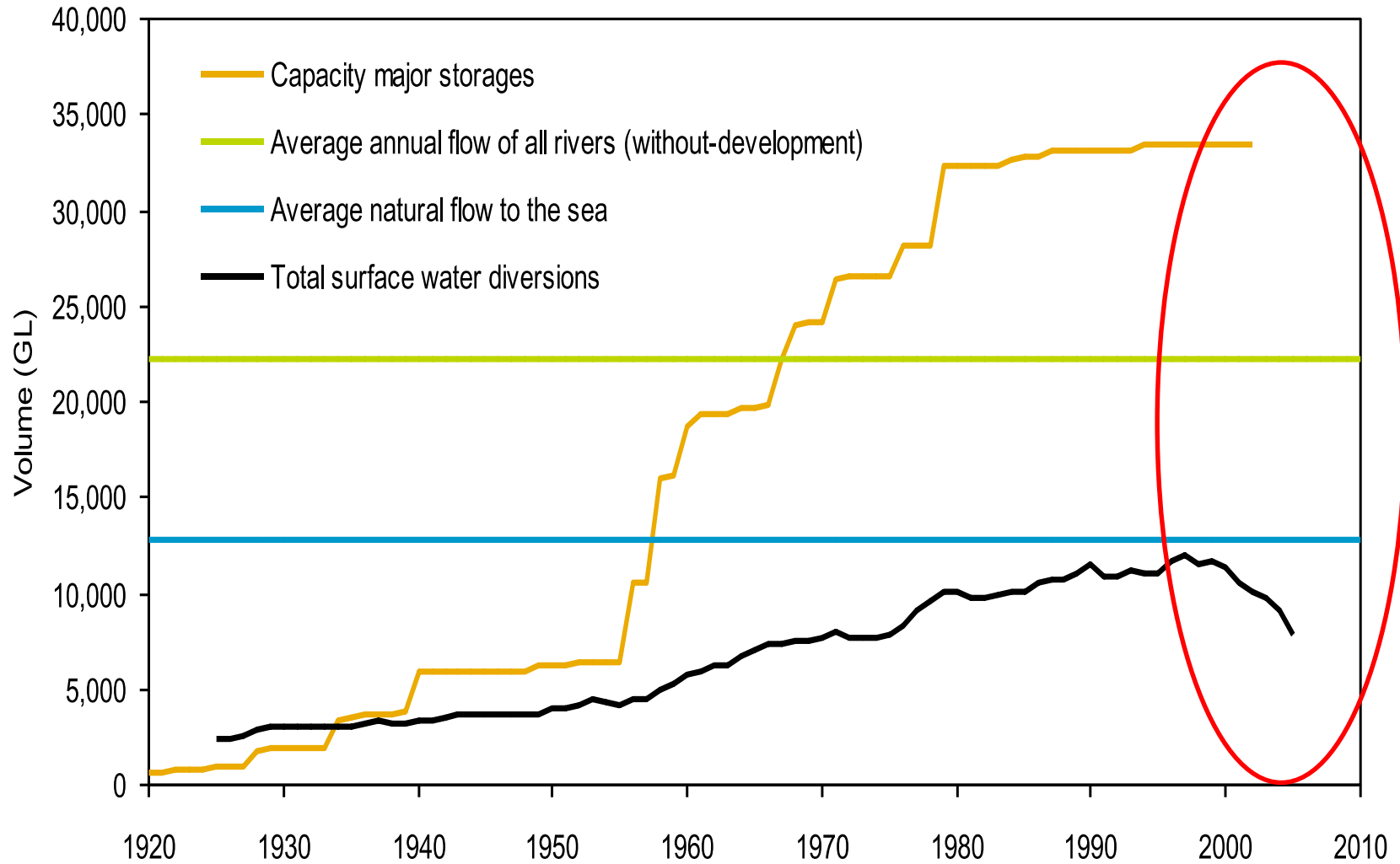
Establishing Integrated Management

- 1980s
 - First environment concerns spark major investigations
 - Water trade begins in South Australia and NSW
 - Murray-Darling Basin Ministerial Council established
 - Decision-making forum of water/environment ministers of Commonwealth and each basin state/territory
 - Produced major environmental resources study (1987)... leading to
 - MDB Agreement & Murray-Darling Basin Commission
 - Community Advisory Committee established
 - 2-way communication channel between the Council and the community
 - Salinity and Drainage Strategy launched
- 1993 Murray-Darling Basin Act
 - ratified by the five Basin governments through identical legislation enacted by each Parliament

MDBC Mission

Through the Government-community partnership, to foster joint action to achieve the sustainable use of water, land and other environmental resources of the Basin for the national benefit of present and future generations, and to maintain responsible, efficient and cost-effective delivery services of water of agreed quality from the River Murray

Fit for Purpose RBM Institutions



Degradation-driven reforms

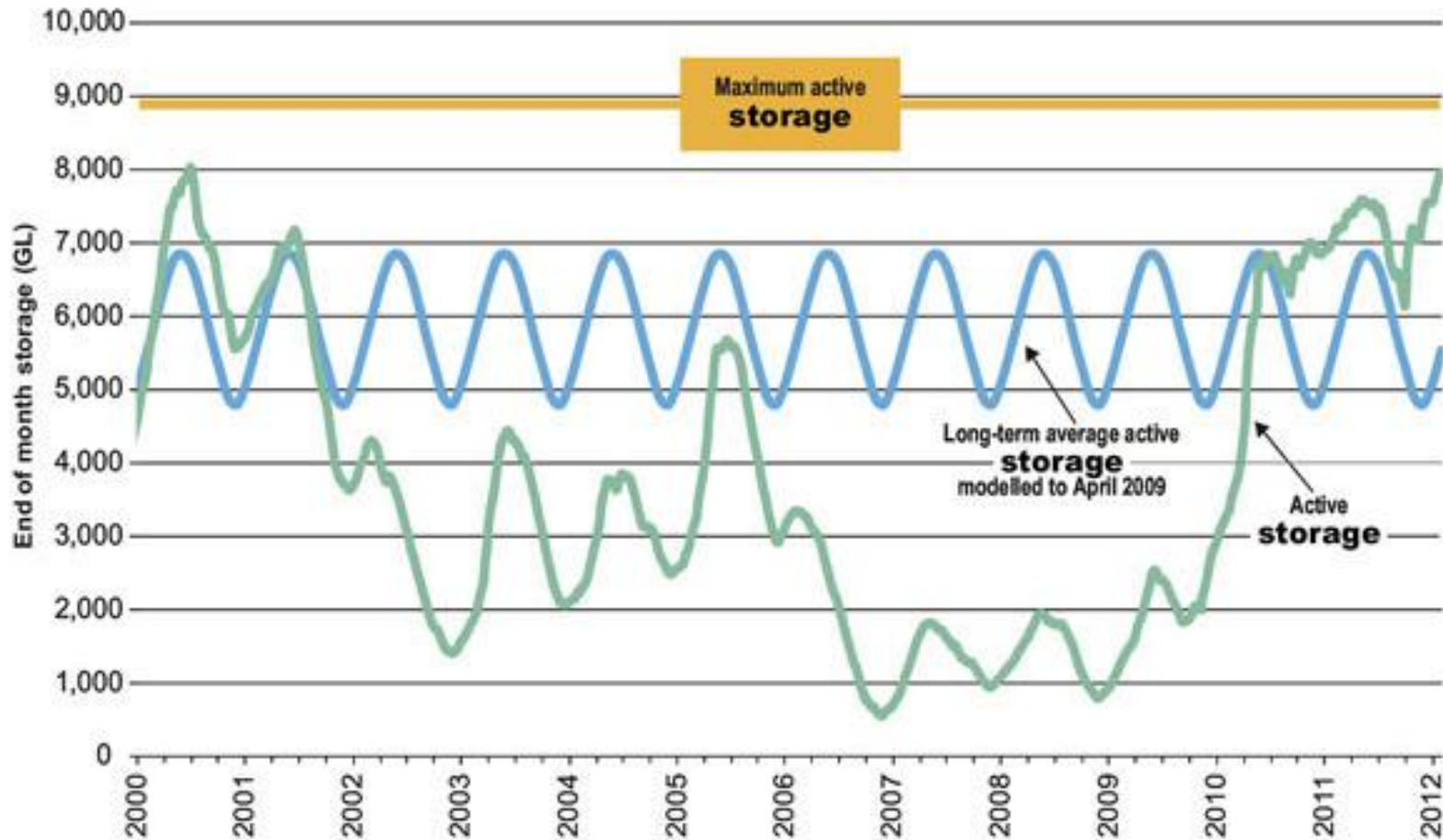
Signs of Stress & Economic Reform

- 1990s
 - 1000 km long algal bloom on the Darling River
 - Water Reform Framework agreed by Council of Australian Governments
 - To establish efficient & sustainable water industry, and arrest widespread natural resource degradation
 - Pricing, investment in rural water schemes, entitlement specification and trading, formal environmental water allocations, institutional reforms, public consultation
 - Surface water diversions “capped”
 - Inter-state water trading begins
- 2000s
 - increasing environmental concerns, drought condition emerging
 - Dredging to keep the Murray Mouth open
 - National Water Initiative commences
 - agreement between governments for a cohesive national approach to water management, measurement, planning, pricing and trading
 - establishes National Water Commission to guide, audit & report on implementation
 - The Living Murray Initiative
 - Consultation process based on robust scenario modelling and analysis
 - First Step decision by Ministerial Council to recover 0.5 BCM of water from irrigation and return to the environment
 - A decade of drought – lowest inflows on record

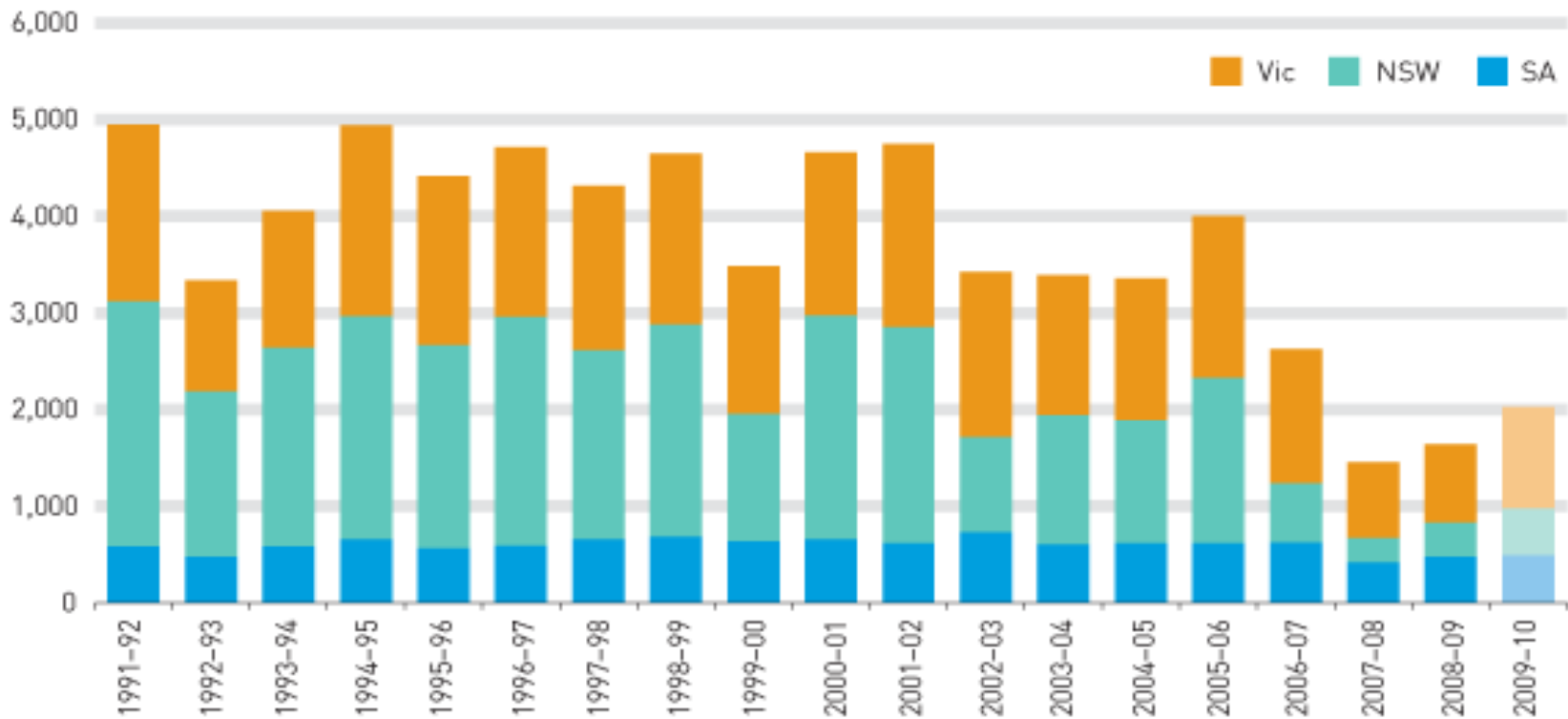


Closure of the river mouth; dredging continues for ten years at \$10M/year

Basin storage volumes in drought



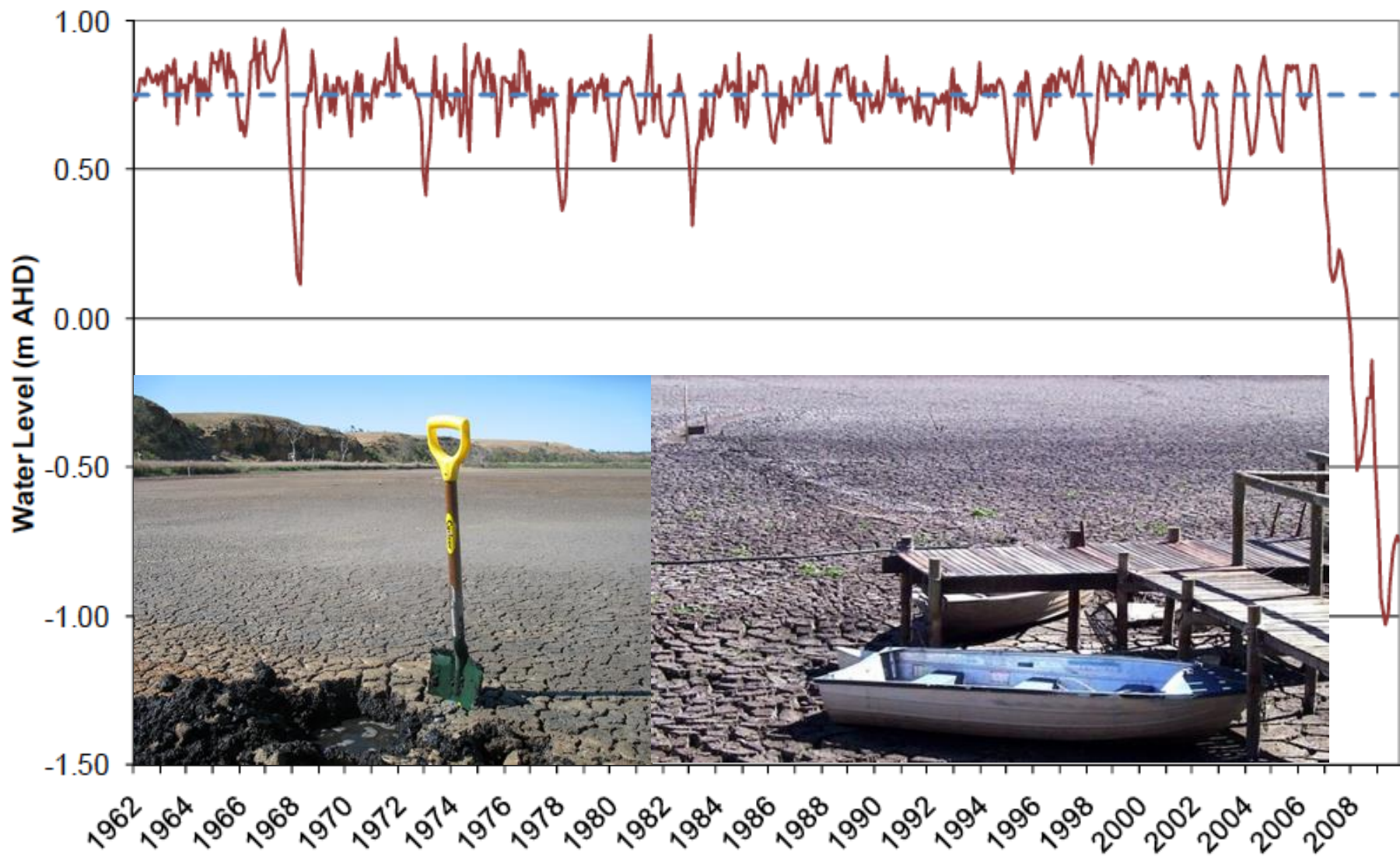
Diversions by state 1991-2010





River red gums
die along 100s
of kilometers
of the River
Murray

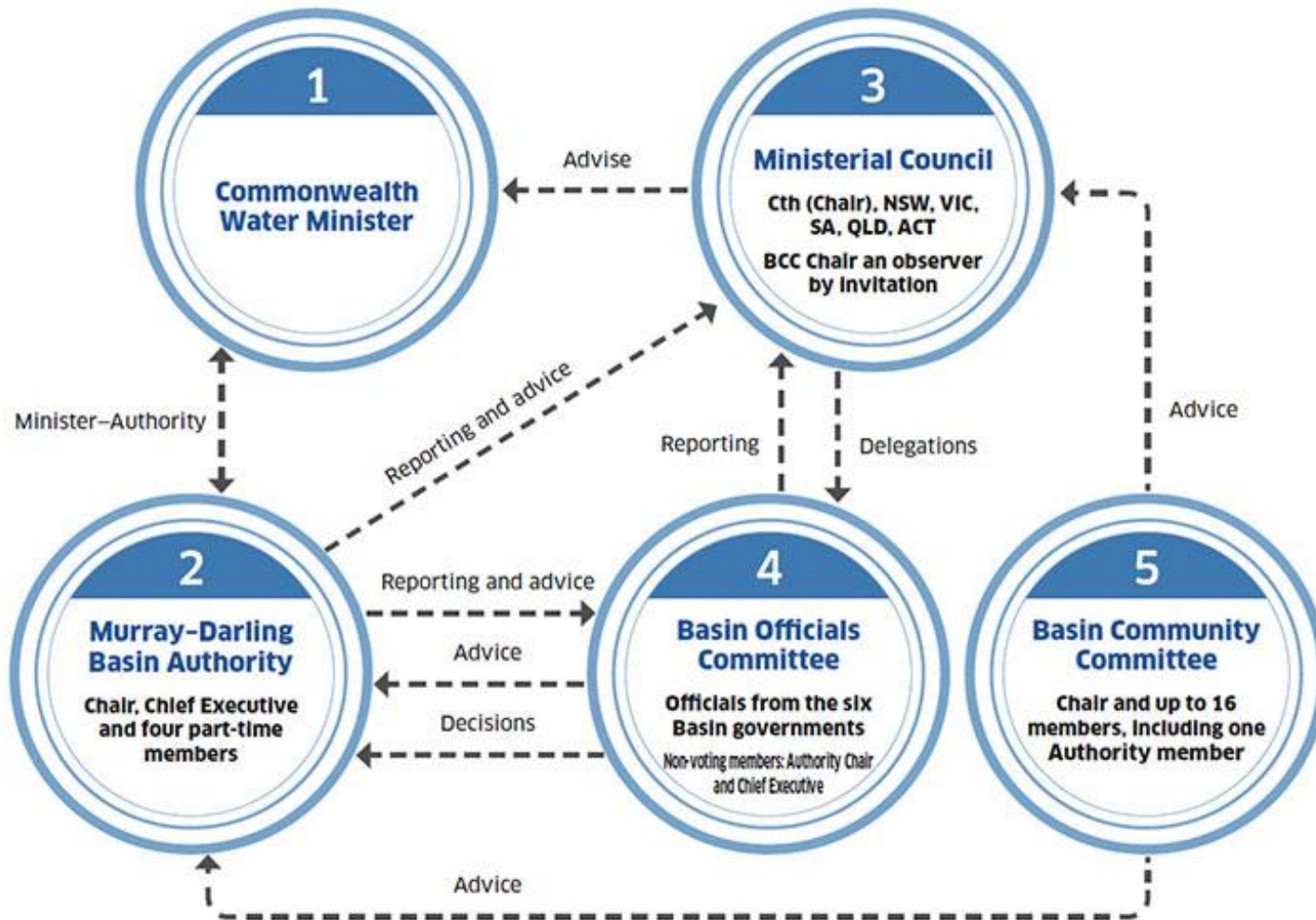




Responding to Crisis

- 2007 National Plan for Water Security
 - \$10B commitment from the Commonwealth government
 - ~\$6B for infrastructure; ~\$3B to buy water entitlements for the env
 - \$400M for improved water data and information
- 2007 *Water Act* (Commonwealth)
 - Focus on sustainable water use
 - Established new Commonwealth body – Murray Darling Basin Authority to prepare a “Basin Plan”
 - Established statutory role – Commonwealth Environmental Water Holder
 - New powers and responsibilities for the Bureau of Meteorology
- 2009 Melbourne Cup day crisis summit
 - Prime Minister and MDB state premiers
 - CSIRO requested to undertake basin-wide assessment of water yields and climate change impacts (\$12M)
- 2010 Guide to the Proposed Basin Plan
- 2012 Basin Plan becomes law

Governance of the Murray-Darling Basin Authority



CORE FUNCTIONS

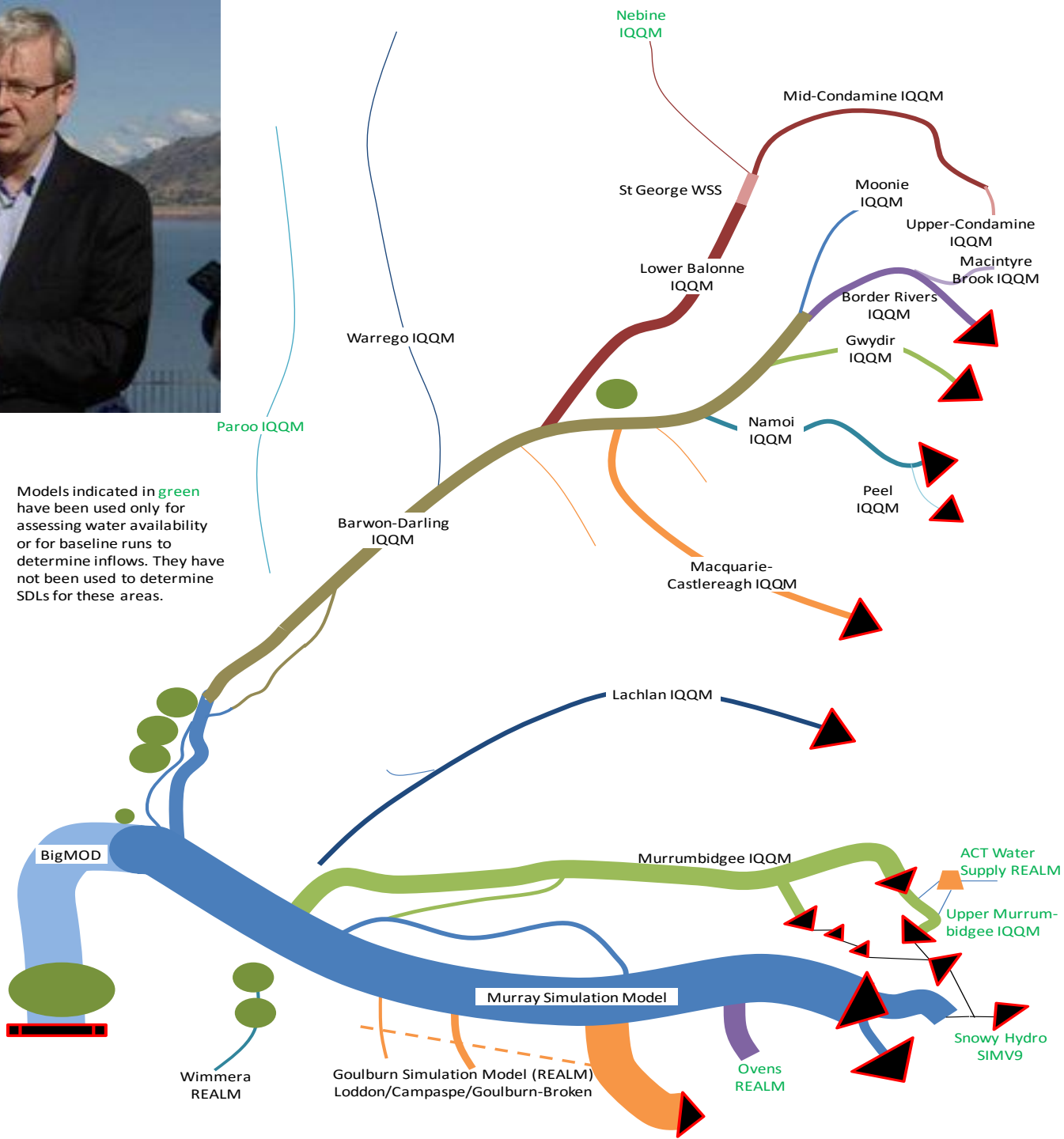
- 1** The decision maker on the Basin Plan and chairs Ministerial Council.
- 2** Responsible for implementing and monitoring the Basin Plan.

Planning and management of Basin water resources in collaboration with partner governments and the community.

Manages the River Murray system on behalf of joint Governments.
- 3** Policy and decision making roles on state water shares and funding of joint programs.
- 4** Makes decisions consistent with the delegations from the Ministerial Council.
- 5** Provides advice to the Authority and Ministerial Council on Basin community issues.



CSIRO develops first hydrologic model for entire MDB; final report launched by Prime Minister on Hume Dam

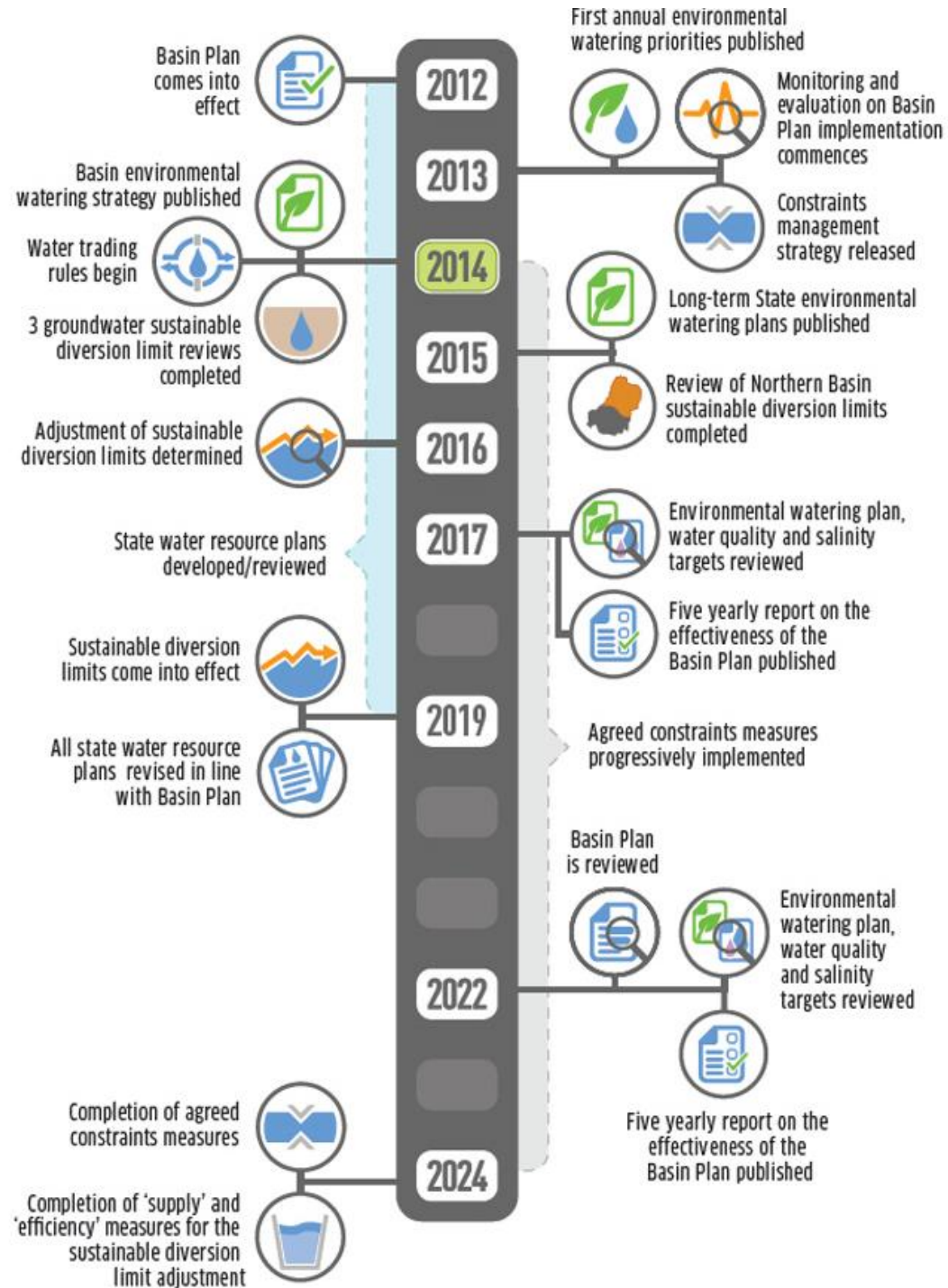
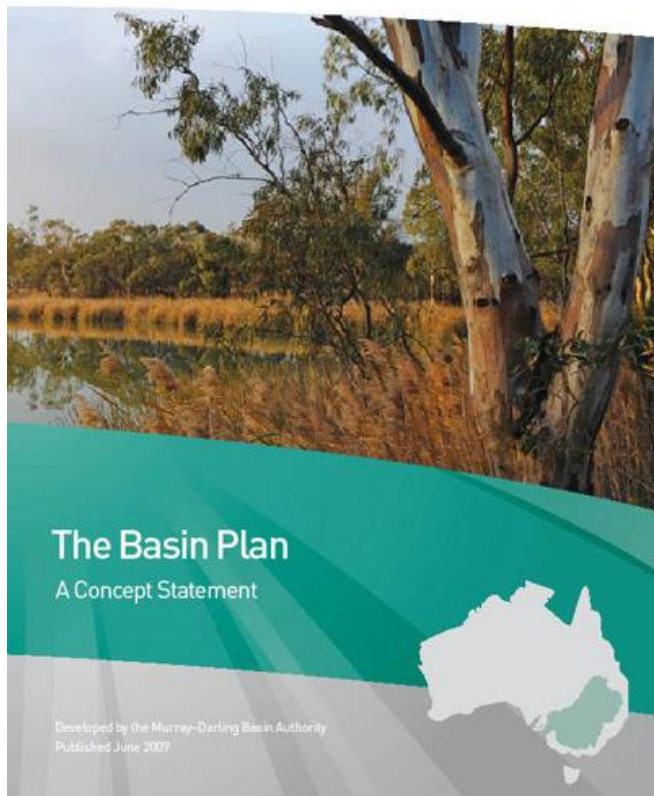




Angry protests;
constant media and political attention



Roadmap for Basin Plan implementation



Water Information..

The Role of AWRIS in Water Information

Australian Water Resources Information System (AWRIS)

Data supplied by over 200 organisations

Receive and store data centrally

Quality check and standardise data

Organise data within the Geofabric

Analyse, interpret and integrate data

High quality water information

Data

Reports

Forecasts

Improved water management

Key Messages

- Water resources management is a journey; there are principles but there is no universal formula
- Legislation and policy are critical “enablers”
- The right governance and institutions make things happen
- Investment in infrastructure is important but not a panacea
- Crises, together with strong political leadership, drive action

- Most critical in democratic regimes is ensuring:
 - An open and consultative process between governments, communities and industry
 - Underpinned by evidence (data and information) that is fully transparent and available to all stakeholders

An Afterthought

- MDB GVIP ~\$5 B/yr
- MDBA
 - Annual expenditure ~\$200m
 - State contributions ~\$100m
 - Managing ~\$3 B in water infrastructure assets
 - ~300 full time staff
- 25:1, irrigation value : management investment
- Course correction investment ~\$10 B
- Ganges Basin
 - Estimated value of irrigation \$50 B
 - (25x the water, 10x the value)
 - Do we invest \$2 B per year on BAU water management?
 - Rs 12,000 Crore per year