

Australia – water partners for development

HELPING to MANAGE WATER SCARCITY in the INDO-PACIFIC

Australia's Water Reforms and how they helped build Resilience to Water Scarcity

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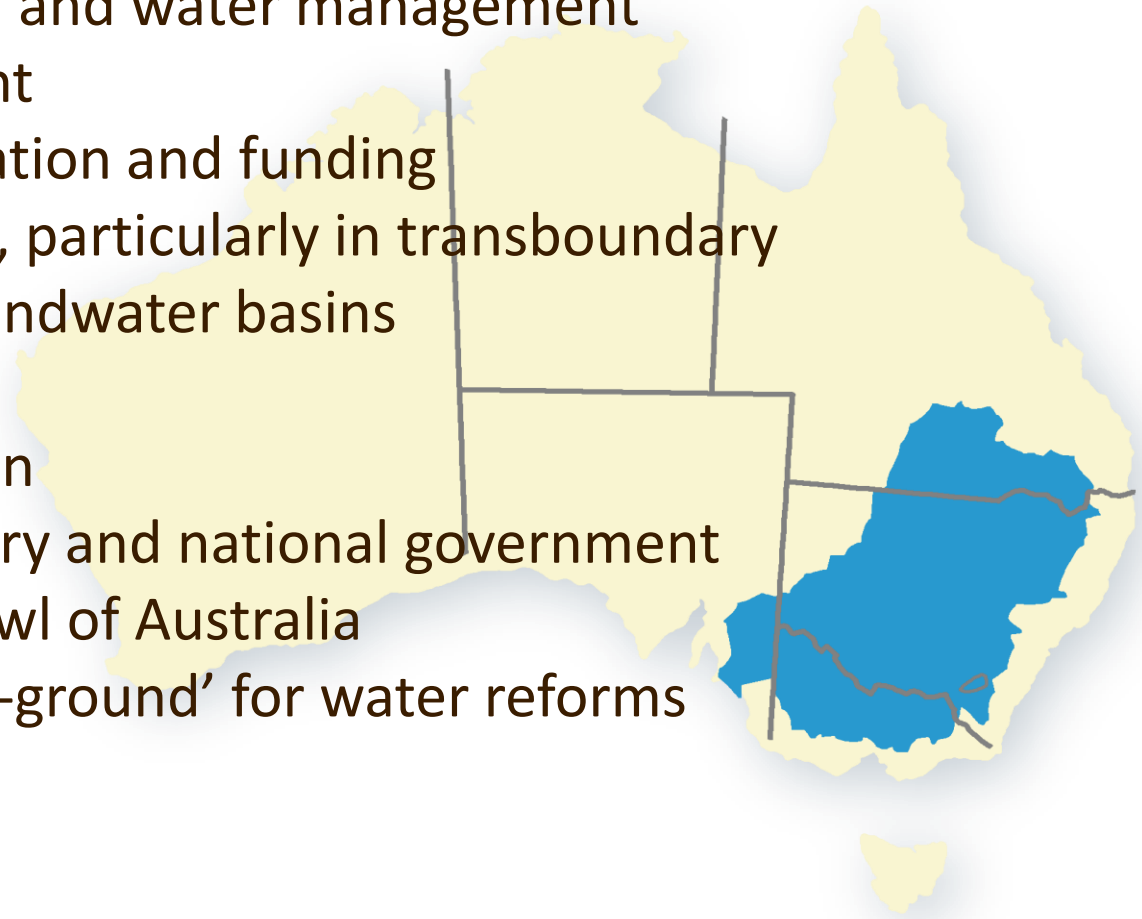
THE
AUSTRALIAN
WATER
PARTNERSHIP

Image by Dave Kan
Sunshine Coast, Queensland
Australia

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History of Water Management in Australia

- Australia - Federation of 6 states and 2 territories
- States - control land and water management
- National Government
 - oversight, facilitation and funding
 - national interest, particularly in transboundary surface and groundwater basins
- Murray-Darling Basin
 - 4 states, 1 territory and national government
 - Irrigated food bowl of Australia
 - the main 'testing-ground' for water reforms



MDB spans four Australian states and one territory

Area = 1.1 million sq.km
Discharge = 24 km³/year



1915 River Murray Waters Agreement



From 1880's to 1980's – ***Build and Supply*** Phase

- Storage c.1900 - 240 GL to 84,800 GL by 2005

Economic and social success

- \$6.7 billion annual irrigated agricultural production
- Australia's major food-bowl
- Many rural cities and towns built around irrigation farming and services
- But, by 1980's the MDB system was in steep environmental decline – water use levels were unsustainable



Land clearing and poor irrigation practices causing salinity



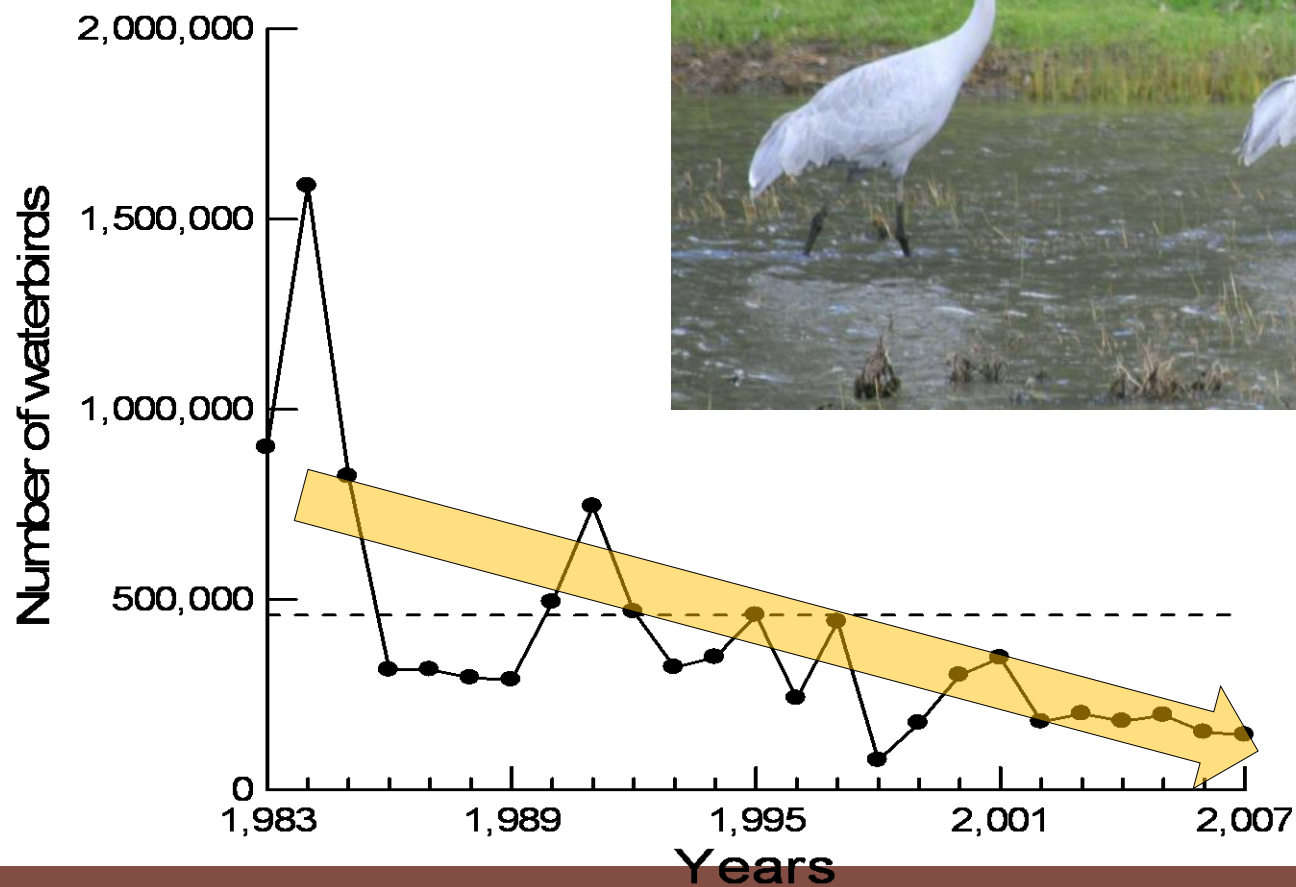
River mouth sedimentation and closure



Toxic algal blooms
caused by prolonged
low flows

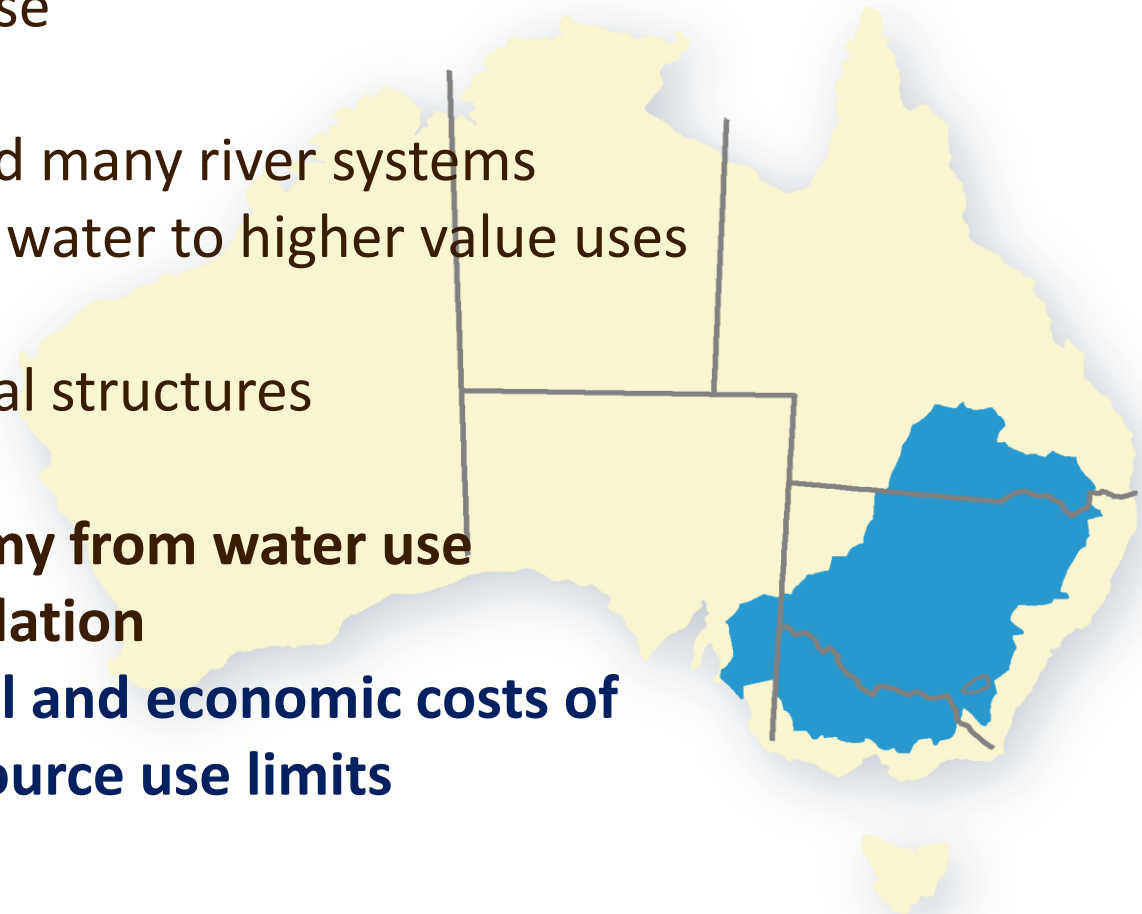


Loss of native waterbirds, fish and vegetation



Development decades – 1880's to 1980's

- Didn't know who was entitled to what water
 - Unmeasured water use
 - Inefficient water use
 - Fully or over-allocated many river systems
 - Difficulties in moving water to higher value uses
 - Poor pricing policy
 - Inefficient institutional structures
- **Poor return to economy from water use**
- **Environmental degradation**
- **Environmental, social and economic costs of exceeding water resource use limits**



Ackn: Prof. Jane Doolan

Water Reform from the 1980's (1)

- Caps on water use – use to match sustainable yield
- Clear, secure water entitlements created for all users, most notably for irrigation farmers
- Functioning water markets (ability to redistribute water use for higher economic return)
- Integrated water sharing plans in all catchment
- Cost-reflective pricing (irrigation and urban)
- Increased water use efficiency

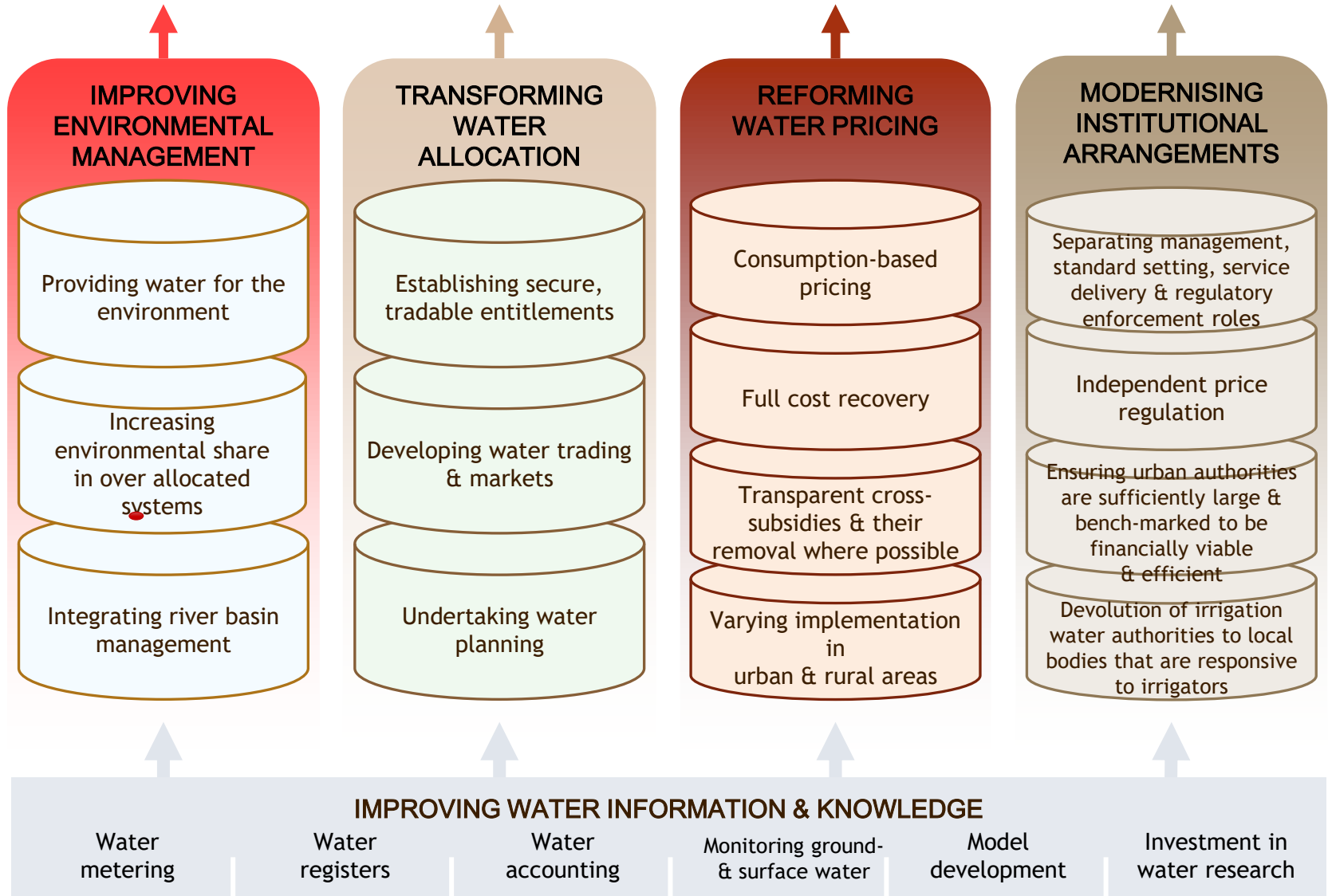
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Water Reforms from the 1980's (2)

- Very significant modernisation of irrigation systems
 - Both technical and institutional
- Government institutions realigned and strengthened to enable and implement IWRM change
 - Separation of service delivery, policy and regulation
- Rebalancing human and environmental use of water
- Improved information base - monitoring, metering and water accounting
- Monitoring and reporting of policy implementation: ensuring plans and agencies held accountable

Objectives -

Increase productivity & efficiency of Australia's water use
Ensure the health of river and groundwater systems

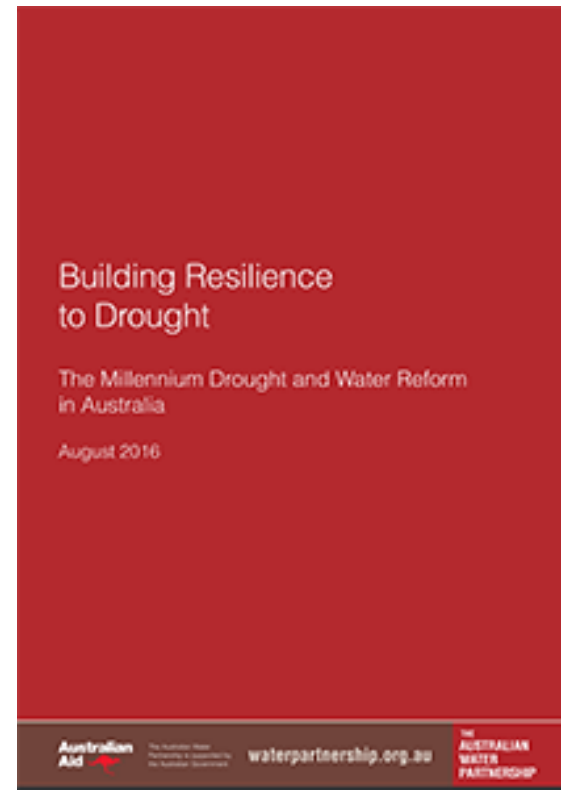


COMMUNITY & STAKEHOLDER INPUTS

Water reforms in summary

- Moved from an approach that treated water as an abundant natural resource, merely to be captured, distributed and drained, to an approach that
- Recognised water as a **scarce economic good**, to be allocated and used wisely for the economic and social benefit of all, while protecting fragile aquatic ecosystem
- Focused on both **demand and supply management**, balanced engineering, policy, planning, regulatory and legal tools for reforms
- We recognised that a country **cannot build** its way to water security and climate resilience

Download at: www.waterpartnership.org.au



Lead author: Professor Jane Doolan, former head of water in Victoria and Murray-Darling Basin Commissioner

Thank You

30 Years On – Reform Progress

Robust statutory water entitlement and planning in place in most states

Water plans in place for all high risk areas

- >80% of water managed under plans
- Caps in place, entitlements allocated, env, water provisions, extensive community involvement

Mature MDB water market

- In 12/13, water market turnover - \$1.4B
- In 2015, value of all entitlements in southern MDB - \$6.9B
- Key to management in drought
- Used by irrigators, water authorities, governments, environment
- Markets elsewhere but less mature

Environment

- Legal provisions for water for the environment
- Slow progress on over-committed systems except in MDB
- Environmental Water Holders in place

30 Years On – Reform Progress (2)

Residential water consumption reduced – on average, 179kL per property pa

Cities have a more diverse range of water sources

Progress in water pricing

- Full cost recovery in metropolitan systems
 - Some include some externalities
 - Dividends to government
- Full cost recovery in most urban systems
- Progress in rural but significant way to go

Economic regulation of water price in all jurisdictions

Good information – water accounting and water register

Reforms are inter-related – progress in one drives improvements in others

Lessons

Water Reform is a long term social transformation

- Affects people, livelihoods, communities, environments, regional economies

Moving forward only possible through achieving broadly agreed outcomes that are politically achievable

So

- Water reform takes time - an evolution occurring in steps
 - Water markets in MDB
- Need stakeholder and community involvement at every step
- Can't do everything at once

Needs

- Long term road map
- Leadership in all sectors

Reforms tested in Millennium Drought

South-east Australia

1997 to 2009: Longest, most severe on record

- equivalent to 'worst case' 2050 climate change scenario
- Outside the 'design bounds' of dam and river ops and entitlement systems
- 2006-07, worst year on record
- 'blow-torch' on reforms

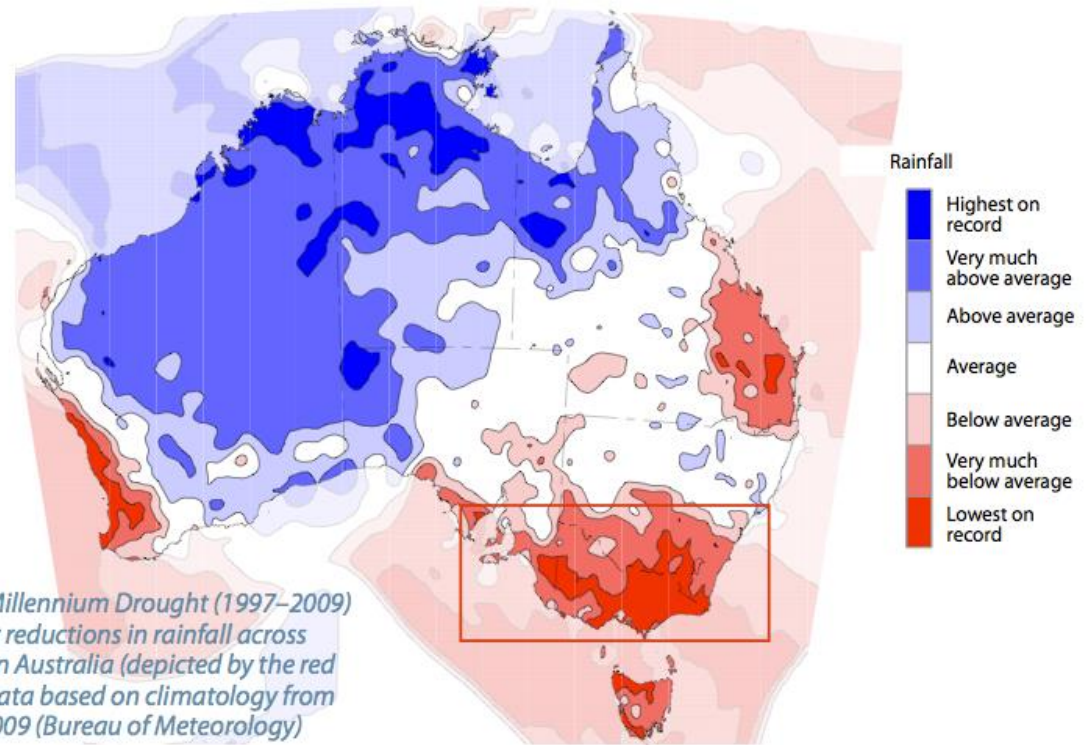


Figure 1. The Millennium Drought (1997-2009) saw major reductions in rainfall across south-eastern Australia (depicted by the red rectangle). Data based on climatology from 1900 to 2009 (Bureau of Meteorology)

Policy response

Build on National Water reforms

Principles

- Must work under drier/variable future climate
- Improve efficiency and promote conservation
- Facilitate water markets
- Enable Entitlement holders manage risk

National Government Initiative to reset MDB

- Establish a new SDL
- ~\$13B to implement

Urban management

Demand management

- through restrictions and significant water conservation programs
 - Per capita water usage down 43 %
 - In 2011/12, average residential use in Melbourne: 149 L per person per day

Alternative, new diverse sources

- Recycled water, stormwater
- Groundwater
- Trading
- Pipelines and interconnectors
- Desalination (highly controversial)
- Paid for through water pricing (for the most part)
 - Prices doubled in Melbourne over 5 years

Agricultural irrigation

Market was critical

- Utilisation increased
 - >30% water allocated each year sold since 2007
- Water went to highest value use
 - Support high value horticulture
- Production became more efficient
- More irrigators survived

	Water applied (estimate, GL)		Revenue* (\$m, real)	
2005-06	7,370 (6.0 MAF)	53 % 	5,522	21 %
2008-09	3,492 (2.9 MAF)		4,349	

* Gross value of irrigated agricultural production in MDB

Agricultural irrigation



Significant Government investment in

- modernising irrigation systems
 - 70% to 85% efficient
- modernising irrigation farms

to

- Reduce vulnerability to water scarcity
- Save water for environment

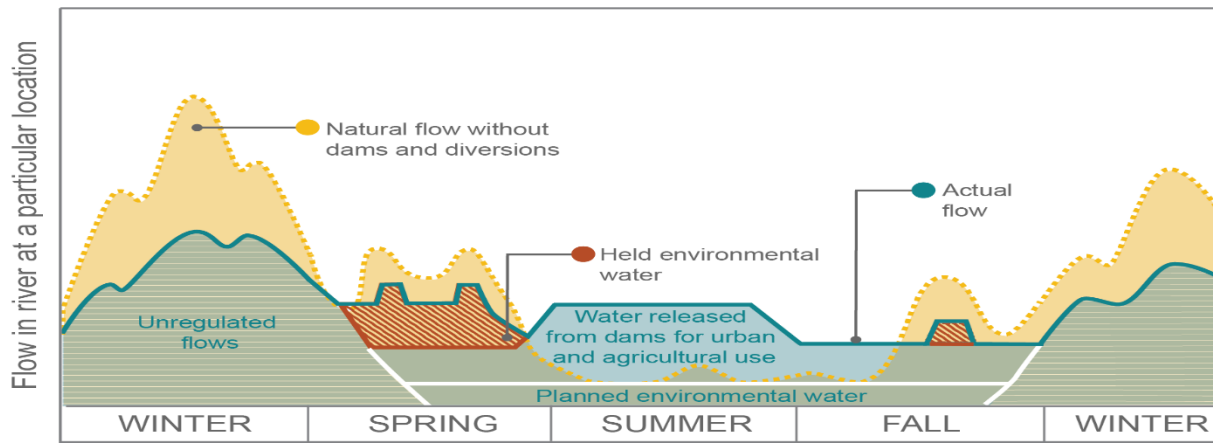


Environmental management

- More effective use for environmental water
- More efficient use of environmental water
 - Works, complementary use of consumptive water
- Water market – sell, buy
- \$13B MDB Reset



Timing of environmental flow releases



Experience in the Drought

- National reform directions robust
- Water market critical
- Efficiency in all sectors

And

- Drought Planning in all sectors
- Scenario-based planning in all sectors
- Good communication with communities and stakeholders

Reduces vulnerability and impact

Objectives

Increase productivity & efficiency of Australia's water use
Ensure the health of river and groundwater systems

Water reform in Australia has been successful but still work to be done

- Early water reform provided level of drought resilience
 - Market
 - Pricing
 - Improved environmental management
 - Actions taken through the drought
 - Built on reform and extended to provide capacity to deal with extreme dry
 - Built drought resilience in all sectors
 - Next challenges
 - Climate change
 - Population growth in urban areas
 - Role of water in liveable cities
 - Greater efficiency and production
 - Maintaining environmental sustainability
- Social transformation
 - evolutionary and opportunistic
 - Processes of participatory decision-making, community and stakeholder input