

How can, and how should, the environment fit within “mainstream” water law and policy mechanisms?

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Environmental water management is a new and rapidly developing discipline. Whilst some environmental water requirements, such as the diversion of water from the River Murray through recently completed pumps into Hattah Lakes, have characteristics that closely resemble the delivery of water to consumptive users, many environmental water deliveries have unique characteristics not encountered in relation to consumptive deliveries. For example, the release of environmental water from Lake Hume to enhance/extend natural inflows from the Ovens River and create overbank flows into the Barmah/Millewa forest, with over 70% of the applied water returning to the river after passing through the forest, has little parallel in the consumptive delivery world.

River system operators and water corporations have spent over a century developing and refining operational arrangements, water accounting and business systems all primarily designed to meet the changing needs of consumptive water users. The environment is a big, new player in the water delivery area, and it is still developing an understanding of its ultimate water demands, how it will prioritise and apply water and what portfolio of water products it will ultimately hold. This makes the question of how can, and how should, the environment fit within “mainstream” water law and policy mechanisms both intriguing and perplexing.

In order to consider this question, it is worthwhile considering the rationale driving environmental water delivery activities. Water is an essential input to profit seeking consumptive agricultural and industrial businesses, and in this guise, it is often treated like a commodity. Water is also a community resource, underpinning healthy environments and contributing significantly to community well-being. Water deliveries for the environment are targeted at protecting and enhancing environmental values of rivers and floodplains. As such, the benefits of environmental watering are widely distributed across the community. Consumptive water users will be able to share in these benefits, and will also reap additional benefits from the ecosystem services created from environmental watering, such as improved water quality.

A frequent call amongst water users is for environmental water deliveries, based on held environmental entitlements, to be treated exactly the same as all other deliveries utilising water entitlements. This is attractive in its simplicity, but closer examination shows that even amongst consumptive users, different operational arrangements apply to different types of users. Small volume domestic and stock users frequently do not have to comply with the same water ordering, metering and water accounting procedures that apply to large irrigation users. These are practical differentiations that have been developed based on seeking to meet the needs of differing user groups in cost-effective ways. This is the challenge that river operators and water corporations are now wrestling with – how to offer fit-for-purpose services to a new class of customer with new water demands and service needs.

Water trading

Environmental water managers and irrigators share a common goal in relation to managing their water holdings. Both groups seek to generate the best return possible from their holdings. In order to do this, both groups will seek to use the tools available to them to optimise returns whilst managing downside risks.

The choices entitlement holders have for managing their water holdings are essentially to use, trade or carryover for later use or trade. Environmental water holders have recognised the importance of trade, particularly as an option to carry over the proceeds of trade to reinvest in future watering actions, as an alternative to physical carryover of water. The additional opportunity this provides is that the financial returns from trade can be reinvested in whichever systems have the highest priority for action, whereas physical carryover of water only supports watering actions in hydrologically connected systems. The Victorian Environmental Water Holder has entered the market in both the 2011/12 and 2012/13 seasons as a seller.

Whilst the environmental water holders should seek to act like any other participant in the market, the fact that they are large water holders and are publicly owned organisations imposes some obligations on them that would not be expected of profit seeking privately owned businesses.

Primarily, rural communities will have expectations that the environmental water holders will have regard for the impact of their activities on other market participants, and will incorporate some element of “public good” outcomes into their trading plans.

Environmental water holders now have significant water holdings in the connected southern Murray-Darling Basin, which total around 2700 GL (of various classes and reliabilities). Control of these very large holdings rests in the hands of around four organisations. The NWC estimates that allocation trade in the connected southern Murray-Darling basin was in excess of 2,500 GL in 2010/11¹. Whilst it is highly unlikely that all environmental water holders will simultaneously trade all the allocation they have available, their large holdings still create the potential to impact on market prices at a point in time, if significant volumes were placed on the market over a very short period.

The approaches water holders can use to manage this issue include operating in a transparent manner and adopting high standards of disclosure so that the market is fully informed about their trade activities, and other participants cannot legitimately claim to be uninformed or surprised in relation to these activities. In relation to disclosure of trading intentions, this requires a balanced approach to provide transparency, but avoid impacting on the financial interests and flexibility of the water holders. The release of statements providing general guidance to the market in advance of planned market activity is one such approach.

In order to guard against risks of significantly impacting on market prices, which would also threatens returns to the environmental water holders, it could be appropriate for them to review

¹ NWC, 2012; *Impacts of water trading in the southern Murray–Darling Basin between 2006-07 and 2010-11*, National Water Commission, Canberra, April 2012.

trading volumes in each market and progressively offer allocation for sale in volumes that are unlikely to significantly impact price.

Whilst risks arising from environmental trade activity are quickly identified, there are also opportunities which some farmer groups have recognised. The different demand patterns for the environmental compared to consumptive users creates opportunities for trade that could benefit consumptive users at key times.

The Commonwealth Environmental Water Office released a discussion paper² outlining some possible allocation trading scenarios, which are summarised in the table below.

Climate scenario	Possible trading positions
Very Dry	<ul style="list-style-type: none"> • Sale of allocations unlikely, water required for critical refuges etc. • Purchase unlikely due to the high prices
Dry	<ul style="list-style-type: none"> • Sale of allocations more likely – hold funds for water purchase later • Purchase of allocations unlikely due to the higher prices
Average	<ul style="list-style-type: none"> • Benefits of either sale or purchase of allocations in this period may be marginal.
Wet	<ul style="list-style-type: none"> • Sale of allocations less likely as prices likely to be lower. • Purchases of allocations more likely, to supplement flows and increase the volume of flow events.
Very Wet	<ul style="list-style-type: none"> • Sale or purchase of allocations unlikely as demand for water low and environmental needs likely to be met from natural events

The potential of the environment offering water into the market in dry periods when consumptive allocations may be limited, whilst entering the market as a buyer in wet periods when consumptive users may have excess water available presents the prospect of win-win opportunities for the environmental and consumptive users. This rosy glow of shared opportunity needs to be tempered by the expectation that, as seen during the millennium drought, delivery of water to environmental assets in extremely dry periods is likely to attract negative sentiment from consumptive users facing the pressures of extreme water shortage. This will continue to challenge environmental water holders to engage with and inform the community about their activities, their benefits and the importance of protecting critical refuges etc.

Water delivery and accounting

Factors including environmental water buy-backs and changing irrigation demands are leading to significant changes in water demand patterns and river operations. This means that historic

²CEWO, 2011; *Commonwealth Environmental Water – Trading Arrangements Discussion Paper*, Commonwealth Environmental Water Office, November 2011.

behaviour is no longer a reliable guide to the future, which throws up a number of significant challenges in relation river operations, recreational activities and the management and accounting for state water entitlements. In 2012/13, a range of water holders collaborated to deliver around 926 GL of environmental water to South Australia — the largest delivery of environmental water to South Australia to date.

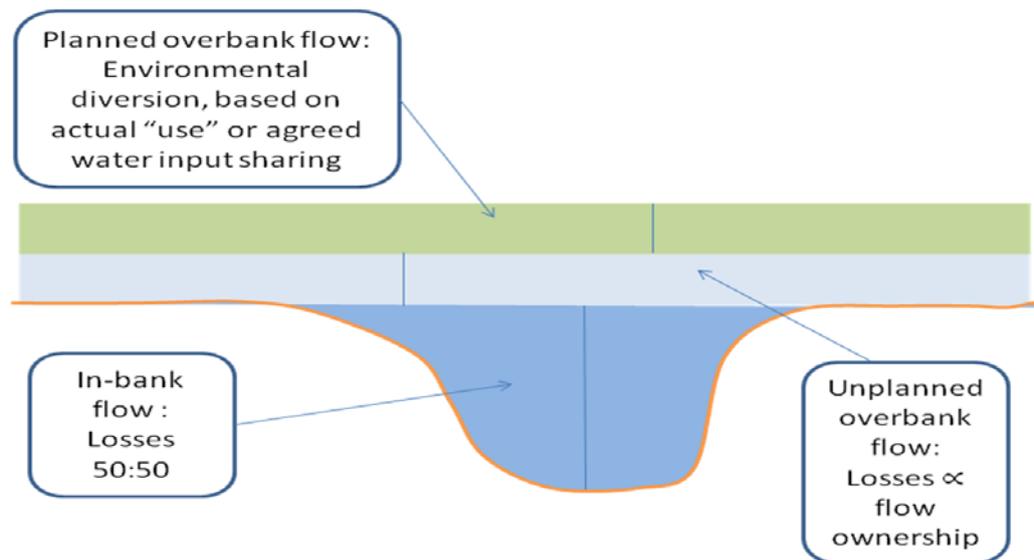
The challenges these large environmental deliveries and changes in river flow patterns give rise to include managing third-party impacts. There have been some suggestions that any change in water usage patterns or locations of usage may constitute a third party impact. This blanket approach is too simplistic and a more nuanced approach is required when assessing third party impacts. In many cases, entitlement holders may enjoy certain levels of water availability or access, in part because other entitlement holders do not fully utilise their entitlements. Loss of access to these “bonus” conditions does not necessarily represent an unacceptable impact.

There are legitimate concerns around potential flooding of private lands by environmental deliveries and potential impacts on entitlement reliability through watering actions that are being addressed.

The nature of environmental deliveries is sometimes quite different to consumptive deliveries, and requires new operational approaches. Some of these challenges include:

- Return flow management.
The commitments for recovery of water for the environment embodied in The Living Murray (TLM) First Step decision and under the Basin Plan were developed on the basis that the water available should be managed so as to maximise environmental outcomes by utilising releases at multiple sites. Obtaining “credit” for return flows is not a feature generally applicable to consumptive use, although some urban water authorities are interested in this option in relation to return flows of treated waste water. In order to enable multiple environmental use, water managers must be able to:
 - Estimate the volume of water returning to the river from environmental assets. Often this is dispersed return flows occurring across large areas, under very low head conditions – i.e. conditions which are extremely difficult to directly measure. Estimates need to be conservative, as overestimating the volume of return flows the environment can subsequently utilise may affect water availability for other users.
 - Provide legal recognition of the environmental managers’ rights to use flows returned to the river or retained in-stream following an environmental water delivery.
 - Transfer the volumes recognised from returned/retained flows for use at a different location and/or to pass control to a different environmental manager. Often this happens in “real time” as flows travel down the river system, creating challenges for current consumptive water administrative and accounting processes.
 - Account for water use by the environment in line with how such use occurs. One of the most problematic issue identified in this regard is the accounting treatment of environmental water use during periods of intentional overbank flow for environmental watering. In many systems these are treated as “losses” by default. Water accounting systems need to be developed to recognise the “use” component of releases from storage, which may, however, be mixed with unregulated inflows

from tributary systems. The diagram below provides an example of this challenge in the context of the River Murray, where river losses are shared between NSW and Victoria, and overbank environmental use occurs in two jurisdictions simultaneously.



- **Supplementing natural flows:**
Commonly, environmental water managers wish to "piggy-back" releases from storages onto natural events to extend the duration of flooding. Under the prevailing consumptive use accounting rules in most systems, the full volume of water delivered to a user is debited from their account, regardless of whether the water came from unregulated flows or storage releases. If this same approach is applied to in-stream flows which are supplemented by storage releases, environmental water holders may be unwilling to undertake such actions because of the high water "costs" involved, or much larger volumes will need to be recovered to achieve environmental outcomes, further reducing water available for consumptive use.

These are just some examples of complex water management and operational issues, where there are differences between environmental water deliveries and consumptive water deliveries. These situations give rise to the need to revisit current arrangements and identify suitable mechanisms for environmental deliveries that also recognise and cater for the rights and needs of consumptive users.

Environmental water managers as customers of water corporations

Environmental water holders rely on storage operators to manage the system to the agreed rules, meet their environmental obligations and to provide the utility services that are needed for environmental water deliveries. Some deliveries to environmental assets may also be best achieved through using irrigation channel networks.

Environmental water holders therefore have a strong interest in the costs for water delivery services. If costs to access irrigation networks are large, this could prompt environmental water manager to look for other delivery mechanisms and routes, potentially denying irrigation system operators any additional revenue. This prospect may encourage irrigation operators to consider

whether offering alternative tariffs may be an option for environmental deliveries that don't conflict with consumptive use of the delivery network. The challenge for system operators may be, if the environment is offered "off-peak" rates, are these available to consumptive users also?

Relationships between environmental water holders and water corporations are still developing, and the desire on all sides is for the environment to be seen as just another customer. The reality is that the environment is a very large customer with special needs, so the relationship with water corporations will need to be different to address these needs in comparison to a "standard" consumptive user.

Conclusion

In seeking to answer the question of how can, and how should, the environment fit within "mainstream" water law and policy mechanism, we need to look beyond the notion of simply treating the environment in exactly the same manner as other users. The environment has specific needs, which will require tailored solutions which may be of limited application to others.

The challenge is to identify the high-level guiding principles which have shaped the current water management arrangements and seek to apply those same principles to meeting environmental water delivery needs. This may see new arrangements emerge for the environment. If different principles are proposed for the environment, a clear, defensible rationale needs to be available to support this position. Importantly, there needs to be close attention devoted to ensuring that meeting the needs of the environment does not generate unacceptable impacts on existing users.