

Water Governance Reforms Lessons from Australia

Prof Mike Young, Director, The Environment Institute

Research Chair, Water Economics and Management

The University of Adelaide

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Good governance

- Possible only if the detail is well specified
- Robust
 - Able to withstand the test of time
 - Expected to endure
- Attend to the fundamental architecture
- Facilitate the autonomous emergence of a triple bottom line





Water reform in Australia

- Two decades into the process of trying to fix governance
- Commitment to restoring systems to health
- Commitment to development of robust entitlement and allocation regimes
- Commitment to the development of markets to facilitate adjustment, innovation and investment



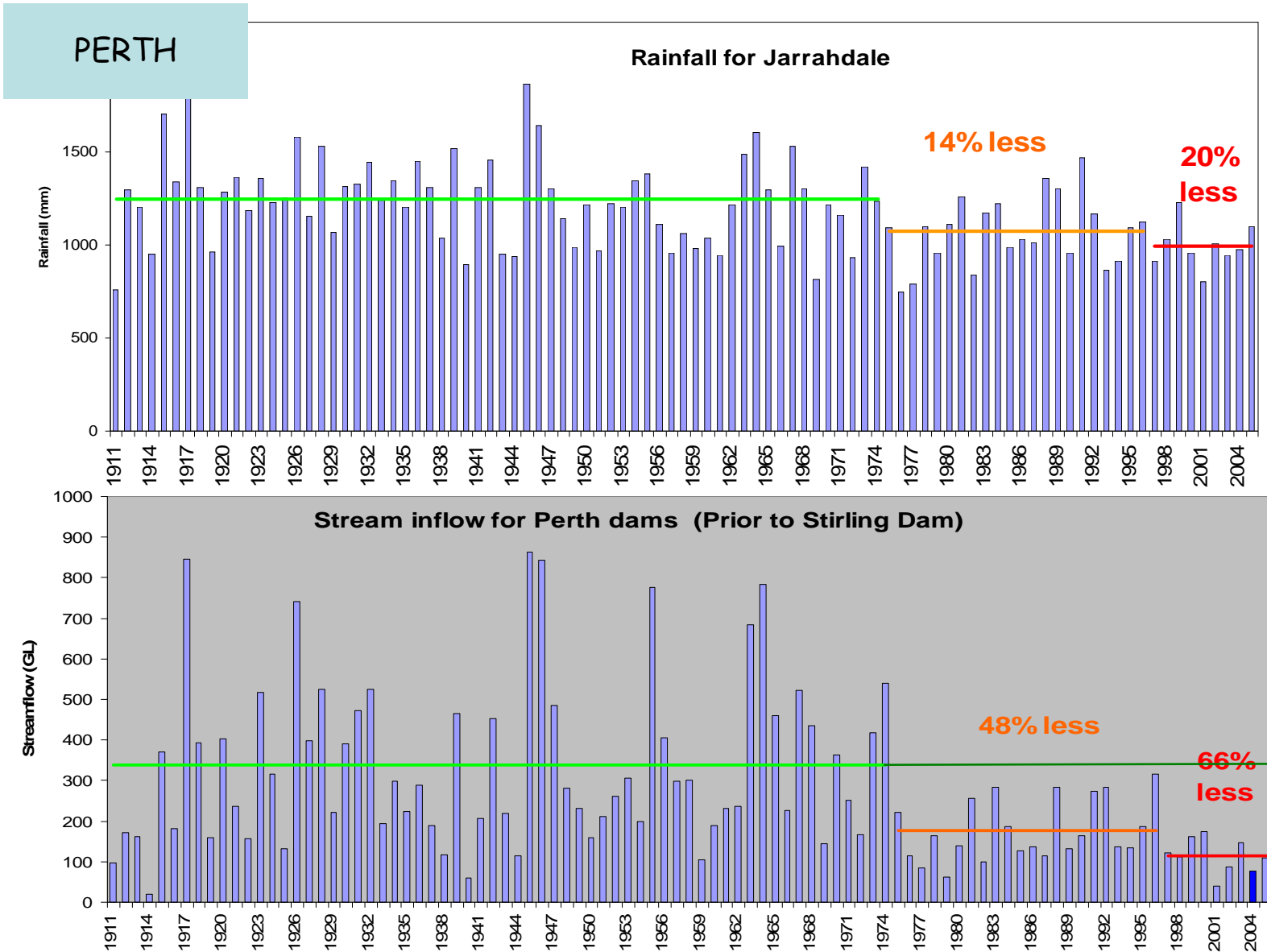


Definitions

- System
 - Catchments, rivers, groundwater, etc
- Regime
 - Rules, rights, obligations, administration
- Entitlements
 - Long-term interest (property right)
- Allocations
 - Water available for extraction
- Use approval
 - Consent to apply water to land



Running out of water



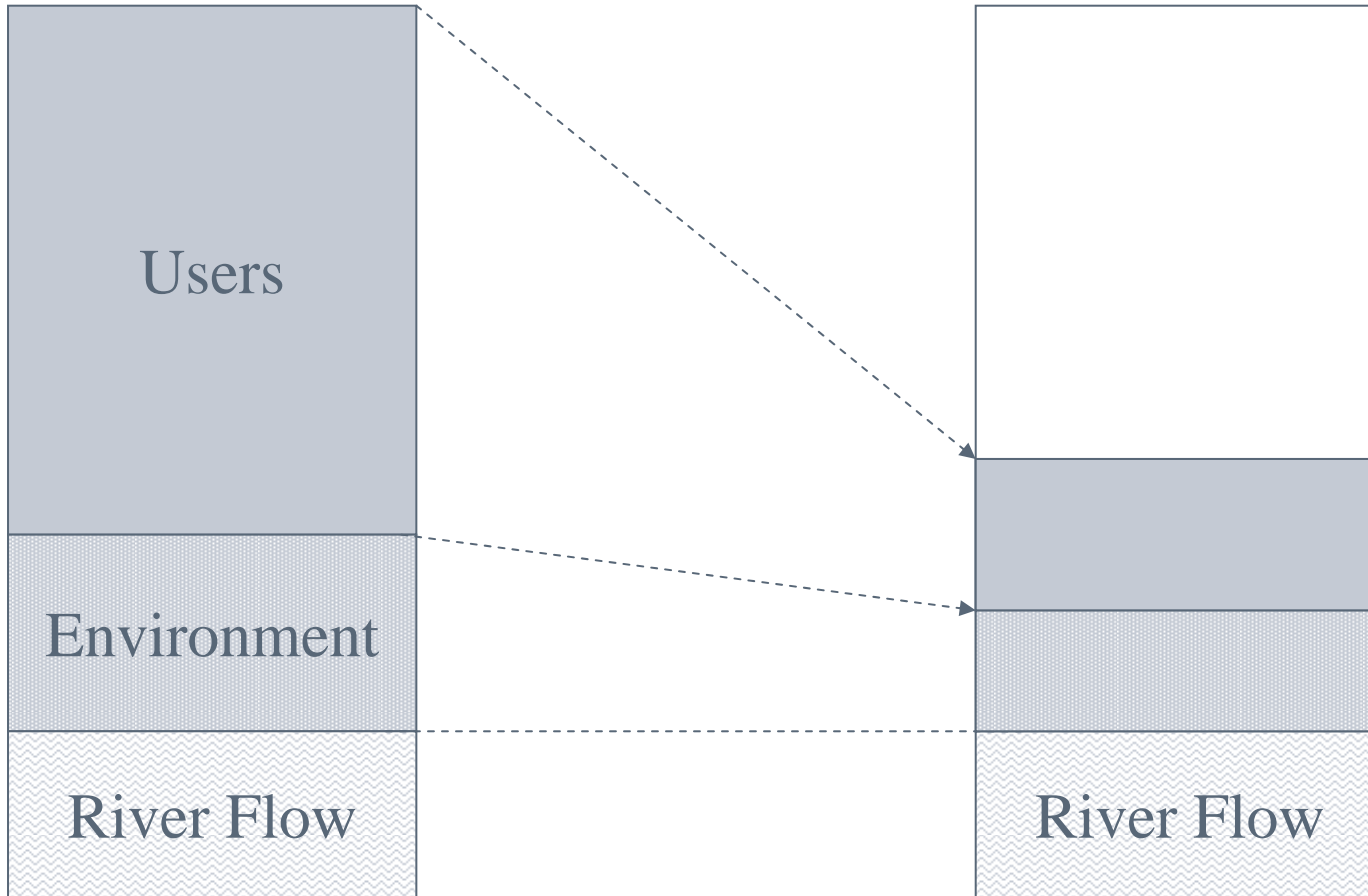
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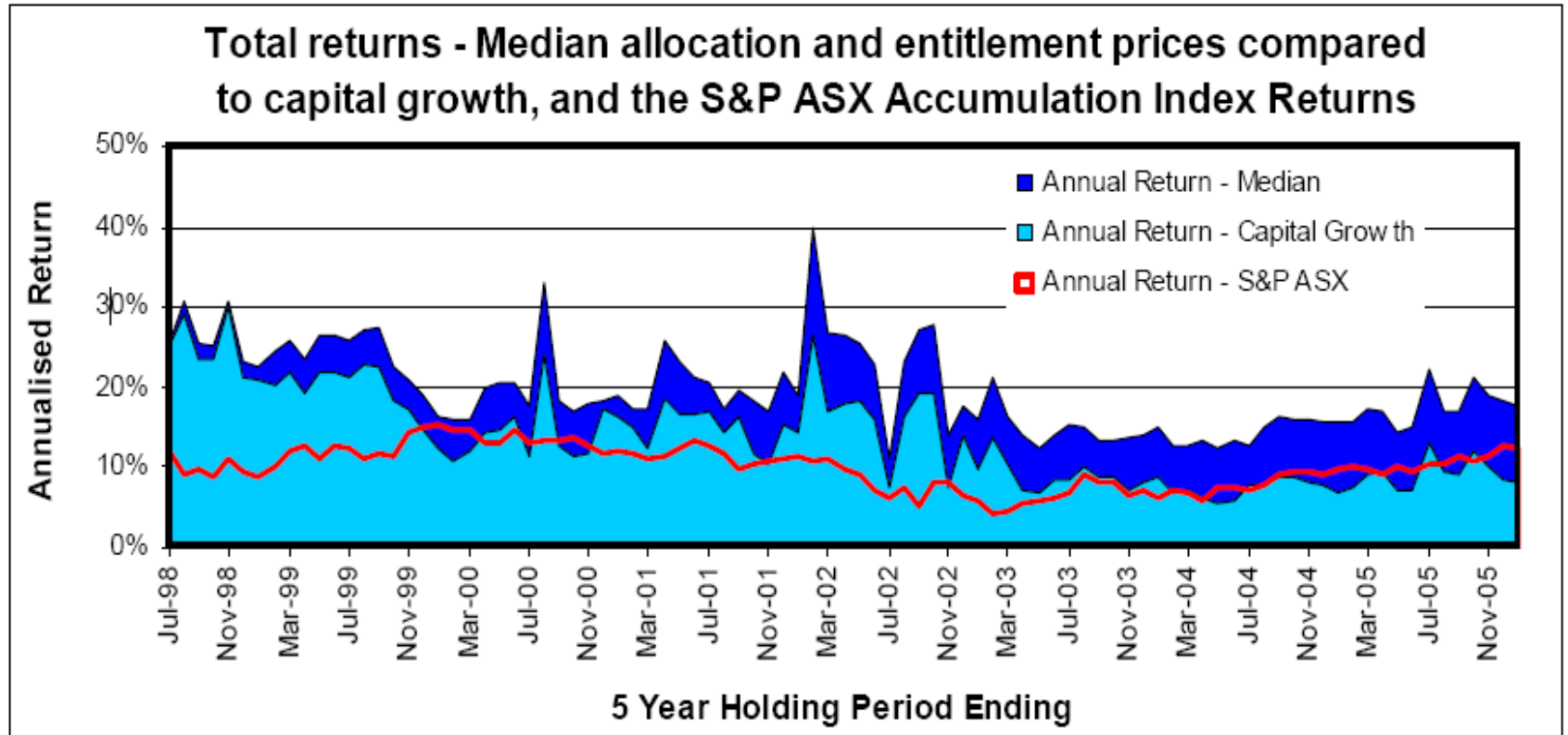
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With half as much water



Private benefits of trading





LESSONS





1: The legacy of prior decisions and arrangements allowed reforms to erode system health and community well-being

- Design entitlement and allocation regimes for trading
- Otherwise markets will elegantly reveal how flawed your regime is!
 - Over-allocation
 - Double counting (Double allocation)
 - Inefficient inter-seasonal stock management



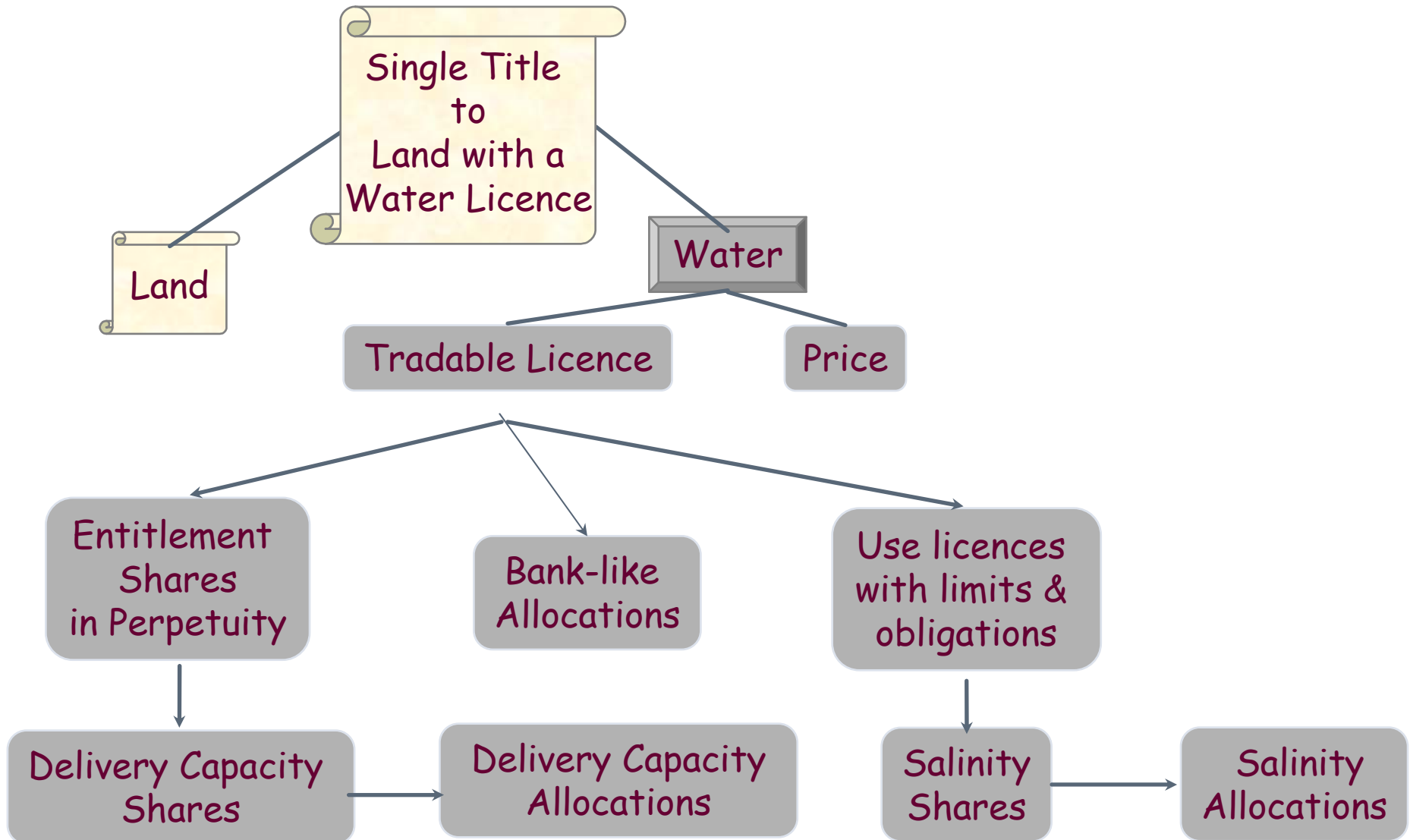


2: Define entitlements as shares rather than volumes and don't specify reliabilities

- Risk of adverse shifts in water availability have to be fully assigned
 - Individuals via seniority allocation systems
 - Defined "security" pools so that
 - individuals can manage risk; and
 - trading possible at low cost



3: Improve market efficiency by unbundling and standardising products





4: Establish accurate entitlement registers

- As trading develops entitlements become extremely valuable
- Registration systems need to be accurate
- Trading costs will be lower if central registers rather than pieces of paper are used to define ownership





5: Install meters and convert to a volumetric allocation regime

- Without meters, an allocation system must be run very conservatively
- Metering and conversion to volumetric allocations enables much greater control
- Critical to establish a compliance culture
- But also makes it easier to allocate too much water to users





6: Allow unused water to be carried forward

- For trading to produce efficient inter-temporal outcomes, it must be possible to store rather than sell allocations
- Otherwise too much water will be sold during dry times and a suboptimal amount stored



7: Robust planning and water entitlement regimes are essential. Communities rarely plan for severe adversity!

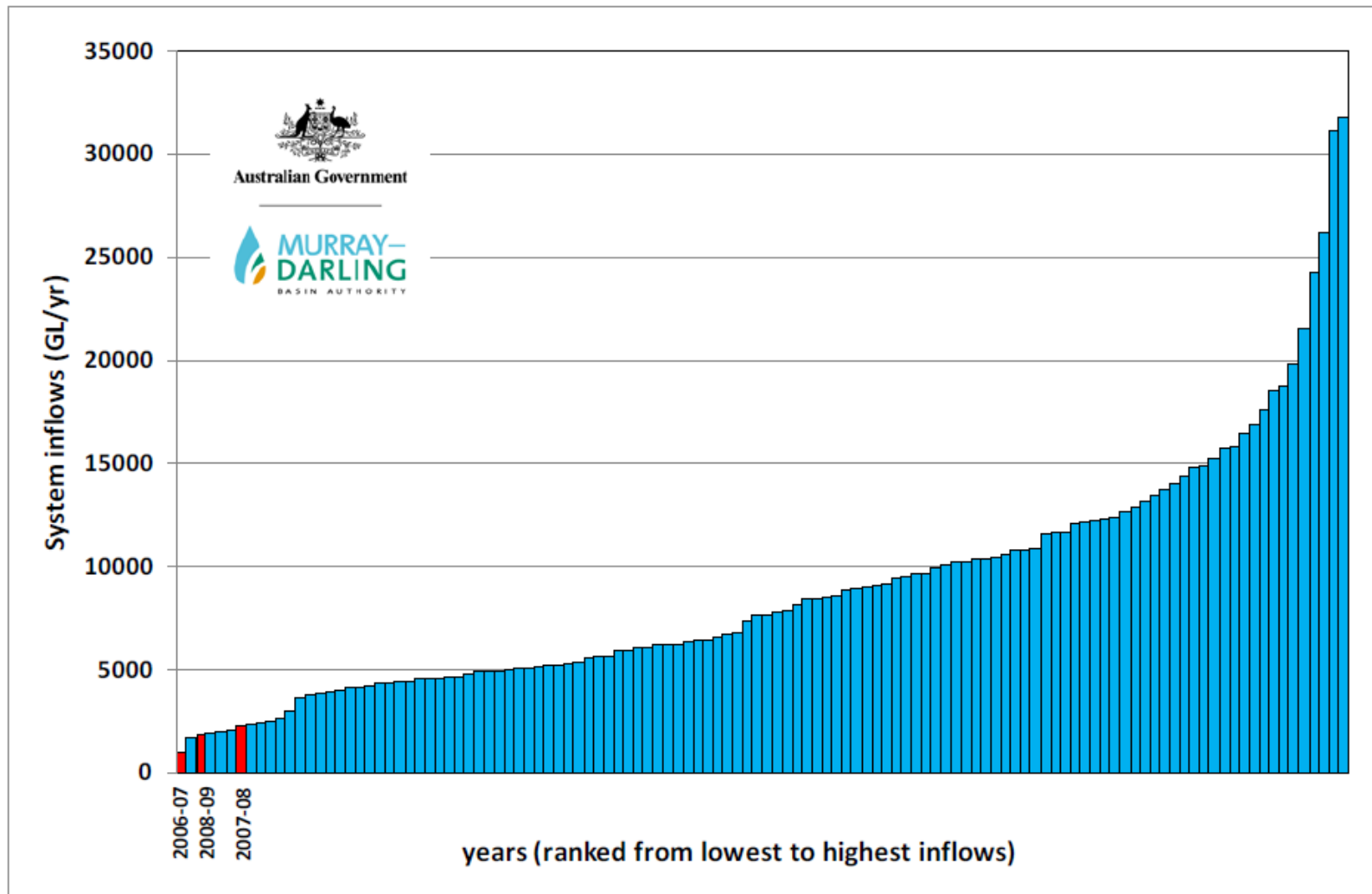
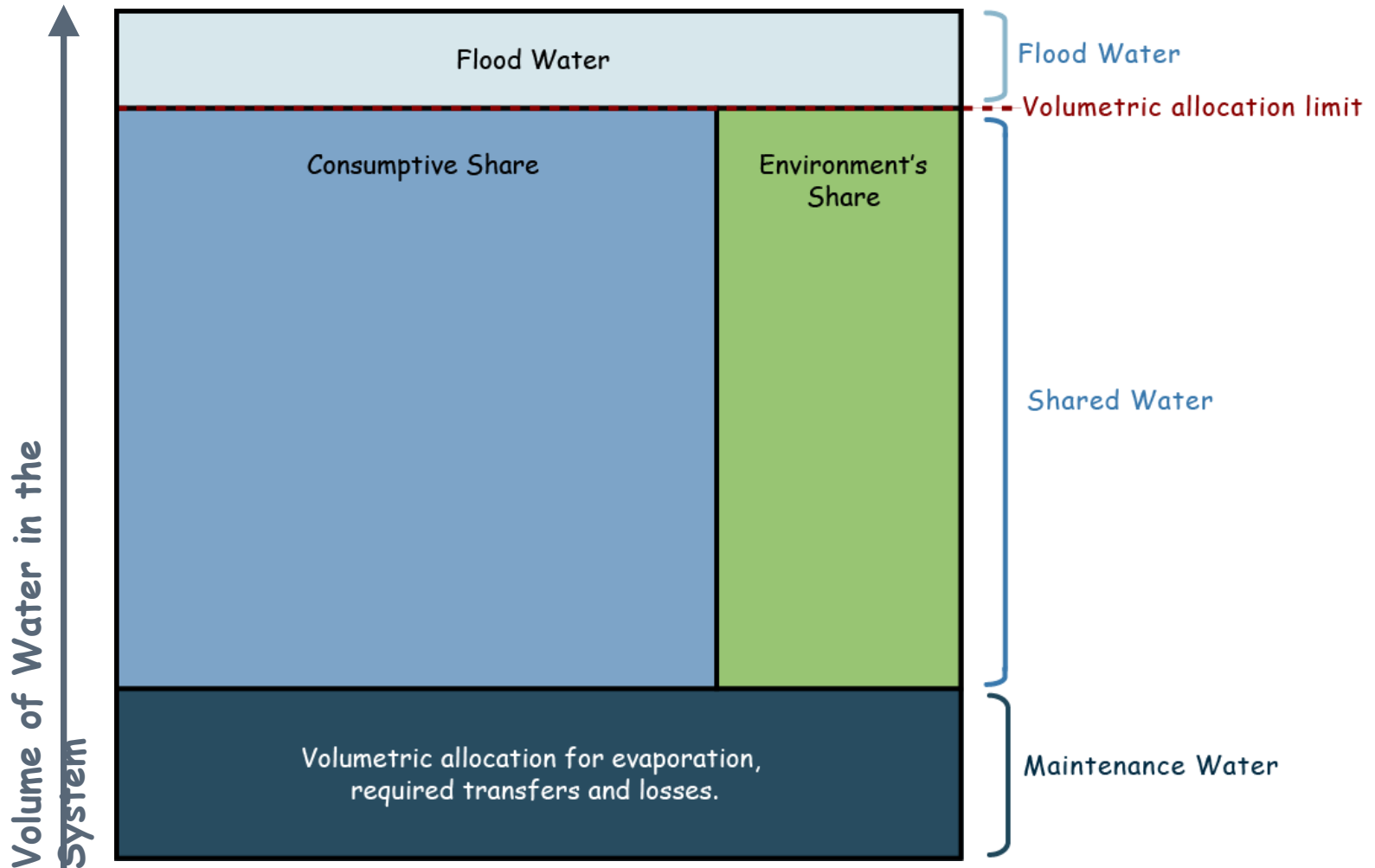


Figure 3. Murray System inflows sorted in ascending order for all years 1892-93 to 2008-09 (excluding Snowy and Menindee inflows)

8: Specify minimum flow obligations separately from environmental and consumptive entitlements





9: Account for all significant forms of water use including those that cannot be metered

- It is better to be approximately right than comprehensively wrong
- Require the offset of all activities that significantly intercept inflows and/or reduce return flows
 - Forests, small dams, groundwater, return flow erosion, overland flow capture





10: Manage connected ground and surface water systems as one integrated system.

- Critical to manage inter-connectivity among resources; and
- Assign climatic risks among connected resources
 - Do river users have priority over groundwater users?
 - Vice versa





11: Charge all users to lower bound cost and preferably the upper bound cost of supply

- Markets lead to inefficient outcomes if pricing principles are inconsistent
- Lower bound costs => costs of supply and maintenance
- Upper bound costs => Lower bound costs plus return on capital
- Establish irrigator-owned supply companies



12: Manage environmental externalities using separate instruments

- Costs have to be avoidable - incentives matter
- Pricing to “include the cost of externalities” ends up as a fixed cost with little incentive to manage them
- Every objective needs a separate instrument





13: Remove administrative impediments to trade

- Time costs money
- Allocation trading rules and protocols should be pre-specified and automatic





14: Allocate entitlements to individual users rather than regional supply companies

- Encourage competition
- When entitlements are allocated to water supply companies rather than individuals they erect barriers to protect “their” infrastructure
- Individuals are more likely to trade if they can sell to the highest bidder rather than the highest bidder within their district





15: Establish clear announcement disciplines

- When supply is scarce and markets exist, there are significant opportunities for insider trading
- Make announcements at consistent times and in a consistent manner right across the system





16: Make timely price information available

- Markets rely upon information
- All need to be equally informed
- Brokers can supply this service





17: Avoid government involvement in the provision of water brokering services.

- Accusations of conflict of interest are made when the market maker has water for sale
- Governments should leave water broking to water brokers
- www.waterfind.com.au
- www.waterexchange.com.au





What we got right

1. Installing meters
2. Enforcing compliance with licensed volume
3. Defining entitlements as shares
4. Pools of differing reliability
5. Unbundling to get control and transaction costs down
6. Allocation announcement discipline





What we are now tackling

- Independent basin-wide administrative structures
- Solving over-allocation and keeping it in balance
- Facing up to climate change

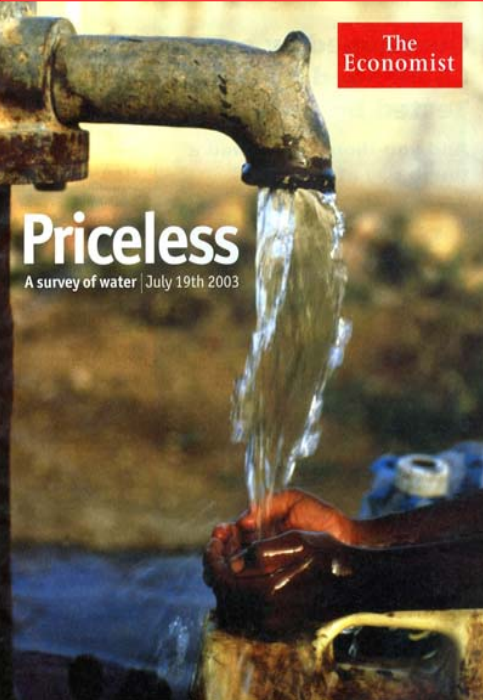




Some mistakes we made -

1. Regime arrangements
 1. System connectivity => manage GW and SW as one
 2. Capped the wrong thing => cap entitlement potential not use
 3. Return flows => account for them
 4. Unmetered uses => include them
 5. Climate change => plan for an adverse shift
 6. The environment's share => define it and allocate to it
 7. Storage Management => include in trading regime
2. Individual arrangements
 1. Registers => validate them early
 2. Entitlements => define entitlements as shares
 3. Trading => forgot to get the costs and time to settle down
 4. Not enough instruments => needed to unbundle
 5. Inter-seasonal risk management => allow markets to optimize carry forward
 6. Company control => allocate to individuals





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Prof. Mike Young
The Environment Institute
The University of Adelaide
Email: Mike.Young@adelaide.edu.au

Life Impact The University of Adelaide





Goulburn Murray Water

HISTORICAL SEASONAL ALLOCATIONS

(% of water right until 2006/07, then percentage of high-reliability water shares)

Season	Murray Final	Broken Final	Goulburn Final	Campaspe Final	Loddon Final	Bullarook Creek Final
1992/1993	200+	-	200+	200+	-	-
1993/1994	200+	-	200+	200+	-	-
1994/1995	220	-	200	180	-	-
1995/1996	200	-	150	200	-	-
1996/1997	200	-	200	220	-	-
1997/1998	130	170	120	190	-	190
1998/1999	200	170	100	100	-	190
1999/2000	190	170	100	100	-	190
2000/2001	200	170	100	220	-	190
2001/2002	200	170	100	180	-	190
2002/2003	129	100	57	100	-	170
2003/2004	100	170	100	100	67	177
2004/2005	100	170	100	39	100	190
2005/2006	144	170	100	31	100	190
2006/2007	95	77	29	0	0	36
2007/2008	43	71	57	18	5	0

