Environment Victoria submission to Productivity Commission inquiry – Market mechanisms for recovering water in the Murray-Darling Basin

Environment Victoria is the state's peak non-government, not-for-profit environment organization. Our Healthy Rivers Campaign is dedicated to working with government, business and communities for the restoration and protection our state's great river systems. Our vision is for a future where healthy rivers sustain abundant life and prosperous communities, providing us with good food, clean water and places to love and enjoy.

Environment Victoria will restrict its comments to implementation of the *Restoring the Balance* (RTB) program in Victoria and the topics in the Inquiry where we have most experience.

Planning for water recovery

The goal of the RTB program is deceptively simple: 'acquire water entitlements for willing sellers that represent value for money, and use the water for the environment'. The problem is that neither willing sellers nor value for money will necessarily drive the best environmental outcomes for river systems.

The Commonwealth Environmental Water Holder (CEWH) is developing a framework for prioritizing the use of the Commonwealth's water[1], which will aim to protect ecological processes as well as ecological assets. The framework will take a science based approach and will consider issues such as achieving multiple benefits with the available water. So far, no similar framework for prioritizing where water should be acquired to meet the watering objectives is being developed. The 'strategic approach' used by RTB in 2008/09 was broad enough to include all Victorian water shares, irrespective of location or reliability.[2]

An understanding of the connectivity of the river system should be at the base of any plan to prioritize water purchase or environmental watering. There is a tendency to see rivers as a series of disconnected assets or drought refuges, particularly under a drying climate when water is in short supply. If a river system is to survive and thrive, it is essential that it retains both lateral and longitudinal connectivity. In other words, it needs enough water for fish and other animals to migrate along it, and to retain connection to its floodplains, which serve as the larders of the river system. To do this, it is essential to provide *all* components of the scientifically recommended flow regime, not just the low flow and cease to flow components.

---

[1] DEWHA, 2009. *A framework for determining Commonwealth environmental watering actions; A discussion paper*

[2] http://www.environment.gov.au/water/policy-programs/entitlement-purchasing/strategic-approach.html. Viewed 15/9/09

Thus any plan to guide water purchase should be based on the scientifically determined environmental flow regime.

While it may not be possible to provide all recommended components of the flow regime every year, it is essential that overbank flows be provided with enough frequency to maintain floodplain health. Modeling for the Victorian Environment Assessment Council's River Red Gum Investigation showed that for the Victorian red gum forests to thrive, this amount is in the order of 4,000GL every 5 years[3] – well within scope of the Commonwealth target of 1500GL per year. Since many of these wetlands are shedding and return water to the river system, most of the water would end up travelling through the system to South Australia and the Lower Lakes.

VEAC has some wise words to offer on the decision making processes involved in determining environmental flow events for the protection of riverine ecosystems:

'Environmental flow allocations should be determined in the context of clearly stated ecological objectives at a regional and River Murray scale and be informed by:

- An understanding of the natural water regimes with respect to volume, seasonality, annual variability and duration conditions
- Ecosystem values and maintenance of those values rather than the requirements for environmental restoration works such as flushes for blue green algae or salinity management or to support public land resource utilization industries.

The arrangements or processes through which these considerations are addressed should be

- Based on rigorous, transparent and scientifically based methodology, including water accounting practices that are freely available to the public;
- Flexible and adaptable to enable change to be introduced when increased information and understanding becomes available and climate change impacts require addressing;
- Based on a delivery system that is compatible with ecological objectives and attempts to minimise energy inputs or extensive infrastructure'.[4]

The first task for a water purchasing plan is to identify targets for water recovery for each catchment, based on the scientifically recommended environmental flow regimes. The draft Northern Region Sustainable Water Strategy (NRSWS) attempts to set catchment water recovery targets fro Victoria's northern rivers, but subverts the intent of the flow recommendations for these rivers. The targets are set to meet drought refuge objectives only under climate change scenarios, and are too low to do more than keep the rivers on life support[5]. The draft strategy itself admits that the targets will lead to a continued and rapid decline in river health.

An approach to buying entitlements that relies purely on the location of willing sellers will not necessarily mesh with water recovery targets. While it is possible that willing sellers will tend to cluster in areas where the water resource is most unreliable (for example the Campaspe Irrigation district) or where returns from irrigation are most marginal, these clusters may not necessarily match with the priorities for water recovery. The purchasing plan has to decide where and what sort of entitlement is required to meet the identified catchment targets. This

[3] VEAC, 2007. *River Red Gum Forests Investigation. Draft Proposals Paper for Public Comment*
[4] VEAC 2007, p 14
[5] DSE, 2008. *Northern Region Sustainable Water Strategy – Draft for community comment*

may vary across the Basin – the northern Basin may require large volumes of low reliability water while the highly regulated southern Basin may require a greater emphasis on high reliability water to meet its ecological objectives.

The ability of entitlements acquired by the CEWH to meet ecological objectives is determined in part by the rules of the jurisdiction in which the water is acquired. Multi-year carryover is a key requirement to meeting overbank flow objectives in the southern Basin, and the availability of appropriate carryover arrangements could be a significant input to calculating water recovery targets.

The 'no regrets' approach taken by the Commonwealth is reaching the point where it could have an impact in Victoria. While RTB has so far acquired mainly high reliability water shares (HRWS), previous Government programs such as The Living Murray (TLM) have acquired large volumes of low reliability water shares (LRWS). The reliability of LRWS has declined significantly under climate change scenarios. Modeling for the draft NRSWS shows that on the Goulburn system (where most of the TLM water is sourced) there will be no allocation in 96 years out of 100 if climate conditions of the last 12 years continue.[6] Thus further purchase of LRWS represents poor value for money and even worse outcomes for the environment if no allocations are made against the water shares. Future RTB purchases should acquire only HRWS in Victoria.

Environment Victoria recommendations:

1. Water recovery targets based on achieving the objectives of the full scientifically recommended flow regime should be set for each catchment in the Basin to guide water purchase.
2. The Commonwealth should purchase high reliability water shares only in Victoria.
3. The federal government should enter discussion with the states on improved carryover arrangements for environmental water.

Integration of buyback with irrigation infrastructure modernisation to provide multiple benefits

Environment Victoria, ACF and others have argued that Government investment in water buy-back and infrastructure upgrades should be targeted to specific areas so as to achieve multiple benefits for the environment and rural communities across the Murray-Darling Basin.[7]

CSIRO has recently completed a pilot study in the Torumbarry Irrigation Area (TIA) to investigate the potential for targeted investment in reconfiguration and water purchases to provide multiple benefits[8]. These benefits include increasing the value of agricultural production and ecosystem services, and reducing water delivery costs and salinity loads. The study concluded

---

[6] Draft NRSWS p 56

[7] Environment Victoria submission to draft NRSWS (2008) http://www.envict.org.au/file/file/EV_Draft_NRSWS_submission_dec08.pdf; Buchan, A. (2008) Land and Water Reform in the Murray-Darling Basin, Australian Conservation Foundation, Melbourne

[8] Crossman, N, Connor, J, Bryan, B, Summers, D and J. Ginnivan (2009) *Reconfiguring an irrigation landscape to improve provision of ecosystem services*, Socio-Economics and the Environment in Discussion, CSIRO Working Paper Series 2009-07, CSIRO Available at http://www.csiro.au/files/files/pqha.pdf [Accessed 1 July 2009]

that irrigated land use in the area could be reconfigured using the 'Traffic Light Concept' into three planning zones based on soil, environmental and location characteristics. Different water investment strategies would be applied in each zone:

- **Green – Sustainable Irrigation**: Priority locations for investment in irrigation infrastructure modernization and efficient water delivery. Low priority for water purchases unless they provide particularly low cost water;
- **Amber – Environment and Amenity**: Priority locations for investment in rural amenity and ecological restoration. Encourage change in land use from irrigation to biodiversity and carbon plantings. High priority for water purchases based on potential for water delivery cost savings, public good environmental and salinity benefits;
- **Red – New Dryland**: Priority locations for investment in new dryland farming. High priority locations for water purchases.

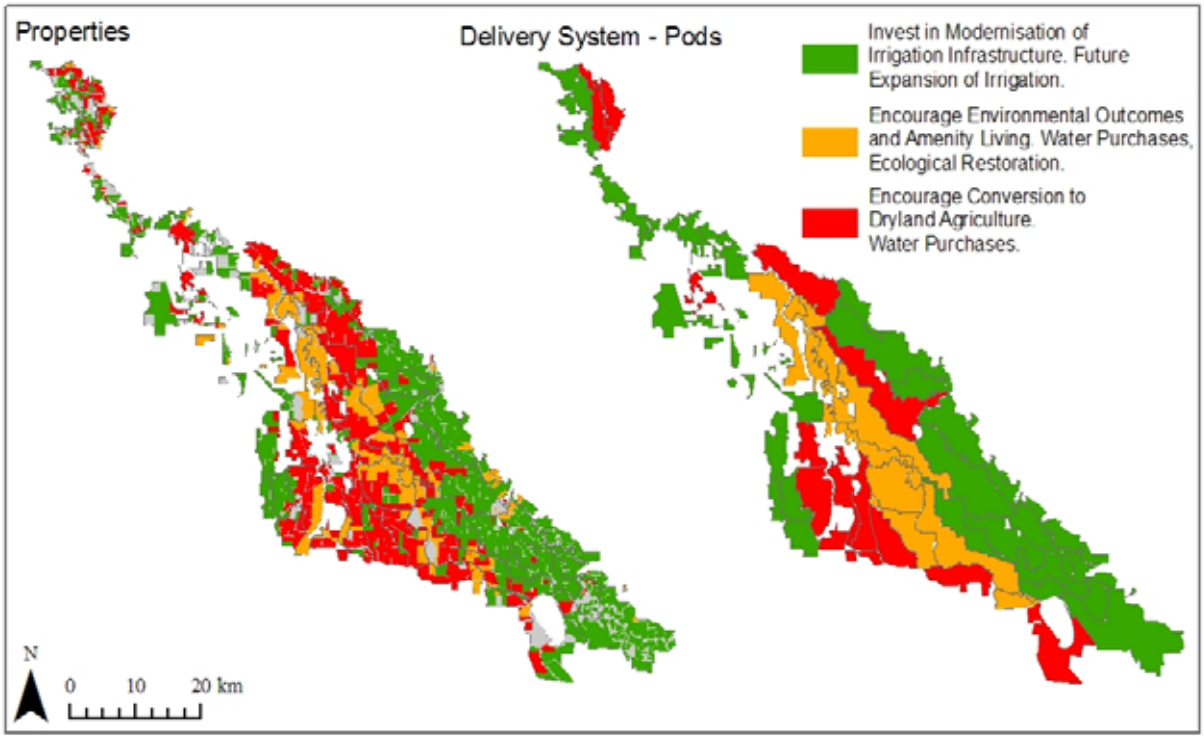

Figure 1. Landscape-scale irrigation reconfiguration in the Torrumbarry Irrigation District, using the 'traffic light' framework[9]

The environmental and economic benefits that can be achieved by using this reconfiguration design in the TIA are significant:

- 20% of the water used for irrigation can be returned to the environment – approx 60GL
- Water delivery infrastructure operation, maintenance and replacement cost savings in the order of 40%
- Agricultural profitability could increase by 24%

[9] ibid

- Cessation of irrigation in the 'red' zones would reduce salinity measured at Morgan (the key reference point) by up to 13EC. This equates to a cost saving of more than $50 million over 30 years in salinity mitigation.
- Over 10 million tonnes of CO2 equivalents sequestered annually by encouraging planting in the 'amber' zones.[10]

The CSIRO study shows that if the same volume of water is allowed to leave the district in an unplanned way, these benefits will be lost and the value of agricultural production will decline rather than increase.

A key feature of the approach is that once and area has been assessed as a red zone, all water entitlements in the zone can be acquired through RTB and the zone closed to future irrigation. Structural adjustment can than occur in these areas (see below).

This 'traffic lights' approach could be rolled out across the GMID and possibly elsewhere in the Basin. Unfortunately the Northern Victoria Irrigation Renewal Project (NVIRP) has already carried out significant planning and structural works for the irrigation 'backbone' that has not been based on the traffic lights approach. However, there is still ample room to integrate the model into NVIRP's planning to provide a framework for decision making on where to focus modernisation investment and further refine the backbone system.

Environment Victoria recommendations:

4. That DEWHA works with the states to apply the 'traffic lights' approach, as devised by CSIRO, to guide the reconfiguration of irrigation areas to achieve multiple benefits for irrigators and river systems.
5. Water purchase through RTB be targeted into 'red' areas which have been characterized as unsuitable for long term irrigation, and that the channel system in these areas be decommissioned and all the savings acquired by RTB.
6. That the 'amber' areas be prioritized for investment in ecosystem services, carbon sequestration and rural amenity.

Impediments to the use of market mechanisms

Four per cent limit on trade in entitlements.

There is ample evidence that the 4% limit on trade out of catchments is having a significant detrimental impact on water markets and restricting trade opportunities. The limit was reached within 2 months of the opening of the irrigation season (and before any allocation was actually made against the water shares) in 5 out of 8 irrigation districts in the GMID.[11] Competition has

---

[10] *Irrigation reconfiguration and modernisation. Landscape-scale investment planning for multiple benefits. Summary*. Source: Goulburn-Murray Water, June 2009

[11] Victorian Water Register http://www.waterregister.vic.gov.au/Public/Reports/WaterTradeFourPercent.aspx?ReturnUrl=%2fPublic%2fReports%2fWaterTradeFourPercent.aspx Viewed 16/9/09

been so intense that Goulburn-Murray Water has had to instigate a ballot system to deal with applications.[12] Many are still waiting to have their applications processed.

The current situation builds on evidence presented to DEWHA last year in a Hyder Consulting report[13]. This report showed that the 4% cap was limiting trade in Victoria and costing around $5 million in lost production. Trade foregone reduced Gross State Product by $5.92 million in 2007/08 and reduced employment by 40 full time equivalent jobs.

The limit has been a serious impediment to Commonwealth water purchase in Victoria. It has blocked access to catchments such as the Campaspe where there are many willing sellers but the 4% limit is reached early in the season. Without seeing the final results of the recently concluded round of purchases, it is hard to disentangle the effects of limitations to Commonwealth funding and restraints due to the cap. Interstate wrangling over the legality of the cap and its effects is distracting from the RTB objective of restoring the Basin to health.

Attitudes to the 4% cap are changing across northern Victoria. While there has been significant resistance in irrigator communities to lifting the cap in the past, this is now crumbling. The Victorian Farmers Federation has changed its policy and now supports lifting the cap on trade in LRWS, and many irrigator groups supported the exemption of Commonwealth water purchase as part of an integrated modernisation project. Many willing sellers are unable to conclude sales on account of the cap and farmers are expressing increasing frustration.[14] There is no evidence to suggest that the cap has succeeded in its original intent to protect irrigation communities from overly rapid change. Change has happened anyway, and at a far more rapid rate than was envisaged when the cap was implemented.

The Commonwealth-Victorian agreement on the 4 per cent limit was a major step forward in allowing Commonwealth purchase in Victoria. However there has been a lack of publically available information on the detail of the agreement, what the criteria are for exemption and how it is to be implemented beyond 2009/10.

Environment Victoria recommendation:

7. That all states lift the 4 per cent limit on trade out of districts in time for the next round of RTB water purchase.

Termination fees

Termination fees are a significant disincentive for irrigators wishing to sell all their water and leave the industry. While concern over stranded assets, particularly modernized assets, is valid, there are a number of ways in which this can be addressed.

[12] See for example http://www.g-mwater.com.au/news/media-releases/2009_media_releases_/mr_20090803.html
[13] Hyder Consulting (2008). *Review of interim threshold limit on permanent water trade.* Report for DEWHA
[14] See for example http://www.weeklytimesnow.com.au/article/2009/08/05/100391_water.html

The application of the 'traffic lights' system to decision making on water investment strategies (described above) is key to the application of termination fees. If a farmer in a red or amber area is selling water to the Commonwealth and the associated delivery system is to be decommissioned, then termination fees should be waived as an avoided modernisation cost. Irrigator lead proposals where cooperation between irrigators and the Commonwealth also leads to the decommissioning of channel systems and permanent retirement of land from irrigation should also lead to the waiving of termination fees.

Environment Victoria recommends:

8. That termination fees be waived when Commonwealth water purchase occurs in the context of channel decommissioning and the permanent retirement of areas from irrigation.

Structural adjustment

Structural adjustment is a continuous process which can be driven in a particular direction be government investment. At present many incentives exist for Victorian farmers to remain in irrigation and improve their efficiency as governments invest $2 billion in infrastructure upgrades. Similar incentives do not exist for farmers and communities to transition away from irrigation to less water intensive industries that are ultimately more sustainable in the long term, particularly in a climate changed future. These alternative industries include the provision of ecosystem services and carbon sequestration, new niche opportunities to service the growing interest in locally produced, high value food, as well as the more traditional dryland enterprises of cropping and grazing. These are themselves evolving in response to the challenges of climate change to improve water efficiency and reduce inputs of fertilizer, labour and fuel. Initiatives such as the New Dryland program lead by the North Central Catchment Management Authority and knowledge brokering by the Birchip Cropping Group are showing the way.

Recent modeling by Monash University[15] has shown that water purchase through the RTB program can stimulate regional economies. The water purchase injects cash into regional communities and acts as an economic stimulus as well as returning water to stressed river systems. The paper points out that drought is far and away the most severe impact on regional communities and suggests that the buyback process should have started sooner. 'Had there been a lower volume of highly secure irrigation allocations leading into the past decade, there would have been fewer farmers caught with insufficient water particularly for perennials, as investments in the latter would have decreased'[16].

The Productivity Commission's own report on drought assistance[17] supports continued Government investment in research, extension and professional advice to assist farmers in improving their business management skills and self-reliance. The report suggests this investment be explicitly linked with support for preparation for a less water dependent future,

[15] Dixon, P, Rimmer, M & Wittwer, G (2009) *Modelling the Australian government's buyback scheme with a dynamic, multi-regional CGE model.* Monash University Policy Studies and the Impact Project, General Paper no G-186
[16] Ibid p25
[17] Government Drought Support. Productivity Commission Inquiry Report No 46, February 2009

rather than simply directed towards assisting farmers to manage status quo operations more effectively.

Small towns across Victoria are actively discussing their future and came together recently at the Small Towns Summit. One of the key messages to emerge from the summit and elsewhere is that for small towns to survive and thrive in a changing climate, they need diversity of opportunity and cannot rely on agriculture alone to remain viable. Communities want to have a say in their own future and be involved in planning processes.

Structural adjustment is a key element of the RTB program by its very nature, as the RTB program is driving change. Rather than remaining implicit, as it is now, the RTB program would be strengthened by making its structural adjustment objectives, funding streams and relation to other government program explicit. Some of the currently uncommitted $5.8 billion in the *Rural Water Use and Infrastructure* program could be used to fund a structural adjustment package for farmers who are permanently retiring their land from irrigation and contributing to a reduction in the area under irrigation. The Small Block Irrigators' grant is a step in this direction but the program should be expanded to include all irrigators and others who sell all their entitlement through RTB. The assistance could take many forms, including training, extension and professional advice as well as direct financial support.

Environment Victoria recommendation:

9. The RTB program should have specific structural adjustment objectives and funding stream to assist rural communities in their transition away from irrigation.

For further information regarding this submission, please contact

Juliet Le Feuvre
Healthy Rivers Campaign Manager
Environment Victoria,
PO Box 12575
A'Beckett St, Melbourne 8006
Phone: 03 9341 8106 or 0428 770 019, email juliet.lefeuvre@envict.org.au