Submission to the Productivity Commission

Rural Water Use & the Environment:

The Role of Market Mechanisms

Extending the Application of Unbundling

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Introduction

The concept of a water market limited only by the natural restrictions of catchments is an elegant solution but has drawn two significant barriers. These have predominantly been from the owners of irrigation water delivery infrastructure based on very reasonable concerns for their own economic viability caused by stranded infrastructure as a likely outworking of an open water market.

The two evolving barriers to open markets are exit fees and potential elements of water tagging. Interestingly, the proponents of these barriers would see them as solutions in making a workable water market. This paper will argue that they are in fact barriers to an open market and further, that the infrastructure investment they are designed to protect can be protected in a more positive manner with additional benefits to the broader industry, environment and the effectiveness of a water market.

Exit Fees

Exit fees are a volumetric charge designed to protect sunk investment in infrastructure and the continuing users of that infrastructure. If the owner of a water entitlement sells some or all of that entitlement outside of the irrigation District where it is currently held, they must pay an exit fee to the infrastructure owner of that District.

The exit fee is theoretically to maintain the infrastructure as it would have been maintained had the water not been transferred outside the District. This fee has arisen as most irrigation District rating systems are based on water entitlement held by landholders and the water they use. If the aggregate amount of water entitlement held within a District changes significantly either the costs of operating and maintaining the system must decrease or the charges per unit volume must increase to maintain the income base for the infrastructure owner.

A third option is to reduce the size of the District proportionately but this assumes that some infrastructure is no longer required and only fits if all the customers on one delivery route sell all their water entitlement. Experience suggests that water sales are much more spatially random within a District. Further, reduction of asset base is not in the business interests of the infrastructure owner and, it should not be lost in the debate that irrigation infrastructure is inherently long term with high capital cost, low flexibility and was why current landholders came to the area.

Exit fees are somewhat of a blunt instrument, in terms of protecting infrastructure investment they achieve their objective but at what cost in terms of collateral damage? The most significant damage is the effective barrier an exit fee becomes to open trade by dramatically eroding the return to the seller of the water entitlement. Other issues such as what happens if water entitlement is brought in to a district are unclear in the current debate. Are exit fees refunded or is that a windfall gain to the infrastructure owner?

Water Tagging

Water tagging is the concept of water entitlement being permanently tagged with its catchment origin. There are two quite different arguments supporting water tagging, one for the reasons of good stewardship of the natural resource, the other a commercial focus for an infrastructure owner in the District of origin to recover costs as an alternative charging mechanism to exit fees.

The argument for good stewardship is sound, particularly in relation to inevitable restrictions based on variations in yield within catchments. The charging mechanism has little in its favor for any party other than the infrastructure owner in the District of origin and, by tagging it to a District rather than catchment does nothing for better resource management plus disregards the initial transfer of that entitlement from its natural origin.

A popular argument in support of tagging likens it to an absentee landlord owning property but still having the rating liability. The difference is that the absentee landlord is obtaining benefit from the rates paid, whereas a purchaser of tagged water only receives benefit from the infrastructure of the district from where the water was bought if they are within the same district.

Even in the context of resource management, a critical issue is determining a zero or start point for the commencement and therefore the origin of water entitlements. For example, there has been significant trade of water entitlement into the Sunraysia region, in terms of resource management it would be pointless to address this as water originating in Sunraysia as that is nil. All water entitlement in the Sunraysia originated in the upstream catchments of the Snowy, Murray, Murrumbidgee and Goulburn river systems. Actually determining where requires careful auditing of past trades possibly back to the "sharing of the Murray" in the mid-nineties, as the last accepted benchmark of the consumptive water resource.

An Alternative Approach – Unbundling

The concept of unbundling a water entitlement into its separate elements was developed by Chris Scrivens and included in the Victorian Government's recent White Paper process.[*]

The elements of unbundling are:

- Water Share – the reserved airspace in a reservoir;
- Seasonal Allocation – As a percentage of Water Share;
- Site Use Licence – Linked to the capacity of the land and intended land use, and;
- Delivery Capacity share – Linked to the capacity of the delivery infrastructure.

Both Water Share and Seasonal Allocation are well understood and accepted concepts across the irrigation industry, however Site Use Licence and Delivery Capacity Share are more controversial and more linked to third party impacts.

[*] Securing Our Future Together, Department of Sustainability and Environment, June 2004, pp 69

Site Use Licence

The Site Use Licence, while an important element of water efficiency, effective resource management and stewardship to a sustainable future, does not directly impact on water trading. It does however have greater beneficial impact on the derivative markets of salt credits and drainage water but these are not the focus of this paper.

Delivery Capacity Share

Delivery Capacity Share is the physical relationship of a farm irrigation supply point with the delivery infrastructure. In a simplistic example, two farms sharing a final delivery channel have an implied delivery capacity share of 50% each of the designed delivery capacity of that channel.

This is the service that the infrastructure owner provides to the water entitlement (water share) holder. It does not vary with the amount of water entitlement a landholder owns, or with the volume of water that is used, it can only vary by physical changes in the delivery infrastructure.

Water entitlement and water use have historically been convenient measures on which to base rating structures for infrastructure owners but under this regime water trade threatens their business base. The premise of this paper is to revisit the basis for charging rather than succumb to a knee jerk reaction of patching it up.

Under a rating model based on Delivery Capacity Share, land commanded by irrigation infrastructure has a rating liability for that coverage even if all water entitlement has been sold off.

Isn't this an Exit Fee by another name?

No! The difference between an exit fee and a delivery capacity share is that a delivery capacity share has latent benefit to other water users and therefore the potential to be traded forming a derivative market in water trading.

Missing Time Element

There is a critical element missing in the current discussions of unbundling generally and delivery capacity share specifically that is required to realise the full potential of delivery capacity share as a market mechanism.

This critical element, not considered in the initial model of unbundling, is the time dimension and this is the key to many aspects of management of the water resource. The default time unit in irrigation water management is per annum. This has demonstrably been adequate right up until recent times when the limits of infrastructure and resource have been reached, and in some cases exceeded, by the importation of water and, more particularly, changes to the time of use profile.

Changing the time dimension provides certainty and opportunity to all stakeholders. If the time dimension was reduced from one year to one month (initially), farmers could structure their delivery capacity with greater certainty of delivery for their particular crop and enterprise. As the available delivery capacity in any part of the system would be capped at design limits, delivery demands and disputes between infrastructure owners and irrigators would be minimised and market forces would determine allocation of delivery capacity share.

The same market forces would encourage diversification in crops to take advantage of cheaper delivery capacity times and potentially provide infrastructure owners with greater income opportunity rather than the fear of less income that drives the exit fee argument.

Minimises Stranded Assets Risk

By rating on a delivery capacity share basis, the income base for the infrastructure owner is not at risk from water trade. The onus is on the landholder who is trading water out of a District to continue to pay for the delivery capacity or sell all or part of that capacity.

Selling only part of an irrigator's delivery capacity share has two connotations, for example, a landholder may choose to reduce the amount of water share held but still requires delivery capacity for the amount of water share retained. The second connotation is that a landholder may choose to sell, or there may only be a demand for, segments or reaches of the delivery chain between the water source and the farm gate.

Requires a Sophisticated Register and Trading System

Obviously, to enable a market in the many reaches of rivers, channels and pipelines that make up the delivery system to any individual irrigator requires a sophisticated and secure electronic system of trading. The Australian share market electronic trading facility already provides an excellent example of such a system.

What about the "last mile"?

The "last mile" of infrastructure to the customer will always inherently have the smallest market for delivery capacity share. In some instances, the seller of water share will be the only water user on this section, though this scenario should be overcome in any system review with asset transfer to that sole beneficiary.

Of course, even with a delivery capacity share regime, there may still occasionally be a requirement for exit fees, most usually for "the last mile" of the delivery system.

In other instances there will be a very limited market of potential buyers of delivery capacity share, and the seller may seek an exit fee option for the "last mile" rather than wait until there is a buyer, continue to pay the annual rate or sell the delivery capacity on the "last mile" with the land. Even in this situation it is a very much reduced liability to the landholder than an exit fee based on the total delivery route from the origin of the water to the farm gate.

Overall, the irrigator has significantly greater flexibility with a rating regime based on delivery capacity share than with the blunt instrument of exit fees which have no upside for the irrigator.

Other opportunities of Delivery Capacity Share

Time based delivery capacity share would be a driver to move irrigators to where water is available rather than the "open river" default situation that currently exists where land prices are the significant driver. This would provide better management opportunities for the natural resource stewards of the river systems.

Time based delivery capacity would also provide critical information to resource and infrastructure managers in terms of which reaches in a system were at or approaching their limit and enable timely investment or other management actions. Similarly, this information, available to irrigators, would provide them with information critical to the economic future of their enterprise and allow them greater planning flexibility and certainty.

In Summary

Under an unbundled and delivery capacity based rating regime:

An Irrigator would:

- Own a water share,(usually at least sufficient to irrigate their crop over an irrigation season).
- Possess a site licence for their enterprise.
- Structure and own delivery capacity share to match the usage profile of their crop.
- Pay delivery charges to the infrastructure owners and natural asset (river) managers based on the delivery capacity held plus water volume delivered (as now).

An Irrigator could:

- Trade water share (permanent sales), only restricted by physical transferability limitations.
- Trade Seasonal Allocation (temporary sales).
- Change crops/enterprise.
- Trade delivery capacity share to suit water usage profile.
- Lease water and/or delivery capacity (as lessee or lessor).

An Infrastructure Owner (Natural Asset Manager) would:

- Have certainty of income against a long term investment.
- Have greater certainty of operating requirements.
- Accurately plan maintenance, by reach, around demand periods.
- Have greater operational control, through improved knowledge, over the system.

An Infrastructure Owner (Natural Asset Manager) could:

- Identify reaches and times of high demand and make informed investment decisions.
- Cap flows to avoid third party impacts, such as unseasonal flooding of wetlands.

In essence, time based delivery capacity, as one of four elements of unbundling, provides greater certainty with increased flexibility to irrigators, infrastructure owners and natural resource stewards for the sustainable management of a finite resource.