

Can Economics Regulate the Environment?

Environmental
markets and water



Overview



MARKETS IN THE CONTEXT OF
ENVIRONMENTAL REGULATION

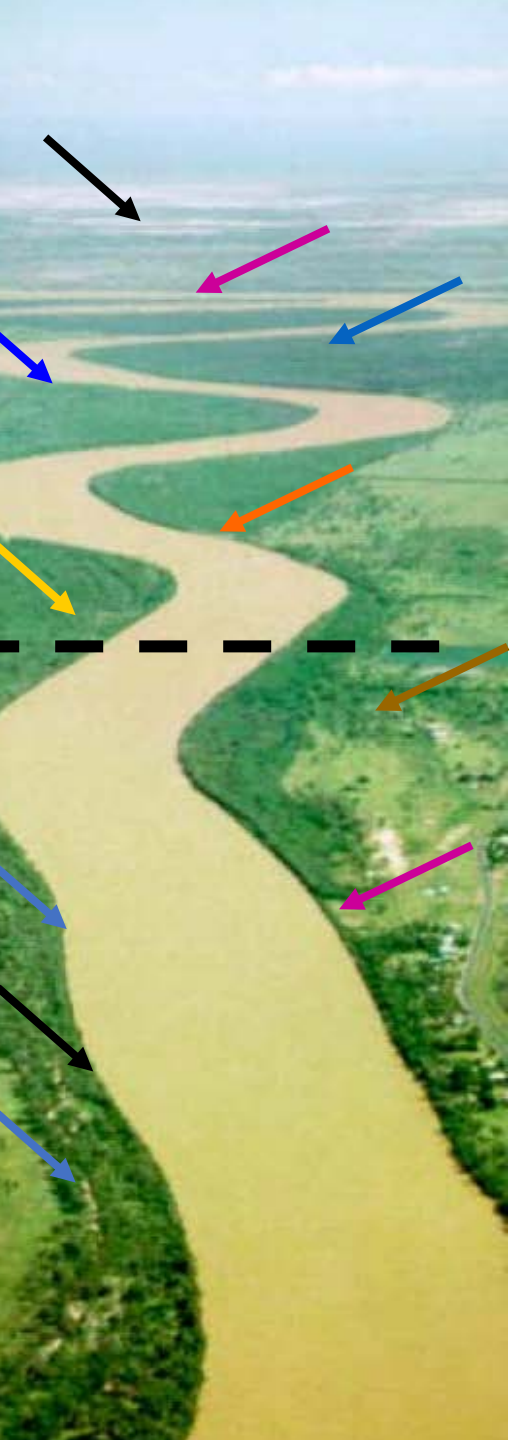


IMPLEMENTATION OF MARKET BASED
APPROACHES TO WATER
MANAGEMENT



FUTURE DIRECTIONS



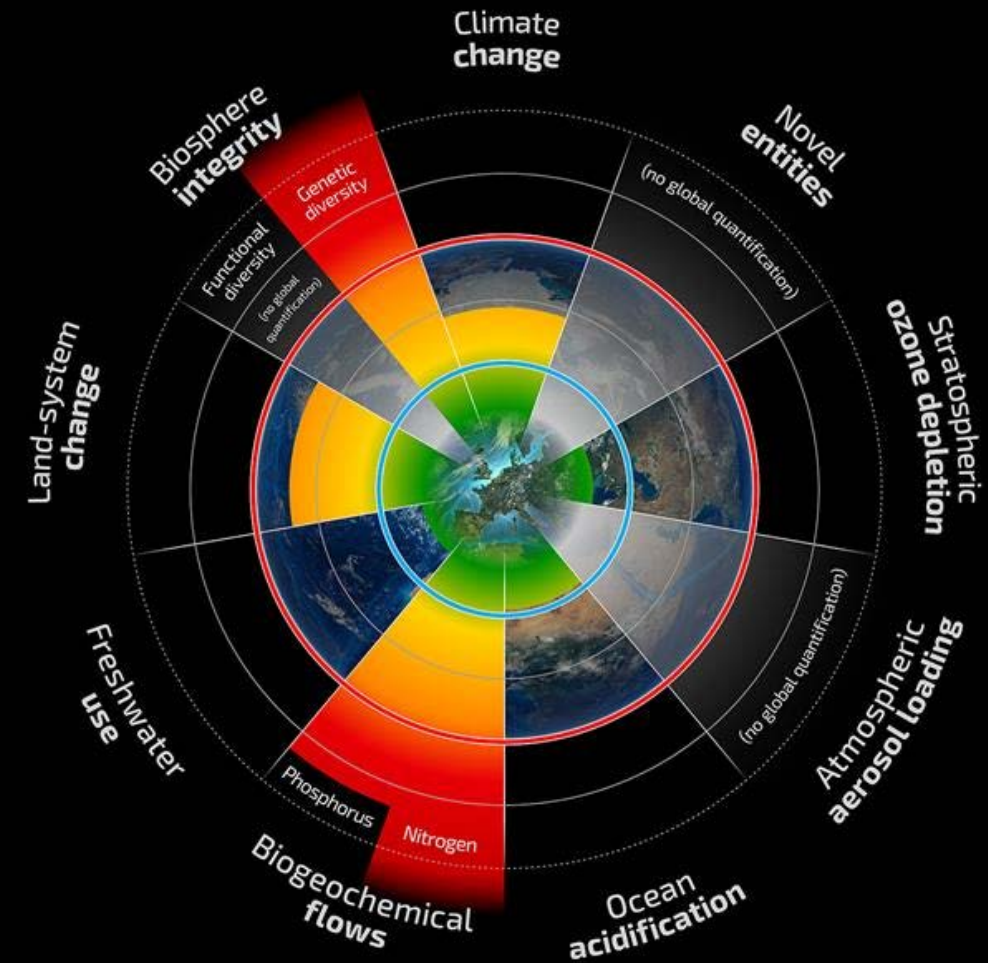


Not well suited

- multiple jurisdictions
- multiple actors and actants
- multiple scales
- multiple systems
- capacities of governments

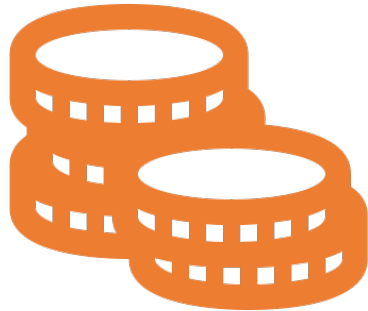
Planetary Boundaries

A safe operating space for humanity



■ Beyond zone of uncertainty (high risk)
 ■ In zone of uncertainty (increasing risk)
 ■ Below boundary (safe)
 ■ Boundary not yet quantified

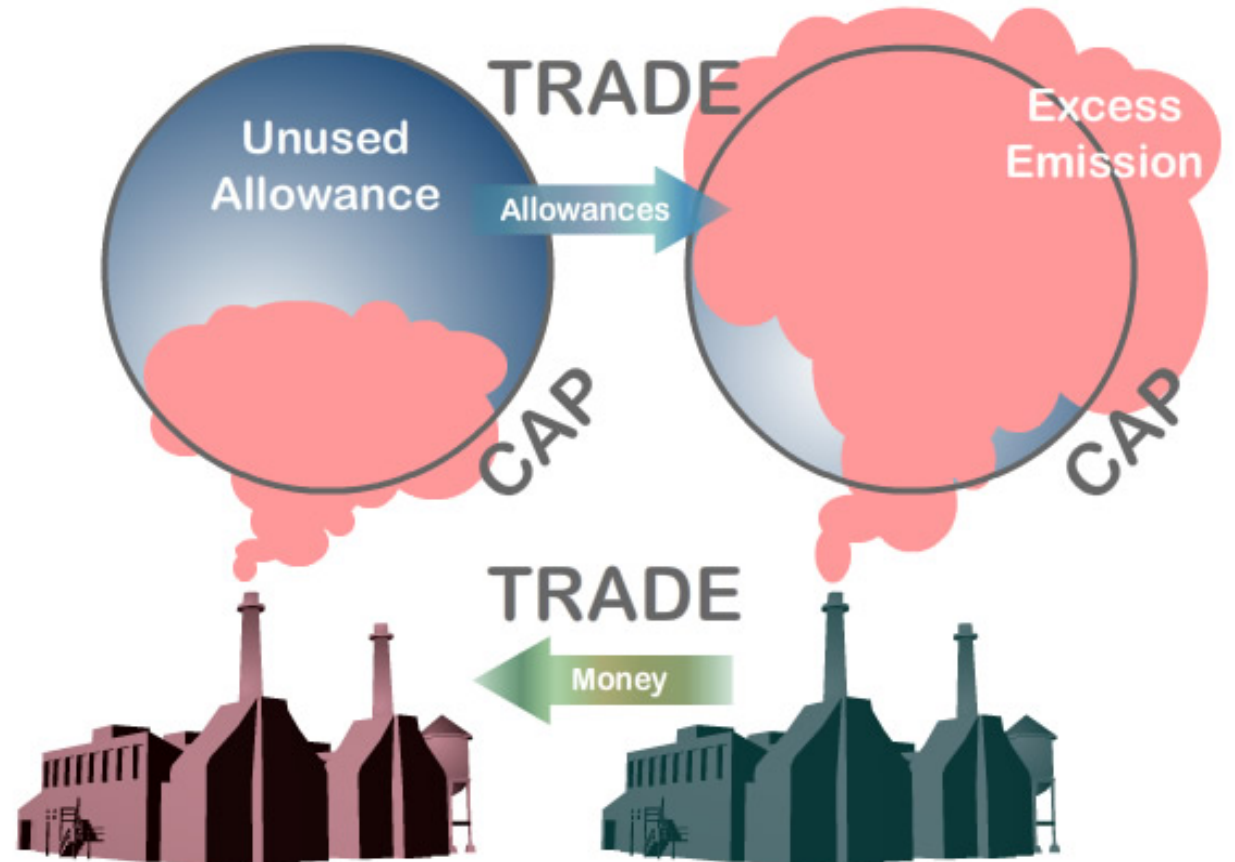
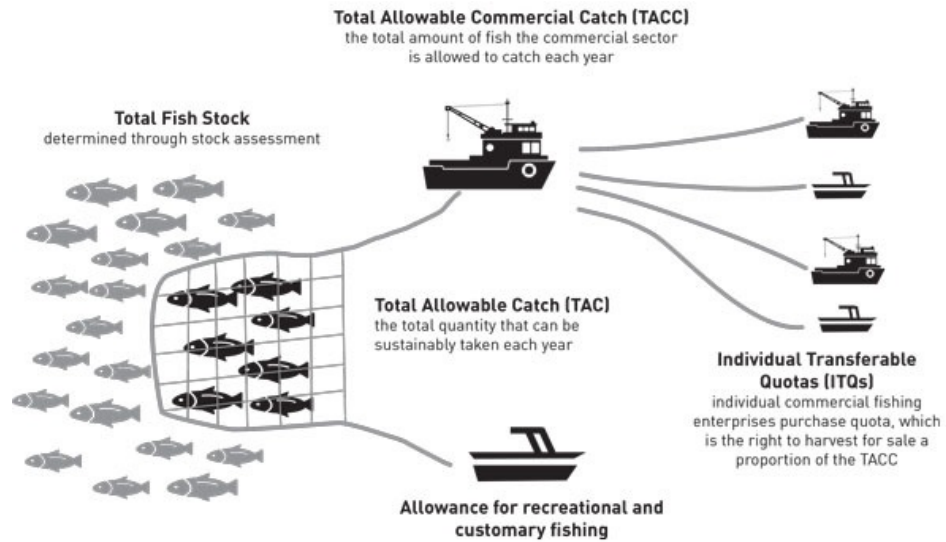
Economic Instruments



value environmental resources & render externalities
visible (Coase 1960)



coordinate diffuse knowledge and capacities away from
the centre and bring order to complex systems (Hayek
1945)



Examples

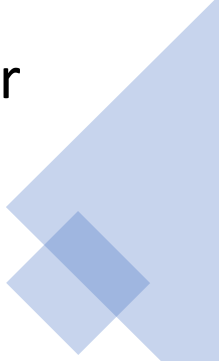
water pollution trading, load based licensing, PES, taxes and subsidies

Economics and water

- Dublin Principles 1992
 - water as an economic good
 - efficient and equitable use and encouraging conservation and protection
- water charging, buybacks, subsidies, insurance
- informal to formal markets
 - India, China, South Africa, Spain, Chile, western United States, Australia (Brewer et al. 2008; Leonard et al 2019)



Rationale/Benefits

- water users best placed to decide how to use water to meet needs
 - being able to buy and sell entitlement to access water provides financial incentives to not waste water
 - markets are flexible, and allow users to adjust to different water restrictions, whilst still producing goods and services, as licences will move to where water is needed most
 - revealing information about the 'true' value of water
 - moving water to its highest value use (allocative efficiency) (De Luca and Sinclair 2020)
- 



Not a free lunch

- Water markets require government support to function properly
- Setting sustainable caps
- Allocating rights
- Phasing in reductions
- Resistance to this
 - *Upper Namoi Water Users Association Inc v Minister for Natural Resources* [2003] NSWLEC 175; *Harvey v Minister Administering the Water Management Act 2000* (2008) 160 LGERA 50
- Transparency; registers; areas of trade; reviews of trade to avoid negative impacts

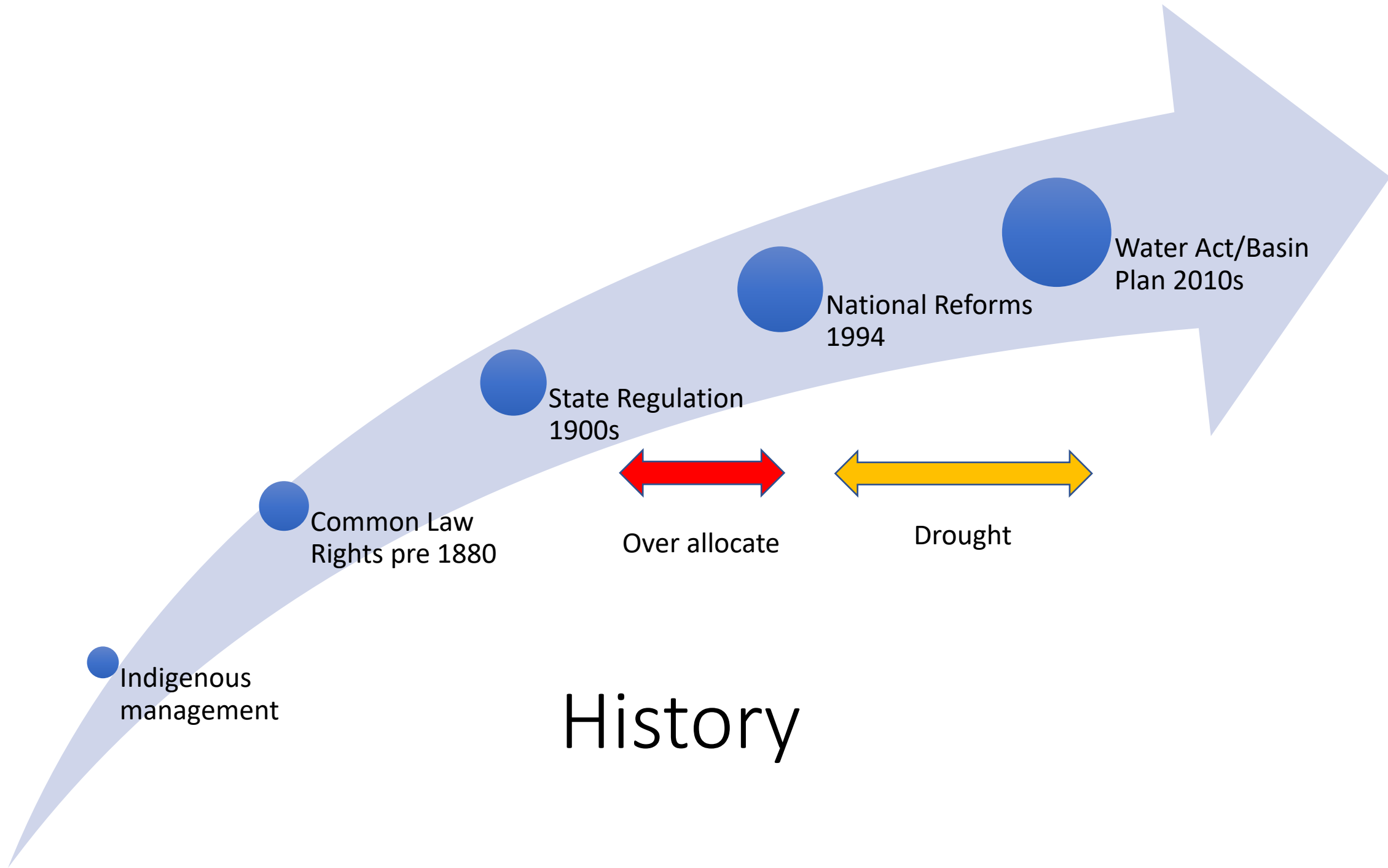


Centralised Planning

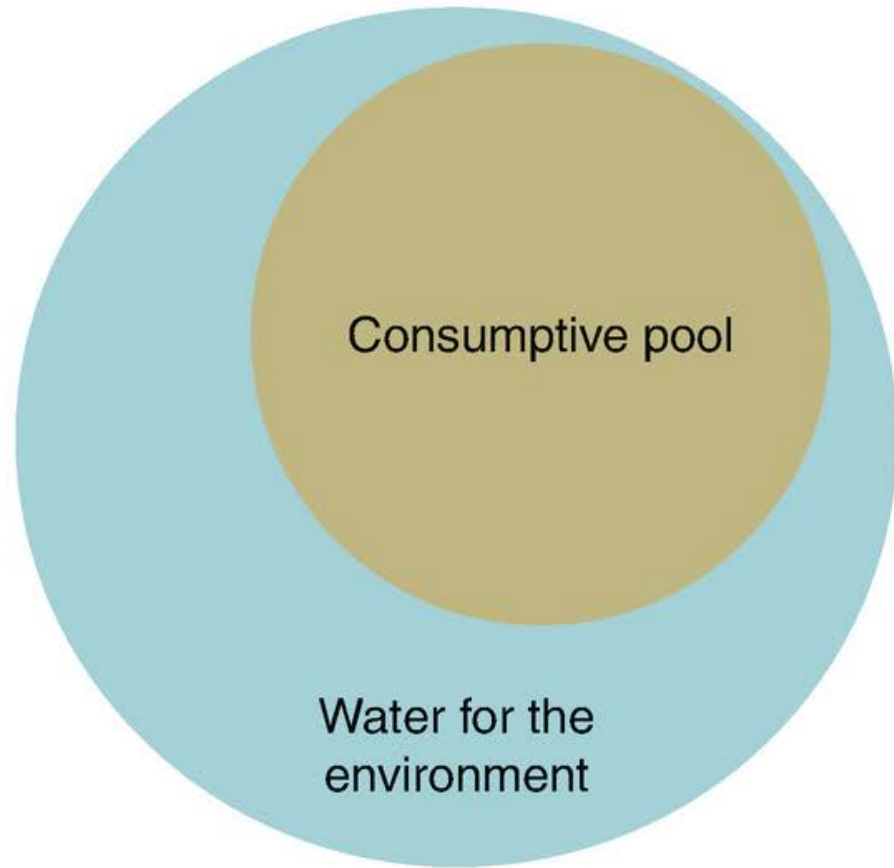
- single entity makes decisions on water sharing to optimize water sharing objectives

Classic Market

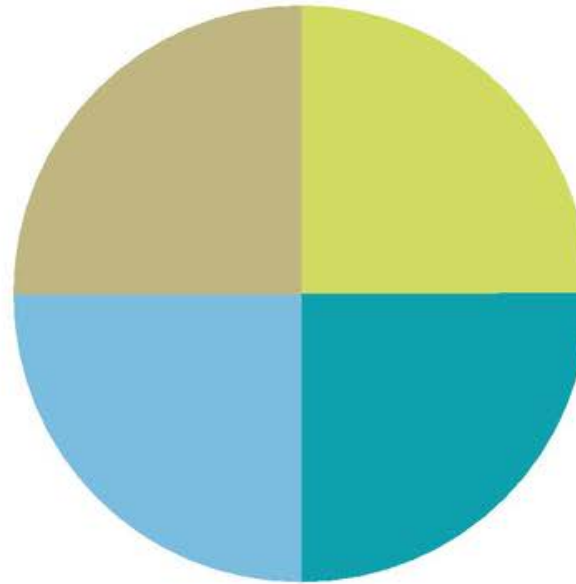
- the cap is a government-determined ceiling on how much water is made available for consumptive uses
- trade in water rights can occur within the limits imposed by that cap
- government set trading zones and inter-valley trade/transfer limits
- reviews of trades
- many entities with heterogenous demands buy and sell homogenous water products and trade to highest value use



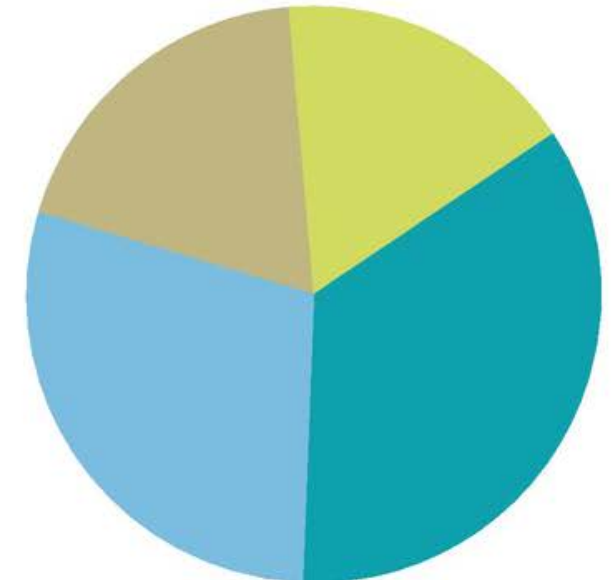
1) Limit total extractions from water resource



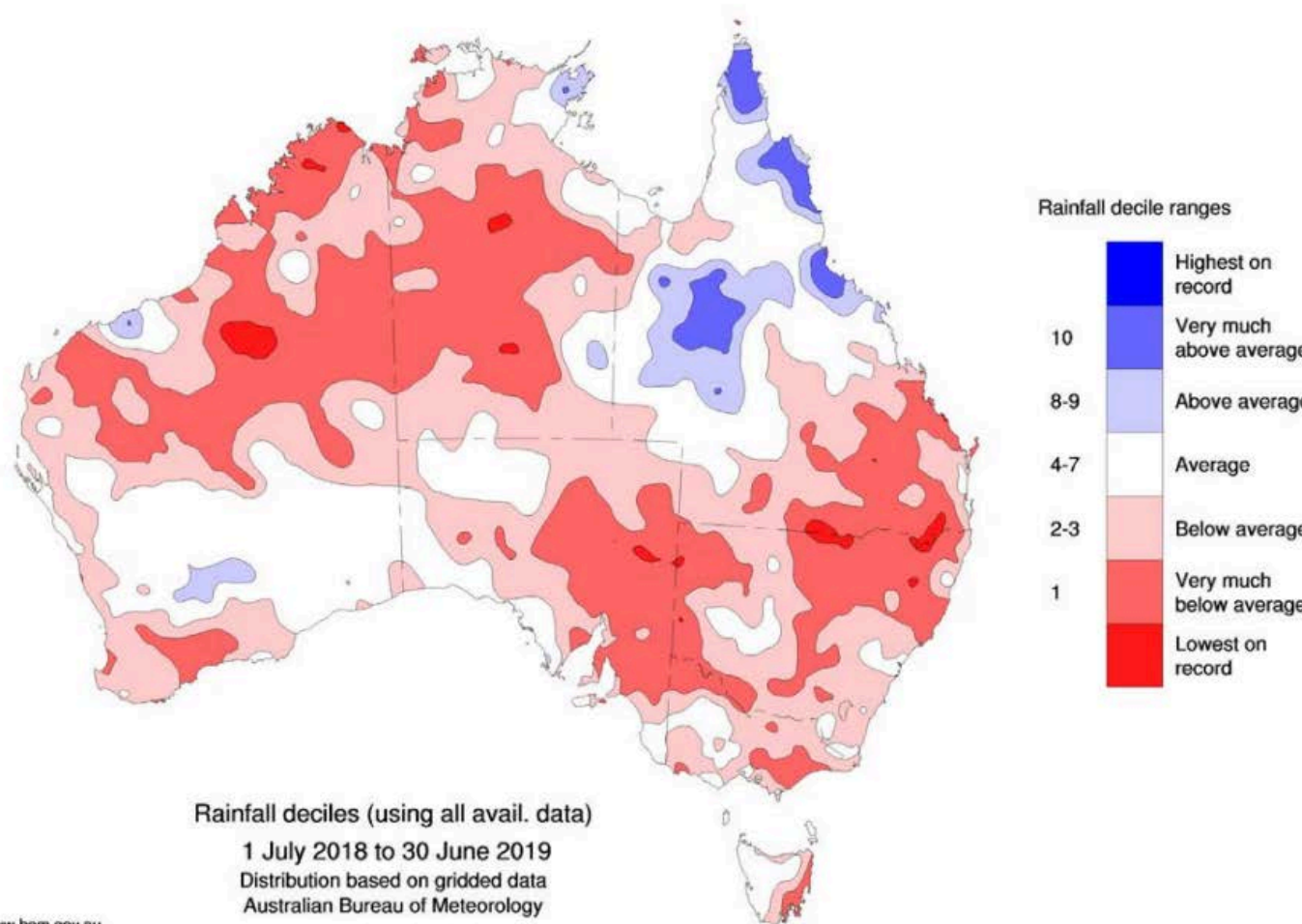
2) Limit/specify extractions for each user



3) Trade allows individual water use to be reallocated



...NB many different water markets



Source:
BOM,
Australian
Water
Markets
Report 2018-
2019, p. 18.

Source: BOM, Australian Water Markets Report 2018-2019, p. 20, 25.

Water use

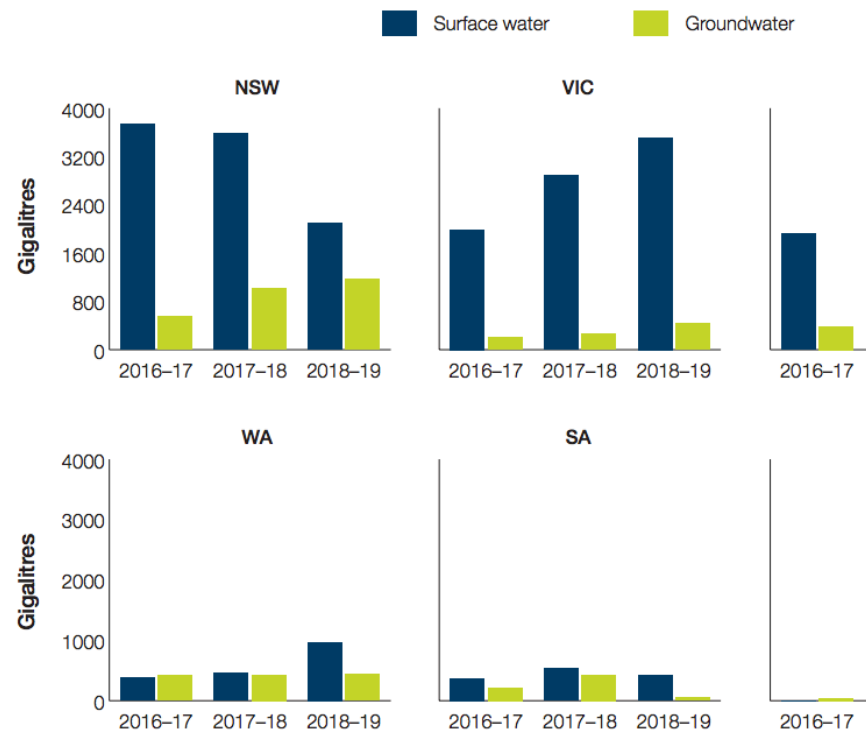
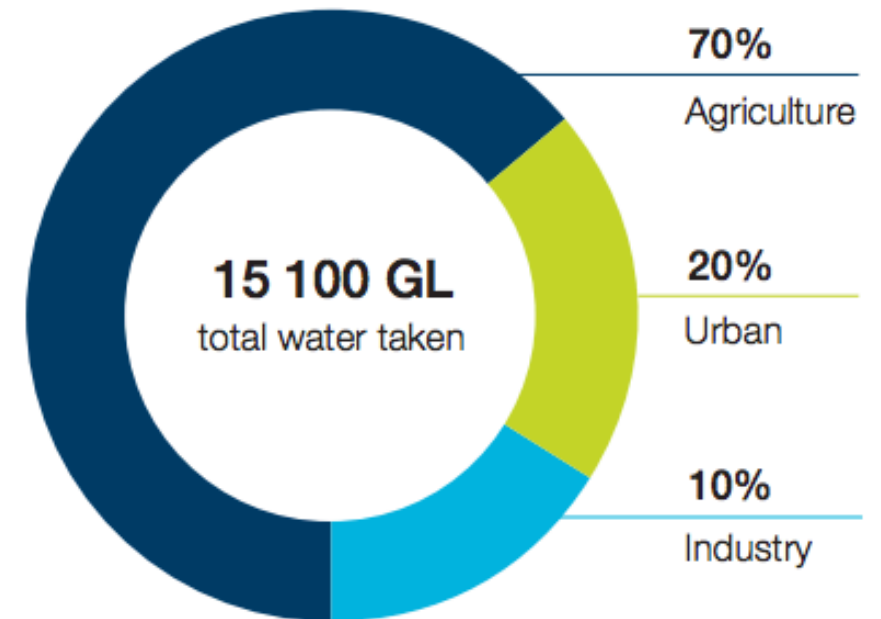


Figure 4.12 Volume of water taken for agriculture, by State, 2016-19 (This graph includes water systems with m taken per system)



4.9 Water taken by use category, Australia, 2018-19 (BoM 2020a)



Achievements

Healthy market



Water separated from land in most states



Estimated turnover (monetary value of water traded) of \$5.2 billion in 18/19
Total value ~ \$22.7 billion.



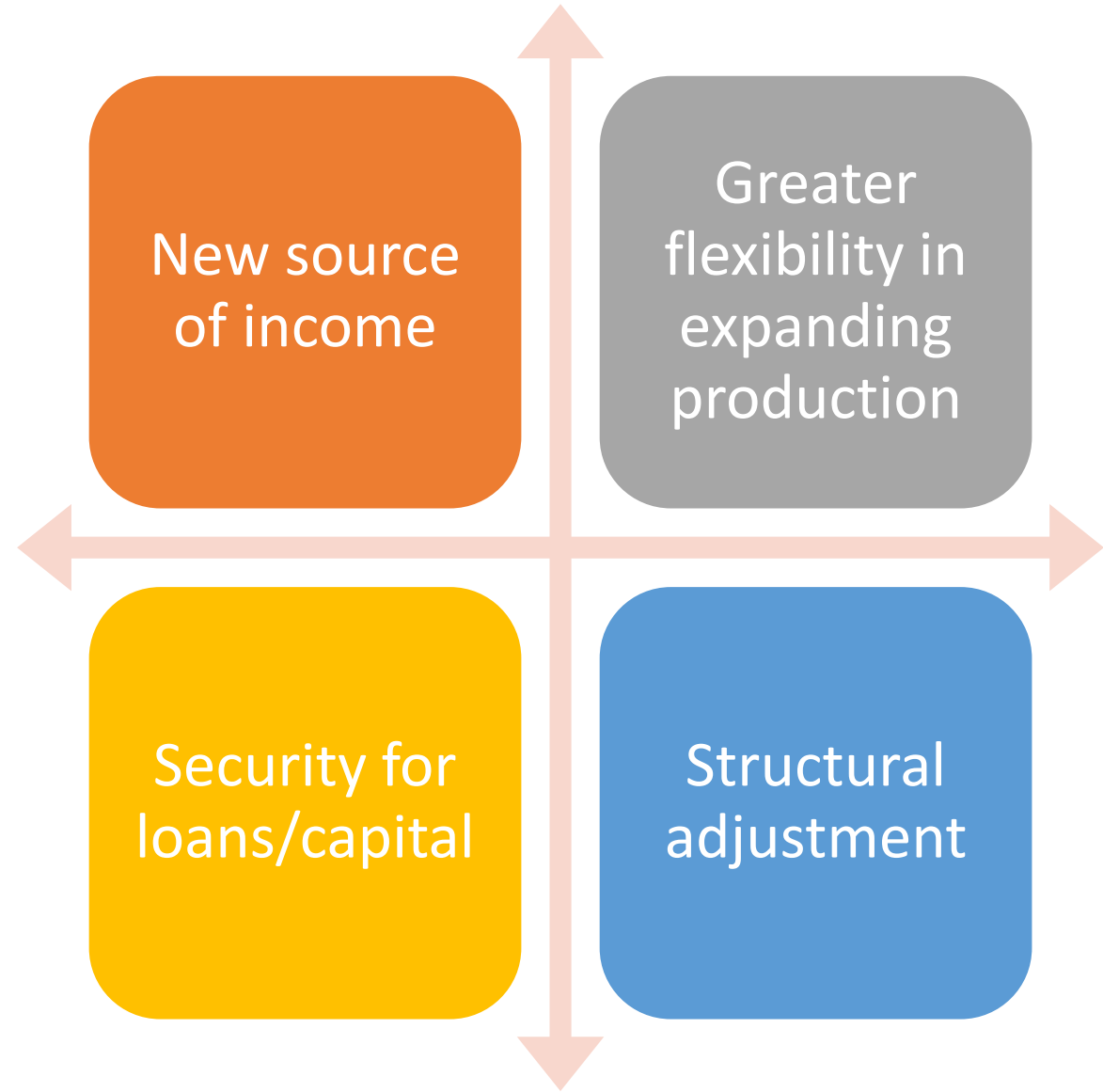
In 2000, <10% of irrigators by 2015
~80% conducted at least one water allocation trade (Southern MDBA)
(ACCC 2020; BoM 18-19))



Efficiency

- “what it allows people to do is find the highest value for their water. Instead of wasting water running cows or something, its all heading to the highest value. So each Megalitre is producing the most earning”.
 - i.e.. from less productive crops that generate on average less dollars per unit of water to productive, especially in drought (Texas, Debaerea and Li 2020)
 - value of production from irrigated agriculture in the Southern Basin trended upwards in real terms since 2010-11 (ACCC 2020)
- southern MDB: water trading increased the gross regional product of the southern MDB by some \$370million relative to a scenario where no trading was available (Graton and Horne 2014)

Irrigators
have more
say in own
security



Environmental water

- environmental water holders (EWHs) which have acquired significant volumes of water entitlements in the Basin, and manage the use of this water to achieve environmental outcomes
 - Between 2007–08 and 31 March 2019, the Commonwealth acquired 2100 GL of entitlements (long-term average annual yield) for the environment in the MDB through a mix of purchases and investments in infrastructure (DAWE 2020).
- environmental trades or transfers between environmental water holders and delivery partners accounted for 36 per cent of total allocation trades in the southern MDB in 2018–19 and 34 per cent in the northern MDB (BoM 2018–19; ACCC 2020)



Challenges



Why pay when you can
get it for free?

UNCERTAINTY
AND
COMPLIANCE

LIMITED
METER
ACCURACY

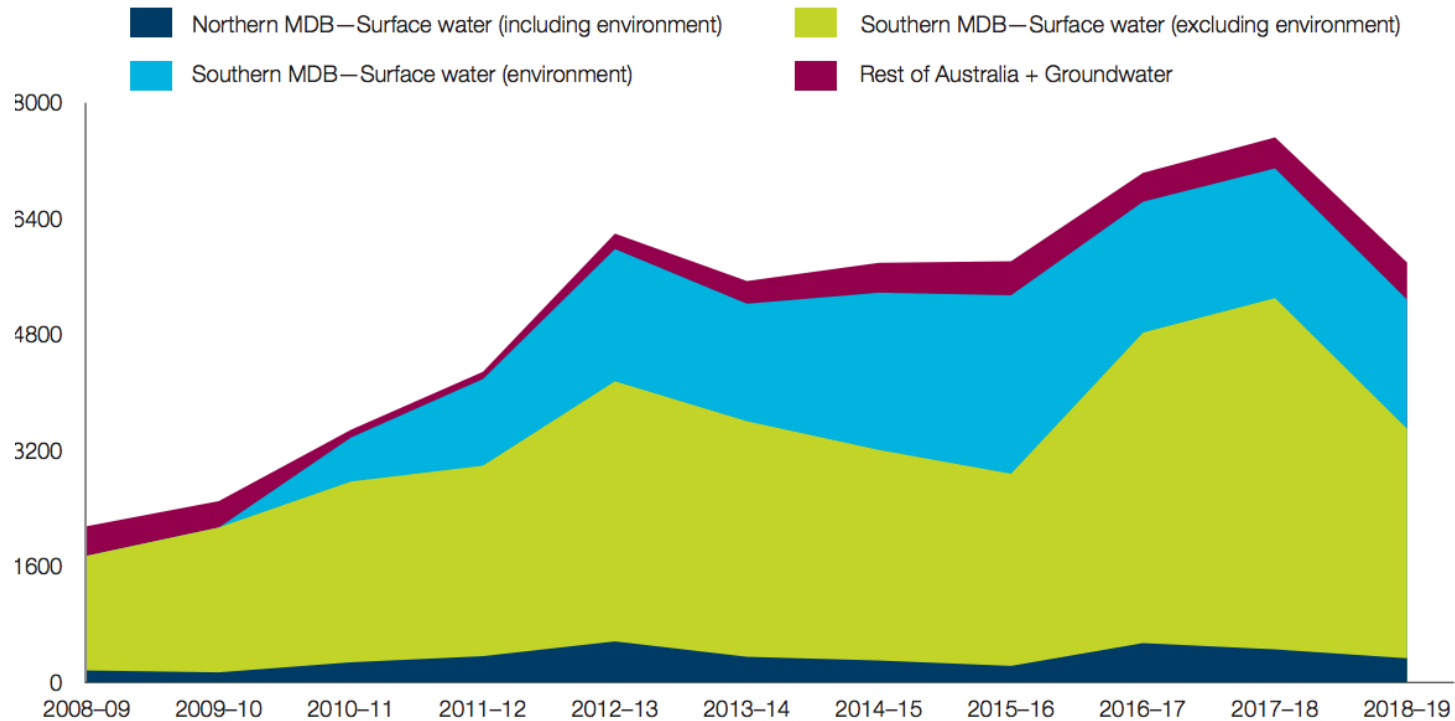
ENFORCEMENT



Social impacts and environment

- EWH decreased the amount of water available for consumptive use and for trade in the markets (ACCC 2020)
- 'they bought here, there and everywhere and sometimes there was a 20 kilometre channel with one person left at the end, or two people left at the end, all the intermediaries had gone, so to get water to them was, you know, came at a big cost...took a heap of employment out of the community and contractors'.
- disconnect between the rules of the trading system and the physical characteristics of the river system (e.g. adverse environmental impacts are not considered in the processing of trades that change the location of water use, except through blunt rules) (ACCC 2020)

Universality



5.2 Volume of surface water allocation trade, by region, 2008-09 to 2018-19

- Coverage and impact – not all states separated land/water
- Trading is largely in Basin
- Fungibility of groundwater

Social barriers & market governance

- potential barriers to trade from lack of knowledge and information and some market participants may prefer to retain their allocations
- brokers and water-exchange platforms operate in a mostly unregulated environment, allowing conflicts of interest to arise, and opportunities for transactions to be reported improperly
- there are information failures (limited harmonisation of registers) which limit the openness of markets and favour better-resourced and professional traders who can take advantage of opportunities such as inter-valley trade/transfer openings
- important information, such as allocation policies and river operations policy, which can significantly impact water pricing, are inadequately communicated to the irrigators and traders who rely on these to make business decisions
- many water users do not trust that the markets and key institutions are fair or working to their benefit, which can impede investment (ACCC 2020)



Summing up

- early days - benefits for efficiency, dealing with drought and delivering economic outcomes, but a number of challenges (largely consistent with international experience with water markets)
- some market participants have called for a return to the system where water was tied to land, perhaps with some limited trade between water users only. The ACCC does not support this position. Dismantling existing water markets would mean the benefits that markets provide to many water users would be lost, and this would be to the detriment of the Australian economy. It would also significantly diminish the value of water entitlements, which make up a substantial proportion of the assets owned by irrigation farmers (ACCC 2020)

Reforms



- Fixable: regulatory underpinning (e.g. NRAR), improving accuracy of information (metering reforms), new market rules, regulate brokers; national register; blockchain; complete unbundling of rights
- More challenging: (non) universality of impact and source, particularly for groundwater, social impacts
- Watch this space:
 - GAB Strategic Management Plan
 - Productivity Commission Inquiry
 - ACCC final report