



Submission to the Productivity Commission

Rural Water Use and the Environment: The Role of Market Mechanisms

15 February 2006

The Australian Competition and Consumer Commission (the ACCC) is pleased to make a submission to the Productivity Commission’s research study into ‘Rural Water Use and the Environment: The Role of Market Mechanisms’.

The ACCC is an independent statutory authority that administers the *Trade Practices Act 1974* (TPA) and associated legislation. The objective of the TPA is to enhance the welfare of Australians by promoting competition, fair trading and protecting consumers.

ACCC investigation of water trading restrictions

In early 2002, the ACCC received complaints in relation to water trading restrictions in a number of private irrigation districts in New South Wales. These complaints alleged potential breaches of section 47(2) of the TPA arising from restrictions contained within the districts’ temporary and permanent water trading rules limiting water trades out of the irrigation districts.

Amongst other things Part IV of the TPA prohibits anti-competitive agreements and exclusive dealing. Broadly speaking, exclusive dealing involves one person who trades with another imposing restriction on the other’s freedom to choose with whom, or in what, it deals.

Examples of water trading rules imposed by NSW irrigation districts around the time of this investigation are shown in Table 1.

Reforms relating to removing these barriers were to be incorporated into the National Water Initiative, and no action was taken by the ACCC.

Table 1: NSW irrigation corporations’ trading rules relating to water exports

| Restrictions as at 2003/04 | Irrigation Corporation/Trust where restriction (or similar) is applied |
|--|--|
| No permanent transfers out of the district | Macquarie Valley, Western Murray Irrigation, West Cororgan Irrigation Trust, Jemalong Irrigation district, Northern Valleys and general security licences in the Murrumbidgee Irrigation district. |
| Total permanent transfers out of the area limited to a percentage of the entitlement. | High security licence in the Murrumbidgee Irrigation district to a level of 1%. |
| No net trade out of the district. | Permanent transfer from Murray Irrigation Limited and temporary transfers from West Cororgan Irrigation Trust. |
| Permanent transfers out of the area are prohibited if the irrigation area’s entitlements fall below a set entitlement level. | Coleambally Irrigation Co-operative Limited where the 2002 level of entitlements must be maintained. |

| | |
|---|---|
| Minimum quantity of water (ML/ha) or percentage of entitlement must be retained on each property. | Coleambally Irrigation Co-operative Limited, Murray Irrigation Limited and Murrumbidgee Irrigation districts. |
| Exit fees applied to transfers. | Soon to apply to Murray Irrigation Limited and temporary transfers from the Jemalong Irrigation district. |

Impediments to the efficient operation of water markets

Part IV of the TPA provides for the regulation of anti-competitive conduct in markets for goods and services in Australia. This includes markets for water. However, based on experience in respect of a number of other industries, the ACCC notes that Part IV is not a particularly effective tool for addressing concerns about inefficient outcomes and market power that arise because of poor market design and structure.

Accordingly, this submission details barriers and restrictions imposed on water trading that have the potential to prevent the development of efficient markets by limiting the movement of water to higher value uses. These trading barriers and restrictions occur within legislation, regulations, water resource plans and the operational charters of irrigation districts, and tend to be of the following nature:

- restrictions on water entitlement ownership
- constraints on water exports
- constraints on water imports
- groundwater trading restrictions, and
- trade reduction factors.

The ACCC recognises that the creation and development of water markets sits within a broader policy framework for managing Australia's water resources, including for the purpose of meeting environmental objectives.

Restrictions on water entitlement ownership

Non water users/non landholders

Legislation exists in Victoria and Queensland that restrict ownership of water entitlements by non water users or non landholders.

Victoria's *Water Resource Management Act 2005* limits the volume of water entitlements that can be held by non water users to 10 per cent of the total volume of

entitlements in a region. Similarly, Queensland's *Water Act 2000* allows only landholders to hold Interim Water Allocations.¹

Exclusions are also contained within the charter or constitution of irrigation districts. In some private irrigation districts in NSW only landholders can hold water shares in the irrigation corporation's water entitlement. Although this is soon to be removed from the constitution of Murray Irrigation Limited, similar restrictions may still exist in other districts.²

Application and holding limits

Application and holding limits are specified in the water legislation and water resource plans of some jurisdictions. The rationale behind these limits is most likely related to limiting salinity impacts by preventing unsustainable irrigation techniques, but also limiting speculative behaviour in water markets (i.e. water hoarding).

Victorian and Tasmanian legislation and some water resource plans set application rates (ML/ha) for different purposes by considering the amount of water that could be sustainably used for the intended purpose. Trade in water in Tasmania can be refused if the water entitlement holding associated with a particular land package exceeds the sustainable volume. Victorian legislation is more prescriptive and limits water entitlement holdings to twice the volume that is deemed sustainable. It is unclear how this practice will be affected by the *Water Resource Management Act 2005*.

Speculation in the market

Concerns relating to speculators entering and manipulating water markets have been raised as justification for regulations related to controlling holdings of water entitlements by non water users.

Such a supposition would require market participants (non water users or otherwise) to purchase sufficient water entitlements in order to assert market power.

However, there is no evidence to suggest that this form of conduct, if possible, is more likely from non landholders or non water users. Limiting the water holdings of these parties will not prevent speculation by current landholders/water users.

Furthermore, the ACCC is not aware of any research or evidence that indicates market participants are likely to be able to profitably 'hoard' water entitlements. Rather, return from the capital invested in water entitlement is only generated when the water is used, leased or temporarily traded. The nature of water is such that it is expensive and difficult to store for any extended period. While there is likely to be long term capital growth in the value of water entitlements due to increasing scarcity, the value of water comes from its use as a business input or in meeting environmental objectives.

¹ Section 190 of the Queensland *Water Act 2000* specifies that an interim water allocation attaches to the land of the holder, effectively allowing only landholders to own Interim Water Allocations.

² Murray Irrigation Limited, *Complying with the National Water Initiative, Murray Irrigation's new constitution*, November 2005.

Box 1: Market definition and structure

The structure of a market refers to the number and characteristics of the market participants. The structure of the markets for water is likely to vary significantly between jurisdictions and catchments.

An indication of the number of establishments participating in water trading is shown below.

Water traded by irrigating agricultural establishments, by jurisdiction in 2003-04

| | Total Number of Establishments | Establishments involved in purchasing water | | Establishments involved in selling water | |
|----------------|--------------------------------|---|------------|--|------------|
| | | Number | Percentage | Number | Percentage |
| NSW/ACT | 9,998 | 1,815 | 18.3 | 1,632 | 16.3 |
| Vic. | 10,844 | 2,773 | 25.6 | 1,886 | 17.4 |
| Qld | 9,520 | 728 | 7.6 | 406 | 4.3 |
| SA | 5,494 | 484 | 8.8 | 357 | 6.5 |
| WA | 2,459 | 246 | 10.0 | 50 | 2.0 |
| Tas. | 1,939 | 151 | 7.8 | 53 | 2.7 |
| NT | 145 | 3 | 2.1 | 5 | 3.4 |
| Aust. | 40,400 | 6,200 | 15.3 | 4,389 | 10.9 |

Source: Australian Bureau of Statistics – Publication 4618.0 Water Use on Australian Farms.

These participation figures appear high in the Murray Darling Basin states. However, water markets are not defined by jurisdictional boundaries.

In defining water markets consideration must be given to supply and demand substitutability in terms of product, geographic and functional dimensions.

Trade currently exists for seasonal water allocation volumes and both high and low reliability water entitlements. These water products are partially substitutable, although the extent of this depends on the needs of the particular irrigator. There is also the potential for non-physical products such as options and other hedging and risk management instruments to develop, which may increase the substitutability of the various physical products.

In general, water markets are constrained to discreet catchments and basins where there is a hydrological connection such as rivers, streams, subsurface flow, channels or other man-made infrastructure.

Ultimately, market definition and structure must be considered on a case by case basis.

Any assessment of the potential for, and likelihood of, market participants exerting market power must include appropriate analysis of market definition and structure (see Box 1). It also requires consideration of the presence and role of any groups operating within the market. For example, trade in the Murray Darling Basin involves many individual irrigators, but only a small number of irrigation districts and private irrigation corporations. Therefore any assessment of the scope for parties to exercise market power would need to analyse the potential for members of such groups to influence market outcomes.

To the extent that trade in some water markets appears to be thin and therefore potentially more prone to participants wielding market power, this may be exacerbated by the prohibition and restrictions on trading across management areas. Queensland and South Australia's water resource plans often prohibit trade between defined management zones. Concerns have been raised regarding the arbitrary nature and large number of these zones in both states.³ For example, South Australian management zones were originally created for administrative reasons.

Entry of non-water users or intermediaries is likely to facilitate trade and potentially alleviate concerns regarding market power. New entrants may inject capital into the industry and develop products that allow irrigators to adopt a more desirable risk and financing strategy. The involvement of intermediaries could also represent a possible mechanism for reducing transaction costs, given their potential for specialisation in the trading processes.

Finally, the ACCC notes that timely and full disclosure of relevant market information, such as traded water volumes and prices, will help to foster mature, transparent markets that are less vulnerable to manipulation.

Constraints on water exports

The Victorian *Water (Permanent Transfer of Water Rights) Regulations 2001* specifies an authority may refuse to approve an application if the proposed permanent transfer would result in more than a 2 per cent net export of an irrigation districts/area's total water entitlement in a given year.⁴ It is not known if this will be repealed with the introduction of Victorian *Water Resource Management Act 2005*.

Significant restrictions on transfers out of irrigation districts occur in NSW. In NSW, irrigation corporations hold water entitlements for the district, while irrigators hold a share of this entitlement. The majority of irrigation districts in NSW specify in their charter or constitution some form of restriction on water exports from their district (refer to table 1).

³ See submissions to the NCC 2004 NCP assessment and South East Catchment Water Management Board, *Paper for community comment No.11 Water trading and transfer in the south east*, 2004.

⁴ Water (Permanent Transfer of Water Rights) Regulations 2001, S.R. No. 132/2001, S.13.

Similar arrangements exist in South Australia, where water rights are held by irrigation trusts/districts. For example, the Central Irrigation Trust has set a 2 per cent cumulative limit on permanent trade out of its region.⁵

Recent NSW legislative amendments require districts to approve permanent trades up to 4 per cent of their entitlement in order to comply with the NWI obligations. Some irrigation corporations, such as Murray Irrigation Limited (the largest water licence holder in Australia) are already amending their constitution.

However, these amendments may not prevent districts from maintaining other restrictions on outward trade. For example, it has been reported that Murray Irrigation Limited requires that 60 per cent of water entitlement on a farm in 1995 must stay there.⁶ Similarly some Victorian and South Australian districts set a minimum water entitlement holding that must be retained on properties within the area. For example, the Lower Murray Reclaimed Irrigation areas in South Australia set a minimum volume of 4ML/ha that must be retained on the property.⁷

Water resource plans (developed by water management authorities) can also include a similar restriction in relation to the retention of certain water volumes on the property or within the district.⁸

One rationale for constraints to outward trade from irrigation districts relates to concerns regarding 'stranded assets'.

The large scale capital intensive nature of water delivery systems means that the actual costs of operating and maintaining the system are largely fixed once the infrastructure is constructed. The combination of recurrent non-volumetric or fixed costs, such as channel maintenance, and volumetric or variable delivery costs, means that average delivery costs are greater than marginal delivery costs at the volume of water used.⁹

Trade of water entitlements out of an irrigation district can therefore impose additional costs on remaining irrigators if the fixed infrastructure maintenance costs are apportioned to fewer water entitlements/users in the district. Whether this will be the case depends on the pricing model adopted by the irrigation authority for investment in and use of the irrigation assets.

⁵ NCC, *Assessment of governments' progress in implementing the national competition policy and related reforms: 2004 Volume 2*.

⁶ F. Carruthers, 'The flow on effect', *Australian Financial Review*, 1 July 2005

⁷ Marsden Jacob and Associates, *Improving water-use efficiency in irrigation conveyance systems – a study of institutional arrangements*, National Rivers Consortium, May 2003, p53).

⁸ Queensland's Resource Operation Plans often specify minimum and maximum volumes that must be maintained within a specific area.

⁹ Heaney et al. *Water charges and interregional trade in the Southern Murray Darling Basin*, Presented at the Establishing Australian Water Markets Symposium, Melbourne, 9 August 2004, p3.

As noted by Heaney et al¹⁰, “where a utility adopts an inappropriate pricing model, such as one that allocates fixed costs to a variable charge ... the average cost of delivery may rise in source regions, while in the destination region, average costs may fall. These artificial conditions of decreasing and increasing costs can distort the spatial pattern of trade and result in movement of water into lower returning activities.”

In contrast, with an *ex ante* multipart tariff that has a variable charge set equal to the marginal cost of delivery and a fixed fee charged separately, the fixed fee can be collected as an annual charge through a long term contract or an exit fee.¹¹ In this case, trade out of a region does not create concern about stranded assets or incentive for inefficient trade, since irrigators are aware that they are liable for these costs and will take them into consideration in their production and water trade decisions.

However, the appropriate *ex post* pricing model is not as clear cut as the *ex ante* model. If the fixed cost of the irrigation assets are predominantly sunk, imposition of exit fees is likely to have efficiency implications since it will discourage trade of water from lower value to higher value uses. Thus, whether or not to impose exit fees *ex post* is essentially a matter of trading-off concerns about equity with forgone gains from efficient trade.

This concern regarding ‘stranded assets’ was considered in the NWI reforms, which allowed for the progressive removal of barriers to permanent trade out of water irrigation areas, up to an annual limit of 4 per cent of the total water area’s entitlement. This is to be subject to review by 2009, with a move to full open trade by 2014 at the latest.

Victoria’s *Water Resource Management Act 2005* allows for exit fees to be imposed on irrigators no longer utilising their supply infrastructure. This provides transitional support for remaining irrigators and/or contributes to any costs relating to decommissioning or restructuring infrastructure.

NSW districts are considering the use of ‘tagging’, which allows the transferred water share to remain on the original authority’s water access licence. The new share owner, regardless of their location, may be required to contribute each year to that authority’s fixed water charges. It would appear that tagging for the purpose of collecting revenue provides little incentive to an irrigation district to rationalise its assets in order to maintain an efficient infrastructure network.

Constraints on water imports

While the inflow of water into an irrigation district is generally thought of as positive for the receiving district, it can exacerbate salinity problems in some areas.

¹⁰ A. Heaney et al, ‘Third party effects of water trading and potential policy responses’, *Proceedings of the American Agricultural Economics Association Conference*, Providence, Rhode Island, 25-27 July 2005, p 9.

¹¹ Heaney et al. *Water charges and interregional trade in the Southern Murray Darling Basin*, Presented at the Establishing Australian Water Markets Symposium, Melbourne, 9 August 2004, p3

In areas of shallow and highly saline groundwater, excess irrigation water can filter into the groundwater, pushing it into rivers and thereby increasing their salinity. This problem is of particular concern in the downstream areas of the MDB in South Australia and Victoria close to the border (eg Sunraysia).

In these salinity impacted areas, Victoria utilises zoning techniques with defined High and Low Impact Zones (HIZ & LIZ). Trade into HIZs is prohibited while trade into LIZs is permitted but levied at a varying rate per ML to offset the associated salinity impacts and cover the cost of public salt interception schemes.

South Australia also limits trade into salinity affected areas, but via the approval process. In many instances approval is linked to the individual setting up private salinity mitigation measures. Levies on trade into salinity regions are not employed.

Victoria's salinity levies are a means of internalising the externalities which arise when water is traded into LIZs. However, they do not encourage trades out of these salinity affected areas. The use of symmetric exchange rates may resolve this issue, although this mechanism would not provide funding for the implementation of region-wide salinity abatement measures.

Furthermore, the use of levies alone does not encourage the implementation of private salinity abatement measures. Tradeable property rights for salt are a potential alternative to levies on water trade, although the cost and practicality of such a scheme would have to be considered.

Groundwater trading restrictions

Uncertainty surrounding the impact of water use and water trading in groundwater resources may have led to a conservative or restricted approach to trading in groundwater entitlements.

NSW legislation prohibits trade between surface water and groundwater systems. Other states consider this form of trade, although the onus for proving that impacts are negligible is on the transferee, inducing a large transaction cost.

South Australia has extensive trading prohibitions between groundwater management areas.¹² In the major groundwater supply region — the South East Catchment — there are a total of 73 management areas created to manage groundwater extraction but also for administrative reasons.¹³ Water trading is prohibited across these management areas. It is possible that the restrictions on trading across the large number of small regions (management areas), could be constraining efficient trade.

¹² In South Australia 60 per cent of irrigation water supply is sourced from groundwater (source: NCC, *Assessment of governments' progress in implementing the national competition policy and related reforms: 2001.*)

¹³ South East Catchment Water Management Board, 2004, Paper for community comment No.11 water trading and transfer in the south east, SE Catchment Water Management Board.

It appears that many jurisdictions are yet to consider, to any real extent, groundwater trading in their water management policies. In order to advance trade of groundwater further progress is required on defining sustainable groundwater yields and developing integrated water accounting systems. The ACCC supports the NWI in its commitment to a comprehensive national framework for water accounting systems for both groundwater and surface water.

Reduction Factors

In the northern Victorian unregulated rivers generic trading rules impose a 20 per cent reduction on most trade downstream. South Australia employs a similar 20 per cent reduction factor on permanent and temporary trades in the North Adelaide Plains groundwater system.

Reduction factors, if applied for the purpose of reducing the entitlement to water, create a disincentive to trade. The ACCC notes the NWC's objection to the use of reduction factors for reducing groundwater allocations.¹⁴ A reduction in entitlements across the board via the water resource planning process would appear to be a more efficient means of achieving this goal.

Conclusion

One of the key reforms of the National Water Initiative in relation to water trading is the requirement for parties to create compatible institutional and regulatory arrangements by the end of 2007 to facilitate intra and interstate trade. This includes the progressive removal of barriers to trade and the implementation of measures to advance trade and reduce transaction costs.

The ACCC supports these reforms, and requests that the Productivity Commission consider as part of its research study the extent to which removal of barriers to trade—in particular, restrictions on ownership of water entitlements, constraints on water exports and imports, restrictions on trading of groundwater and the imposition of trade reduction factors—would assist in the development of efficient and competitive water markets in Australia.

¹⁴ NCC, *Water reforms assessment framework*, 2005.