



THE AUSTRALIAN NATIONAL UNIVERSITY

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The institutional response to climate change in the Murray-Darling Basin

Drought Past and Future

- Comparative project – southern Aust, South Africa, south-west USA, Spain/Portugal, China
- Similar variable climates
different cultural-institutional responses
- Responses to drought in the past will shape preparation for climate change
- Major theme – cross border IWRM within federal systems

Murray Darling Basin - Colorado

- Somewhat similar river systems
- Very different governance frameworks
- Similar negative results

Murray-Darling Basin



- Geographical-climatic
- Low energy system
- Quantity v quality issues (role of catchment)
- Levels of development – wild to highly modified
- Different state management systems
- Types of irrigation
- Range of interests
- Cross border interactions
- Six jurisdictions - an election every 12 months

Current conditions

The south of the MDB was in severe drought from 1997 to 2006 and the catchment run-off in the southernmost parts of the MDB was the lowest on record. This event would occur once in more than 300 years without climate change. Such conditions will become increasingly common. The drought conditions in the south of the MDB have worsened in 2007 and 2008.

CSIRO Sustainable Yields Project 2008.

Future

Context - 24,000 GL p.a. inflows, 11-12000 pa extractions
(now only occasional flows to the sea)

Emerging issues - climate change, farm dams, forest plantations, bio-replantings, reduced leakage etc

Predicted reduction

2500 -5000 GL p.a. next 20 years

4500 – 9000 GL p.a. next 40 years

(CSIRO 2006 study re future threats to inflows)

Complexity of water issues

- Difficult temporal/spatial scales
- Limits
- Irreversibility
- Urgency,
- Connectivity / complexity
- Uncertainty
- Accumulation
- Moral/ethical dimensions
- Novelty

(Stephen Dovers)



National water debate participants Murray-Darling Basin

- Irrigation, industry, urban centres - consumers
- International organizations (Ramsar, treaties, Agenda 21 etc)
- Commonwealth - State governments (and local Govt)
- Public media – newspapers, television, radio etc
- Education systems
- Regional CMAs and water management agencies (GMW, MI, CIT)
- Universities, CSIRO, R & D corporations, Wentworth Group etc
- Consultants in various manifestations (corporate memory)
- Agribusinesses, AFF, VFF, Banks, Woolworths, Coles etc
- Indigenous and Environment groups
- The courts
- The public at many levels - powerful but intermittent



MDB Credit Card

- Shared by six antagonistic users
- Cardholders report only some purchases
 - not required to report others
- No full statements re accumulating debt
- No credit limit short of bankruptcy (lower lakes)

19th-20th Centuries water management

- Water controlled by govts
- Aim was creation of communities and expansion (not restraint)
- Creative responses to variability (in conflict with demands for certainty)
- Groundwater and surface water managed separately
- Compliance not an issue (apart from droughts)
- Many differences between regions even though they were administered by centralized agencies
- Poor documentation of the great variety of management systems-entitlements (tradable products not an aim)

Australian approach to water (an American view)

The Australians have clearly put their faith in the political process and in administrative discretion for the fair allocation of their scarce water resources rather than in any rules of law concerning property rights. They regard their governments as the suppliers of basic services and as their agents to implement and enforce their philosophy that all persons should have equal social and economic status. They do not regard unfettered governmental discretion as a danger to individual liberties but the vehicle by which those liberties are enhanced. Unlike Americans who always regard government units differently as entities with a distinct and possible antagonistic interest, Australians regard them as an extension of their collective will... (P.N. Davis, 1971, Australian Irrigation and Administration pp1477/78)

Pre-federation

- Navigation v irrigation

Post Federation – 1960s

- Community development based on irrigation

1980s – 2000s

- Economic growth v/& environmental remediation
- Place of indigenous people in the MDB
- Markets

Now

- Sustainability/environmental-resource stability ????????

Major cultural shift

- The previous century old system was based on a close identification of interests between State govts and irrigation communities supported by the wider public. Major decisions were made by public service water administrators.
- *National Water Initiative 2004* - a rights and responsibilities system in which govts become arbitrators between a wide range of competing interests - to be introduced after environmental sustainability has been achieved.

NWI – many aims

- Reduce political disputes by protecting key environmental values and providing resource security
- Increase capacity to resolve cross-border disputes
- Protect established irrigation communities
- Meet international environmental obligations
- Manage climate change, bush fires, forest plantations, farm dams, consequences of improved irrigation efficiency etc
- Recognize and promote Indigenous interests
- Increase economic growth via water trading
- Promote best practice water management
- A cultural shift from agricultural mining to sustainable production

National Water Initiative

- Competing demands to be managed through water plans
- Systems approach is fundamental
(coordinated ground - surface water management is essential)
- Defining balance production-sustainability is key
 - Political process to first determine the acceptable level of modification
 - then use science to work out how much water is needed to maintain environmental sustainability-stability at that level
 - remainder is available for production.

Requirements for environmental stability are to be prioritized after the level of development-modification has been agreed



NWI Implementation

(pre Water Act 2007/8 – Basin Plan)

No government had yet implemented whole-of-system water planning based on the goal of 'environmental sustainability' to water management. In practice water management post-NWI had continued on pre-NWI assumptions albeit with a greater emphasis than in the past on the promotion of water trading in some circumstances and on projects designed to mitigate the worst effects of the ongoing decline in environmental conditions and resource security. Despite all govts agreeing to the NWI in 2004 the need to halt decline had not been accepted in practice. (Is society ready for it?)

Water Act 2007/8

- Nat Govt displaced the states and took control of high level planning (states are to implement sub-plans within the basin plan)
- Basin plan to be developed by 2011 (based on the requirement to achieve E sustainability-stability)
- Basin-wide environmental sub-plan
- Basin wide caps (surface and groundwater)
- More transparent and better information base (more science + independent auditing by national agencies)
- increased water trading across borders

Infrastructure and climate change

- Distribution of irrigation and infrastructure reflects the wet phase up to 1990s
- Federal Govt has committed \$5 billion (US) to infrastructure upgrades focused on climate change
- Irrigation communities fighting for protection against climate change NOT for rationalization to prepare the MDB from a whole-of-system perspective
- Major controversies
 - VIC north to south project
 - South Aust lower lakes

Environmental Water

Commonwealth Environmental Water Entitlements Holder

- \$2.5 billion (US) to buy water for environment
- Should purchases be from 'willing sellers' or by strategic repossession with compensation?
- Rules based water v entitlements based water
- Equity issues
stranded assets + people without entitlements to sell
- Strong public pressure for results
(hard because of long drought)

Summary

- Policy, legislation and management framework in place (compromises and transaction costs?)
- Shift from state govts to Nat Govt not yet implemented in practice
- Environmental water purchases and management and infrastructure renewal all highly contested
- Indigenous interests undefined
- MDB Basin Plan to be released in 2011
- MDB is part of wider debate re federal system