



Market Mechanisms for Water Recovery for the Environment

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Over-allocation:

- aka over-use, over-development, over-extraction... is:
 - Extracting more water than the system can sustain
 - *The* biggest threat to river health
 - Driving the loss of wetlands and wildlife
 - Compromising agricultural productivity
 - Threatening drinking water supplies
 - Impacting on tourism, fishing...
 - Rendering other interventions redundant

Addressing over-allocation

- National Water Initiative (2004):
 - *‘implement firm pathways and open processes for returning over-allocated systems to environmentally sustainable levels of extraction’* [S25(v)] using
 - *‘the most effective and efficient mix of water recovery measures’* including *‘investment in efficient water infrastructure and purchase on the market by tender or other MBI...’* [S79(ii)]
- Federal Govt ‘Water for the Future’ (2008)
 - \$3.1bn for buying back water

Purchasing entitlements on an open market (permanent water)

*Environmental manager stands in the market
like any other buyer*

- **Advantages**

- Straightforward (existing product) & transparent
- Provides water in perpetuity
- Fixed water demands or base flow
- Provides the environment with an asset
 - Enable self-reliance; sell it when it's not required
- Has few on-going costs BUT it's expensive up-front

Purchasing entitlements on an open market (permanent water)

*Environmental manager stands in the market
like any other buyer*

- **Disadvantages**

- Not well suited to highly variable and spiky environmental needs eg floods
- Constrained by size and liquidity of market
- Could result in price increases
- Could leave stranded assets
- Could have 3rd party impacts

Purchasing annual allocations on an open market (temporary water)

Environmental manager stands in the market like any other buyer

- **Advantages**

- Flexible and responsive to variable and spiky environmental need – floods
- Well suited to adaptive management
- Only buy what you need, lower up-front costs
- Entitlement stays with irrigator – no stranded assets issues

Purchasing annual allocations on an open market: (temporary water)

*Environmental manager stands in the market
like any other buyer*

- **Disadvantages**

- Environment needs water early in the season, before temporary water becomes available
- Large volumes would increase water prices
- Water not available in perpetuity
- No permanent asset
- Costs are ongoing

How else can you administer MBIs?

Voluntary buy-back schemes

Public offer to buy a particular type of water product at a particular price for a specified time period (entitlement or allocation)

- **Advantages**

- Good track record
- Allows precision targeting of water products that would meet environmental needs OR promote adjustment in specifically targeted geographical locations
- Open and transparent process
- Avoid price increases

- **Disadvantages**

- Potential for stranded assets (entitlements)
- Limits participation by sellers

How else can you administer MBIs?

Tender or auction schemes

Competitive tendering (open or closed) determines who supplies water to the environment and at what price

- **Advantages**

- Cost-effective, avoids price increases
- Can target water that meets environmental needs
- Stimulates irrigator participation

- **Disadvantages**

- Lacks transparency
- Too slow for temporary water
- Potential for stranded assets (entitlements)

Compulsory buy-back

Providing compensation for the non-voluntary acquisition of an entitlement

- **Advantages**

- Useful if everyone in a particular area is required to surrender all or part of their entitlement
- Multiple benefits at specific sites eg salinity
- Free from capital gains tax and other financial incentives can sweeten the deal
- Address the stranded assets issue

- **Disadvantages**

- Deeply unpopular amongst most irrigators
- Above market cost
- Excluded by the Water Act (2007)

Novel MBIs

- Varying stages of development
- *Partial* transfer of rights
- Sharing the property rights in an entitlement
- Qualification or attenuation of property rights in an entitlement

License attenuation

Buy a water entitlement, introduce caveats where water flows to the environment when particular triggers are met, and then sell the (qualified) entitlement back to irrigators

- **Advantages**

- Can match triggers to highly variable environmental needs (allocation, resource condition etc)
- Title stays with irrigator (no stranded assets)
- Provides water in perpetuity
- Revolving funds; few ongoing costs

- **Disadvantages**

- New water product (R&D)
- Expensive to establish (legal covenants)
- Market acceptability? Risk?

Options contracts

Irrigators enter a contract with environmental manager to provide a pre-specified volume of water when the option is triggered

- **Advantages**

- Can match triggers to highly variable environmental needs (allocation, resource condition etc)
- Can provide a lot of cheap water in wet years
- Only source water when needed (adaptive mgt)
- Title stays with irrigator so avoids stranded assets

- **Disadvantages**

- Requires ongoing funding
- Could increase pricing / scarcity of water on the temporary market
- Market acceptability? Risk?

Water conservancy trusts

A public or private trust purchases or accepts donations of water entitlements for use by the environment

- **Advantages**

- By-passes bureaucracy and ideological issues with governments buying water
- Mechanism to integrate ‘one-offs’

- **Disadvantages**

- Poor coordination
- Substitution or cost-shifting

Other issues

- Carry-over reduces the entitlement needed to meet environmental demand
 - 4.5x carry-over reduced by 70% the entitlement required to meet e-demand 80% of the time
- What does the e-manager look like?
 - independence, institutional arrangements, culture, skills, \$\$...
- MBIs for water recovery differ from those that address channel capacity problems, pollution etc

Other issues

- Scheduling different policy elements
 - \$5.8 bn for irrigation efficiency and structural adjustment
 - Risk of world-class irrigation infrastructure becoming world-class stranded assets!
 - Land and water capability assessment needed to understand future prospects
 - Let the market identify priorities for adjustment

Conclusion

- All MBIs and administrative mechanisms have different pros and cons
 - flexibility, certainty, costs, complexity, inflationary pressure, 3rd party impacts
- Utility is influenced by non-market elements
 - Carry-over, integration with other policy elements, institutional context

Conclusion

- Need a *portfolio* of water products whose characteristics collectively meet the needs of the environment:
 - Entitlements that can be traded
 - Top-up by purchasing allocations, options contracts, attenuated licenses
 - Smart regulatory framework
 - Deal with problems that the market cannot
 - Optimise carry-over provisions
 - Adaptive management framework
 - Uncertainty of climate change and other risks



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