Irrigation Markets

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Some market realities

- We live on a world of constrained resources
- The population of the world will increase from 6 billion to 9 billion in less than 50 years
- Prices may be volatile, but in the long term cheap food will be history
- Those who have access to resources will control the future
- Water is a key limiting resource

Water as a scarce resource

- Because water has historically been a free resource it has been used inefficiently
- Until we see irrigation farmers measuring farm returns per unit of water we will know that water is not being valued appropriately
- For more than 20 years we have seen at least some Australian irrigation farmers measuring their returns per ML of water as well as (or in some cases instead of) per ha

Irrigation efficiency: LUDF and others (3yr data; 2004/5 to 2006/7)

(Source: Will Grayling 2008, M Applied Sci dissertation)

	LUDF (Lincoln)	Average of 7 benchmark farms	Range of 7 benchmark farms
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What do these figures tell us?

- Almost certainly there is huge scope for increasing irrigation efficiency

What do these figures not tell us?

- The amount of water that consent holders should be allocated
- Why is this?

Three years of Lincoln data

(Source: Will Grayling, 2008. M Applied Sci dissertation)

	2004/05	2005/06	2006/07
Milk solids (kg/ha)	1719	1772	1703
Total irrign (mm)	438	493	363
Total water (mm)	1063	942	1238
DM harvested (t/ha)	15.9	16.1	16.0
DM harvested (t / ML irrign)	3.63	3.27	4.41
Tonnes DM / ML total water	1.50	1.71	1.29
Kg MS per ML irrign	392	359	469
KG MS per ML total water	162	188	138
KG MS excl. purch. feed per ML irrign	336	307	400
Kg MS excl purch feed per ML water	138	161	117
EBIT/ML irrigation (NB: average, not marginal	632	478	763

The simple answer is:

- Regulatory allocation systems based on averages do not deal well with between year variability
- And allocations set on *average* requirements would have major implications for optimal farming systems

The need for water markets

- Current water markets are rudimentary
- Water consents are granted, rather than sold to the highest bidder
- There is no fairness in such a situation; all it does is create winners and losers
- Regulations cannot create efficiency
- We therefore need to move towards ***tradable water rights***
- These rights should contain elements relating to location, timing, priority, and duration

Water markets

- The starting point is to recognise that water is a public resource
- There is no justification for giving it away
- The next point is to determine environmental minimums that are then regarded as sacrosanct.
- The markets relate to the *additional* water that is deemed extractable
- Water markets are about *allocating* the extractable water in a transparent and efficient manner; a water market system should be able to accommodate alternative political persuasions

More on water markets

- For example, determining minimum flows is a political decision informed by science and influenced by political values.
- Whether or not water rights are held short, medium or long term is also a political decision.
- One possible structure which has some appeal is that water rights are auctioned annually for a one year period, but this occurs five years in advance (i.e. water rights for year ‘n’ are auctioned in year ‘n-5’).
- Once the political and regulatory decisions are made, water markets then work within this framework for the water that is deemed extractable.

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