

Australian Experience with water trading

Prof. Mike Young

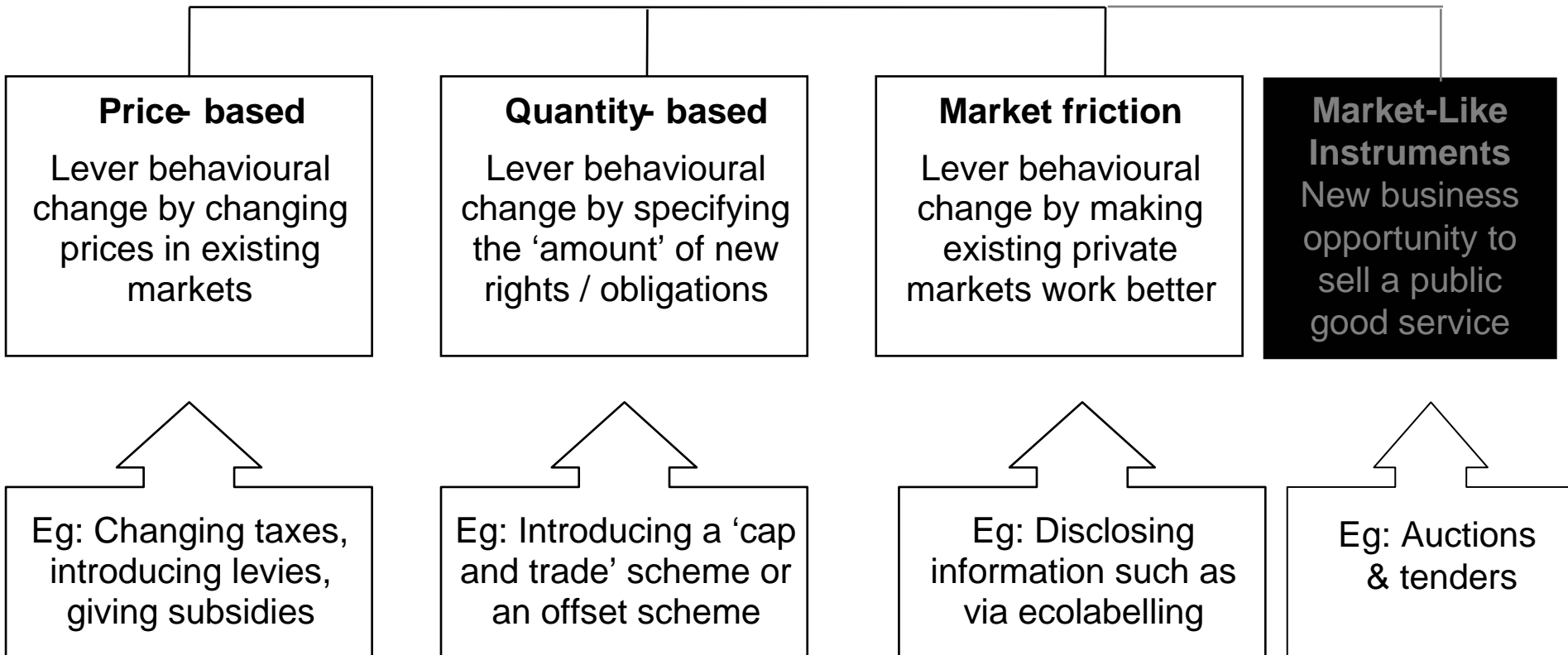
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Types of market instruments

MBIs

'encourage behaviour through market signals rather than through explicit directives'



History of water reform in Australia

- 1994** Introduction of an interim cap on diversions
- 1994** National Competition Policy introduced
- 1996** Within-state trading required
- 1998** A two year pilot interstate water trading trial commenced
- 2000** Interstate water trading expanded to cover entire Southern Connected River Murray
- 2001** Unbundling commenced in NSW
- 2002** Various proposals for the reduction of water use by as much as 1,500 GL to reduce extent of over-allocation
 - Commitment to 500 GL first step over the next five years
- 2004** National Water Initiative passed
- 2007/8** Commonwealth Government passes a new Water Act
 - Responsibility for Murray Darling Basin Plan transferred to an expertise based Murray Darling Basin Authority
- 2010** A guide to the MDB Basin Plan released
- 2011** Proposed MDB Plan released



Robust (adj.) Said of a system that has demonstrated an ability to *recover gracefully* from the whole range of exceptional inputs and situations in a given environment.

- One step below *bulletproof*.
- Carries the additional connotation of *elegance* in addition to just careful attention to detail.
- Compare *smart*, oppose *brittle*.

Robust systems

- Endure without the need to change their foundations.
- They last for centuries.
- Inspire confidence.
- Produce efficient and politically acceptable outcomes in an ever changing world.

Tinbergen Principle (NP in 1969)

- For dynamic efficiency
 - => One instrument per objective

Mundell's Assignment Principle (NP in 1999)

- For dynamic stability
 - => Pair instruments and objectives for greatest leverage

Coase Theorem (NP in 1991)

- To minimise adverse effects of entitlement mis-allocation on economic activity
 - => Ensure very low transaction costs

Critical features of the MDB regime

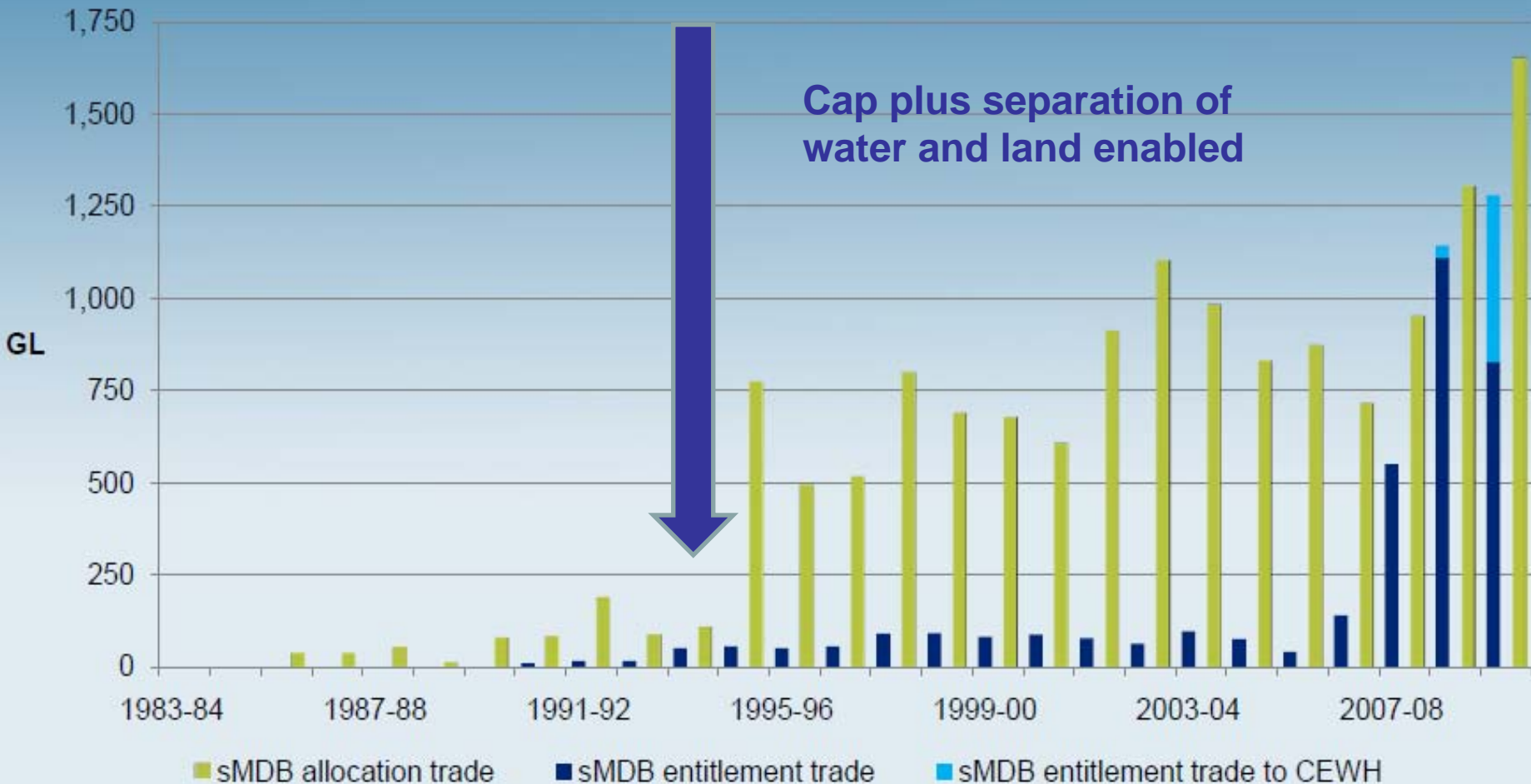
1. Specification of the maximum amount that can be diverted in a year
2. Well established and respected metering system
3. In most areas, two entitlement pools
 - High Security Entitlements
 - General or Low Security Entitlements
4. Unbundled entitlement, allocation and use approval systems
5. Well established markets for entitlements and allocations
6. Entitlements held by individuals with tight restrictions on the capacity of water supply companies to stop trade out of their district

Trade has been a huge success



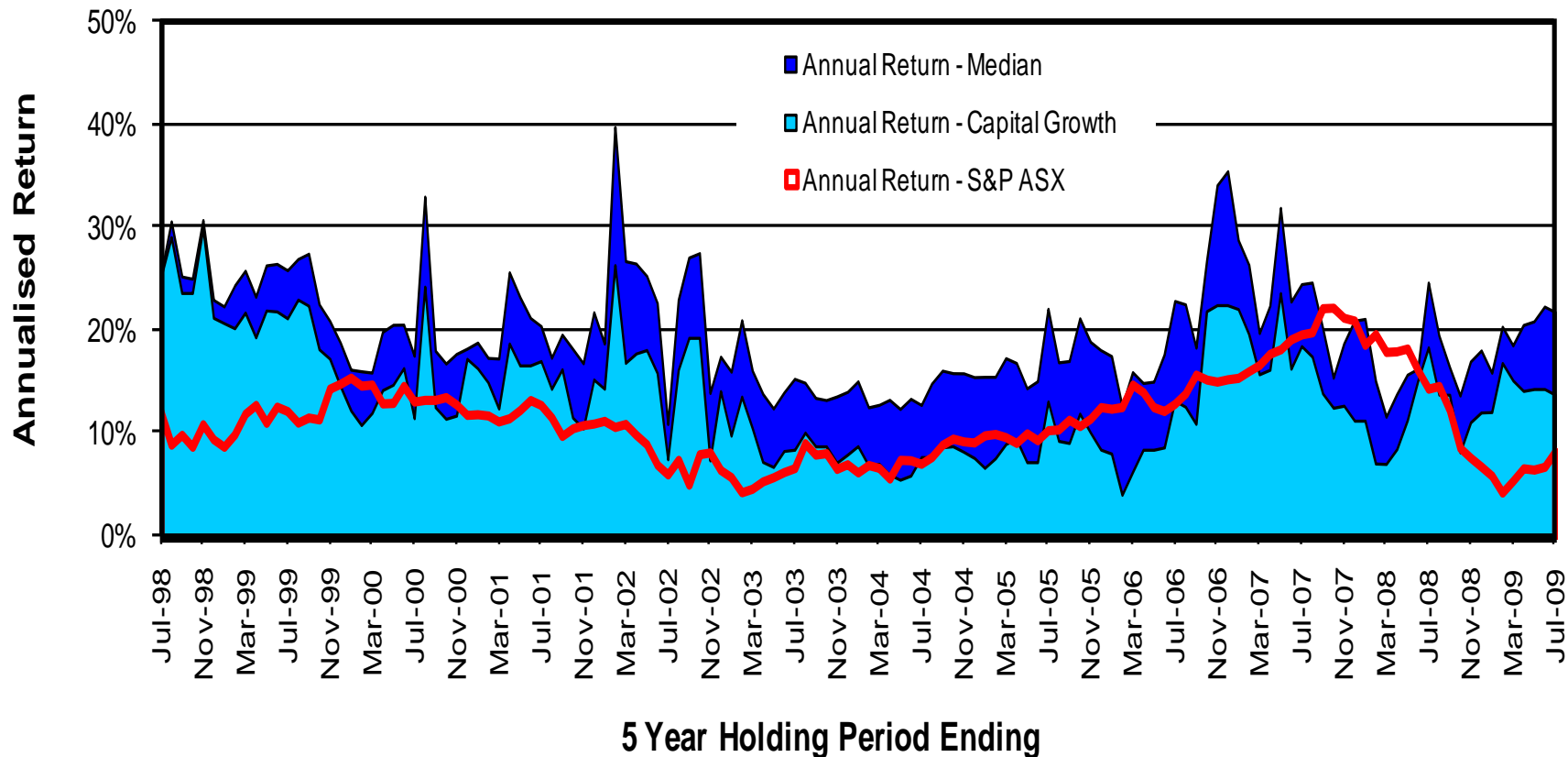
Australian Government
National Water Commission

Entitlement and allocation trade - southern MDB 1983-84 to 2009-10

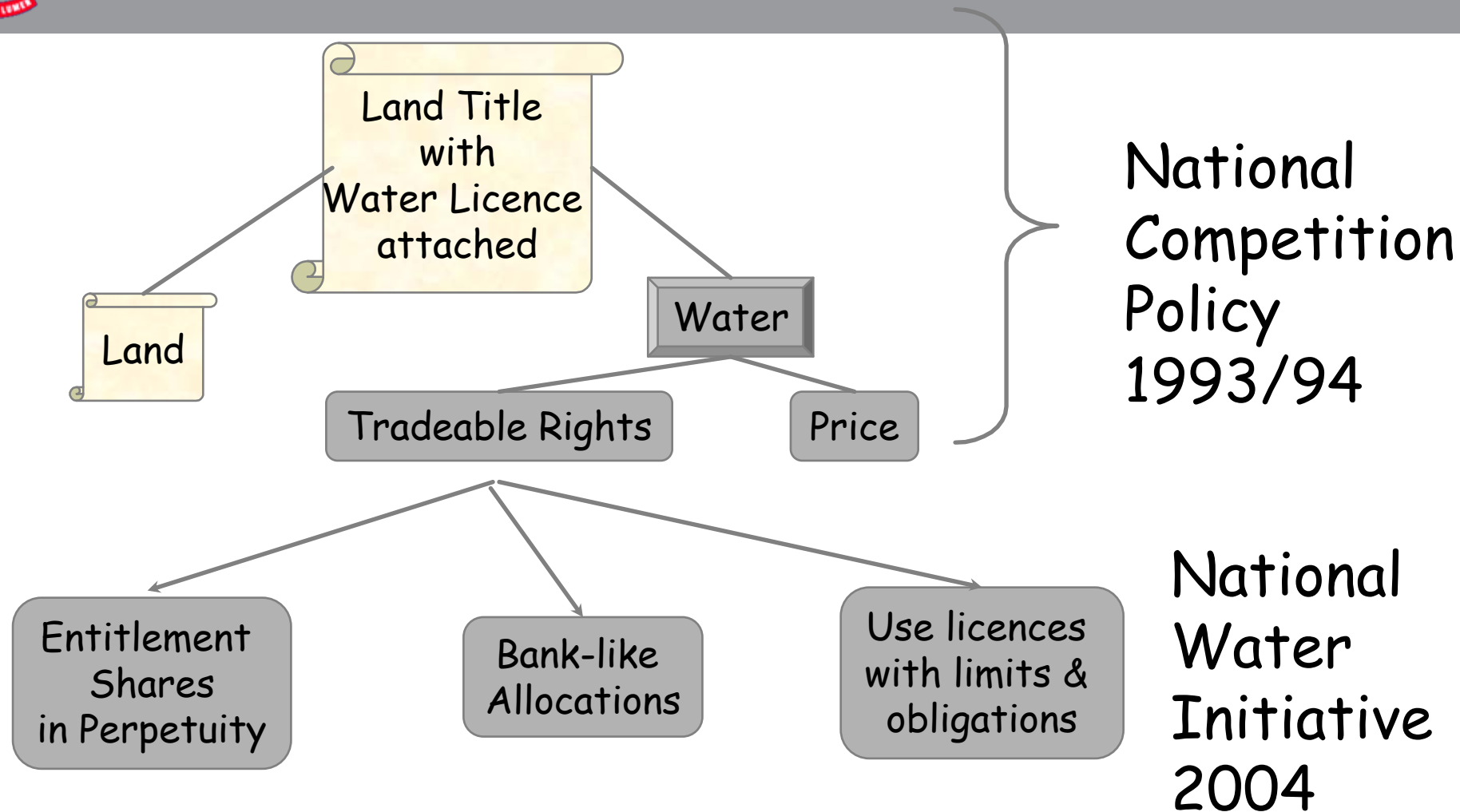


Large volumes of water reallocated

Total returns - Median allocation and entitlement prices compared to capital growth, and the S&P ASX Accumulation Index Returns



Progressive unbundling of entitlement



Markets rather than government as the integrator

1. Moved rules from licences to regional plans
2. Corporatised supply systems
3. Established and verified licence registers
4. Unbundled licences into separate components
5. Defined entitlements as perpetual shares
6. Established individual water accounts
7. Established internet accessible water allocation accounts
8. Issued new low security shares in Victoria
9. Placed limits on "exit" fees
10. Phased out restrictions on inter-regional trade
11. Moved system-wide rules for licences to regional plans₁₀

Lowering transaction costs

1. Entitlement registers guaranteed and only way to record an interest (mortgage, caveat, etc)
2. No registered interests on allocations
3. No third party appeals on any trade consistent with trade regulations and policies
4. Set goals for settlement of trades
5. Required price disclosure of bids, offers and trades

Unbundling enabled new financial structures to emerge

- Entitlements moved to Private Superannuation Trusts
- New business structures emerged (Inheritance)

Two entitlement pools plus trading improved risk management

Widespread structural adjustment financed by capacity to sell entitlements at value in place where it can be used most profitably

1. Voluntary closure of saline areas
2. Dairy substituted water sales + rainfed cereals for irrigated fodder
3. Total channel control made to work by Coleambally Irrigation because they kept the savings
4. Massive improvement in water control technology
 - Soil moisture monitoring became widespread
 - Laser levelling for flood irrigation became the norm
5. A new irrigation technology industry emerged

Water scarcity is becoming more common

- Water trading can be expected to reduce the cost of managing
- Water trading can increase prosperity

Knowledge about sequencing of reforms needed

- A 20 year plus journey
- No good theory
- Need new institutions related to scale and function

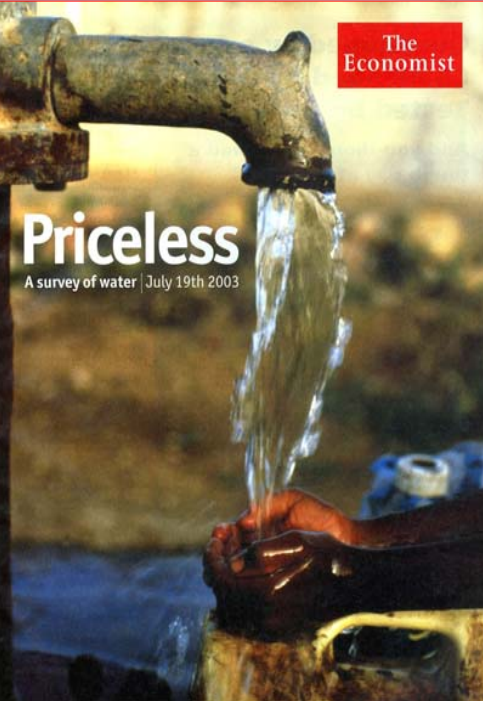
Knowledge about the institutional detail for water reform is needed

Generalised knowledge about quantity based instruments

- Carbon permits
- Biodiversity offset
- Pollution control

Markets are excellent servants

But they need an astute master



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Cap on “diversions” not “use”

1995/96 to 2000/01 water use increased 29%!

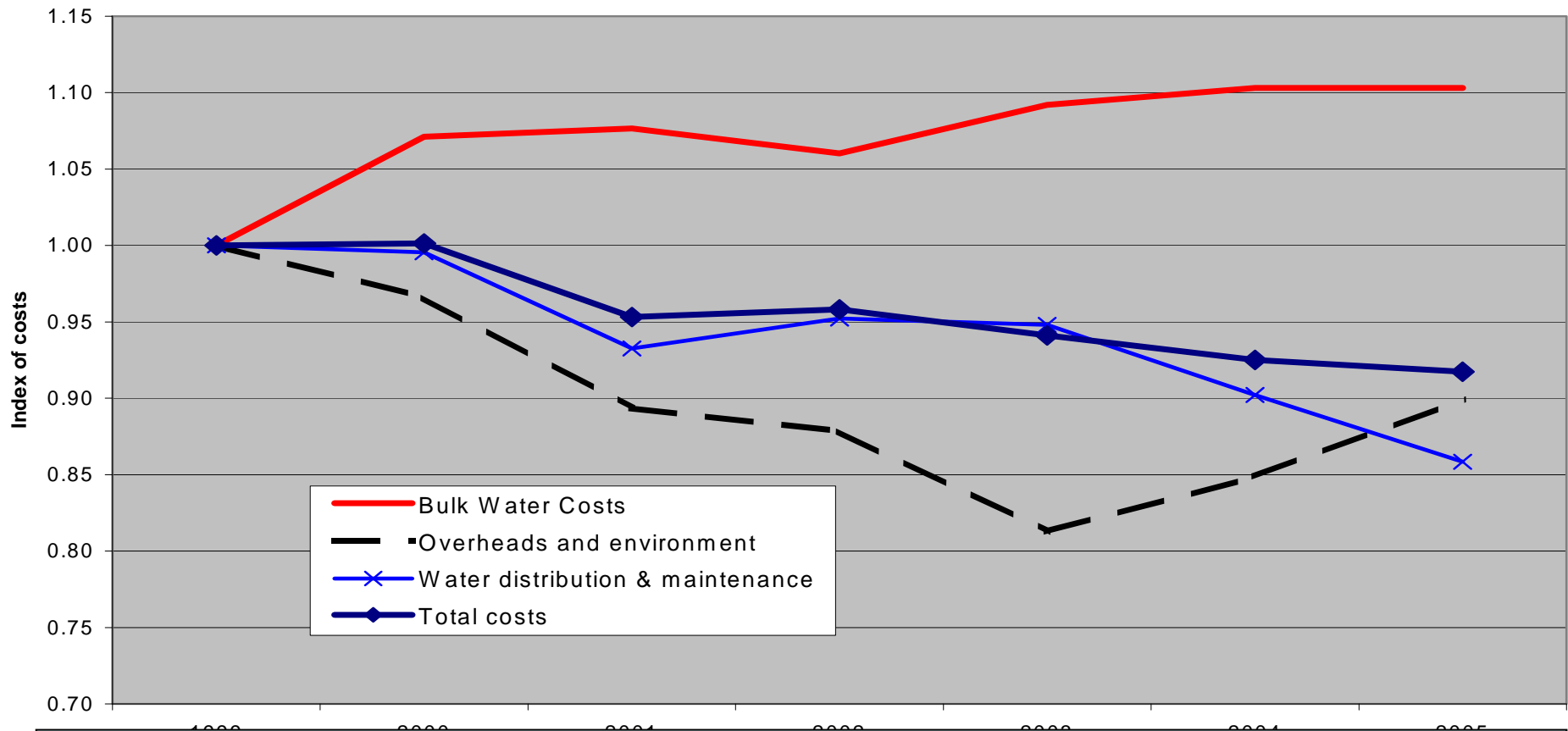
(Bryan and Mavaneck, CSIRO, 2004)

- Groundwater + increased efficiency
- Flow reduced dramatically

In November 2002, dredges where put in the mouth of the River Murray!

Water accounting systems lacked hydrological rigour!

Administrative separation - Murrumbidgee

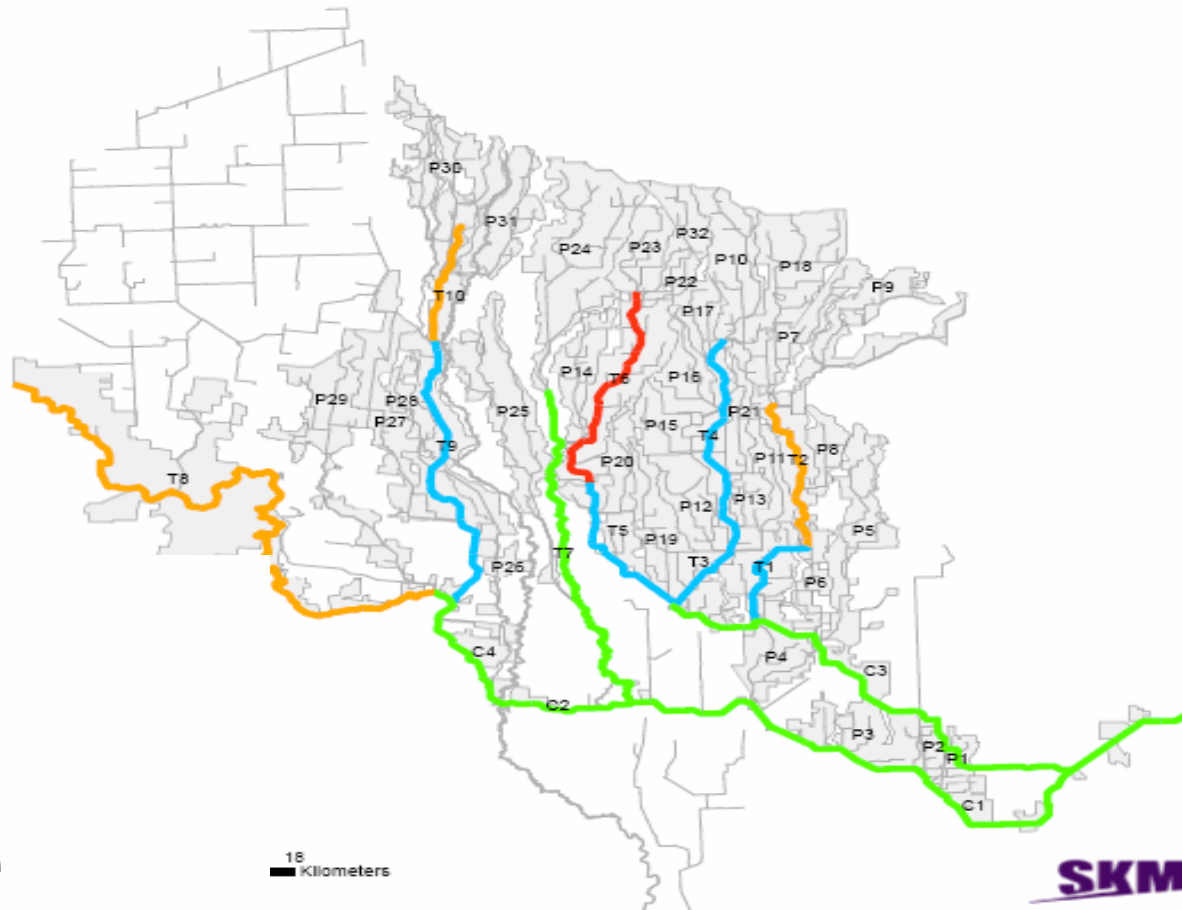


Separation of policy from water supply has lowered costs.
Allow irrigators to own and run their supply systems

Annualised delivery costs, Pyramid Boort Irrigation Area

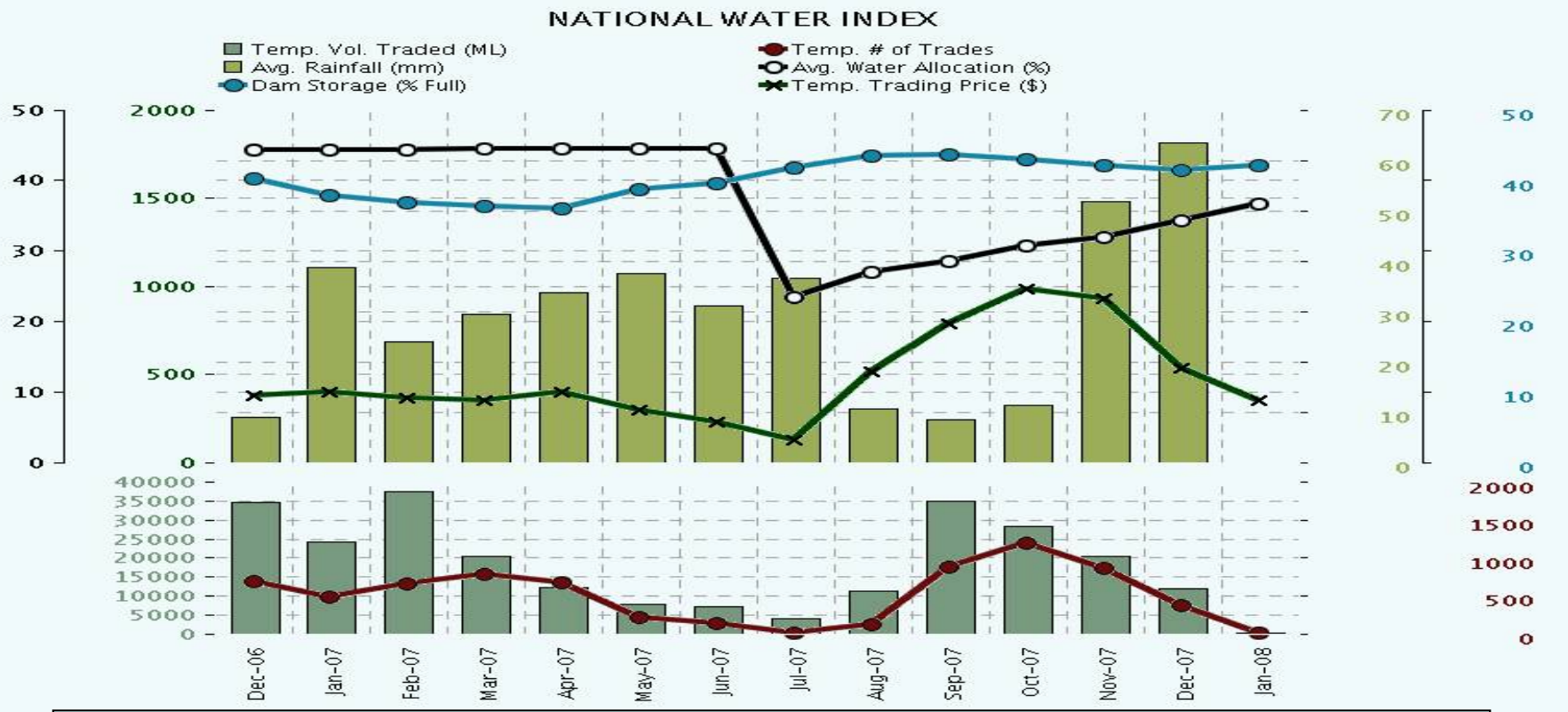
Pyramid Boort Irrigation Area

Accumulated Annualised Asset Costs/ ML used - Carriers and Trunks Supply Lines



**Move away from postage stamp pricing or
transfer pod management to local farmers**

Internet-based seasonal water trading



Water markets are growing in sophistication



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MBI Trials

1. Multiple-outcome auction of land-use change (Goulburn-Broken, Vic)
2. Tradable net recharge contracts in Coleambally Irrigation Area (NSW)
3. Farming Finance NRM Leverage Fund (Lachlan-Murrumbidgee, NSW/South Coast, WA)
4. Auction for landscape recovery (WWF, Avon, WA)
5. Adoption of New Land Management Practices through Conservation Insurance (DWLBC, Lower Murray, SA)
6. Cap and Trade for Salinity: a Laboratory Experiment Market (DPI Lower Murray, Victoria/South Australia)
7. Catchment Care - Developing an auction process for biodiversity gains and water quality outcomes (Onkaparinga CWMBoard, SA)
8. Green Offsets for Sustainable Regional Development (NSW EPA, Namoi-Gwydir/Macquarie-Castlereagh/Murray, NSW)
9. Establishing East-west Landscape Corridors in the Southern Desert Uplands (Desert Uplands Build-up & Develop't Committee, Burdekin-Fitzroy, Qld)
10. Establishing the potential for offset trading in the lower Fitzroy River (Central Queensland University, Burdekin-Fitzroy, Qld)

Dryland Salinity Credit Trading