NVIRP

Productivity Commission

Review of

Market Mechanisms for Recovering Water in the Murray-Darling Basin.

Submission

8 September 2009

Contact Details:
Name: Matthew Toulmin
Title: Principal Consultant
Address: Suite 1, 357 Camberwell Road, Camberwell 3124
P: (03) 9882 2670
F: (03) 9882 0996
M: 0419 392 622
E: matthewt@rmcg.com.au

Document Review & Authorisation

Job Number: 27-N-07

Document Version	Final/ Draft	Date	Author	Issued to	Copies	Comments
1.0	Draft	21/08/09	Matthew Toulmin	Murray Smith	1	For review
2.0	Draft	25/08/09	Matthew Toulmin	Murray Smith	1	For review
3.0	Final	08/09/09	Matthew Toulmin	Murray Smith	1	For review

Table of Contents

1 Market Mechanisms for Recovering Water

1.1 Restoring the Balance in the Murray-Darling Basin

$3.1 billion has been committed to buying back water entitlement under the program, *Restoring the Balance in the Murray-Darling Basin*. This forms part of the wider $12.9 billion Commonwealth plan *Water for the Future*.

To 30 June 2009, the Federal Government had bought 446GL of water entitlement worth just over $660 million. The program currently uses an open tender process as the principal way of purchasing water entitlements. This was selected to ensure maximum procedural independence and to minimize adverse effects on the water market.

1.2 Productivity Commission Review

The open tender process involves extensive administrative systems and time delays in execution. It is also poorly coordinated with the parallel exercise to generate water savings through investment in irrigation infrastructure upgrades.

The Productivity Commission was therefore asked to report on the range of potential market mechanisms available for recovering water in the Murray-Darling Basin. The study is to identify appropriate, effective and efficient mechanisms that could be used to diversify the range of options to purchase water entitlements under the *Restoring the Balance in the Murray-Darling Basin* program.

In undertaking the study, the Commission is to consider a range of issues, including:

- mechanisms used nationally and internationally by governments to purchase water entitlements or similar property rights
- the proposed pace of environmental water recovery and the depth of the water markets in the Murray-Darling Basin
- impact on the water market, particularly where the Commonwealth Government may be the dominant buyer
- potential methods to maximise synergies between water purchase and the *Sustainable Rural Water Use and Infrastructure program.*

1.3 NVIRP Submission

This paper provides a submission from NVIRP to the Productivity Commission review. It focuses in particular on the last dot-point in the terms of reference, that is, the interaction between water purchase schemes and generation of water savings through investment in infrastructure upgrades.

2 Markets and Mechanisms

2.1 The Questions

The first set of questions focuses on the mechanisms in place to purchase water entitlements or other similar property rights. The PC is invited to consider:

- mechanisms used nationally and internationally by governments to purchase water entitlements or similar property rights
- the proposed pace of environmental water recovery and the depth of the water markets in the Murray-Darling Basin
- impact on the water market, particularly where the Commonwealth Government may be the dominant buyer

2.2 Market Mechanisms

2.2.1 *Water Trading*

The jurisdictions in the Murray Darling Basin lead the world in the sophistication of their water markets. This has involved:

- separation of water from land as an alienable asset
- unbundling of water rights between
  - a share of the water resource itself (Access Share), and
  - a capacity share of the delivery infrastructure (Delivery Share)
- creation of markets to facilitate the trading of:
  - the full water asset;
  - the right to access the allocated water in a particular season; and
  - potentially the Delivery Share itself
- establishment of trading zones and rules to define the boundaries of exchange and to minimise third-party impacts. In unregulated systems trading is more restricted within individual catchments and normally contains a penalty to constrain trade upstream.

Subject to issues of market dominance, there is no reason why governments should not access the markets directly to source additional environmental flows.

2.2.2 *Streamflow Tender*

In unregulated systems where private diverters take flows under licence, DSE has piloted a market approach to source additional environmental flows known as 'Streamflow Tender'.[1]

Under this approach current diverters within a catchment are invited to make offers that will reduce the risk of low flow events. Those offers might include:

- to sell whole or part of a current diversion licence
- to convert from a summer diversion licence to a winter-fill dam
- to agree to a higher flow rate at which a ban on diversions takes effect
- to reduce surface diversion and substitute with increased groundwater pumping where the resources are proved to be distinct

DSE then selects those offers that generate the greatest flow benefit for a given dollar value.

This mechanism could be used by the Commonwealth as part of the mechanisms to support recovery of environmental flows. It has the potential to work in both regulated and unregulated systems. The benefit of the approach is that it can be focused on priority catchments to achieve the future Sustainable Diversion Limits to be set under the Basin Plan.

The major challenge in unregulated systems is to quarantine the environmental flow benefit, so that a purchase from one diverter does not merely increase the security of supply for the remaining diverters. This requires care in the construction of the tender and its integration with the licensing of rosters and bans at low flows.

2.3 Pace of Recovery and Depth of Water Markets

The GMID has an aggregate entitlement of around 2,000GL (as a combination of High and Low security). It took 100 years to reach that level of development, with most growth taking place in the 50-year period from 1945 to 1995.

Under the June 2009 Water for the Environment agreement between the Victorian Government and the Commonwealth, the Commonwealth expects to purchase some 460GL in northern Victoria through its Buyback program over a five-year period. The potential sales pool includes the GMID, the Lower Murray Water irrigation districts and private diverters.

DEWHA currently uses an open tender process as the principal way to purchase water entitlements. This was selected to ensure maximum procedural independence and to

[1] www.melbournewater.com.au/content/rivers_and_creeks/waterway_diverters/stream_flow_management.asp?bhcp=1

minimise adverse effects on the traditional water market. However, the very scale of proposed purchases is now creating significant distortions in the water market.

2.3.1 *Volumes of Trade*

The two major trading zones in the GMID are the Greater Goulburn and the Victorian Murray (split into two sections, above and below the Barmah Choke respectively). These three trading zones represent the large majority of the water traded in northern Victoria.

The following table reports the percentage which the Buyback program now represents of total permanent water trades in High Security entitlement in northern Victoria.

Table 1: Water Trading Volumes for Northern Victoria (ML)

Trading Zone	Total Sales[2]	Buyback[3]	%
Greater Goulburn	55,106	42,346	77%
Vic Murray to Barmah Choke	23,742	15,465	65%
Vic Murray BC to SA	64,094	24,659	38%
	142,942	**82,470**	**58%**

A market where one participant commands 58% of the total trade and up to 77% in one key sector is liable to distortion, particularly when that major purchaser is not driven by commercial pressures to validate a market value by reference to economic criteria - i.e. the ability to generate future revenue from the use of that resource.

2.3.2 *Market Prices and Dynamics*

In any market, price is determined as the optimal point of mutual interest between interested buyers and willing sellers. There is always a spectrum in the level of price sought by sellers. Where there are few buyers and many sellers then prices tend to be low, and vice versa.

Historically, the level of sellers in the permanent market has been relatively small as a percentage of the aggregate entitlement. This is to be expected when a region's economy has reached a stable condition. The position also partly reflects the strength of the temporary water market, where both buyers and sellers can extract economic value and match their actions to shorter term variance in external factors such as rainfall and commodity prices.

[2] DSE: Victorian *Water Register*
[3] DEWHA website for *Restoring the Balance*

Price in the water markets has been driven primarily by the economic value of the production that it can support, by reference to the traditional dominant sector of the region, whether rice or dairy. When that sector has been buoyant then water prices in the market have been higher.

When buyers seek to purchase a larger quantum of water then they inevitably have to move further up the cost curve to persuade willing sellers to relinquish their assets. This also involves a shift from:

- willing sellers who actively seek to reduce their holdings, who are willing to sell at a market value dictated by the economic interests of the buyer. These sellers are willing to walk away from the property; to
- reluctant sellers who sell grudgingly and who seek to recover at least some of the sunken capital value of the infrastructure invested in the property to use that water.

At the present, a combination of drought and severely reduced international milk prices has created unprecedented stress in the dairy sector. This has created the setting where a larger number of sellers are willing to enter the market and leave the sector, but who insist on recovering some of their prior capital investment.

These factors have resulted in a price premium in the permanent water market. If a slower rate of water recovery was adopted it is probable that unit prices would be lower and impacts less significant.

2.3.3 *Impacts on the market*

The risk is that DEWHA's presence in the market squeezes out other players as the Commonwealth Government can afford to buy water at a premium. That differential to the commercial value is particularly strong at a time when irrigators are experiencing severe commercial pressures due to the drought.

The Commonwealth Government's presence in the market is likely to impact via a number of routes:

- **Price:** The Commonwealth is now the dominant player in the permanent market and is able to afford a premium price;
- **Volume:** the Victorian State Government has indicated its willingness to facilitate the targeted sale around 300GL which is exempted from the 4% cap over five years where the sales are linked to irrigation modernisation programs. This effectively doubles the volume available for trade. The Commonwealth expects to buy 460GL in total through a combination of exempted sales, sales subject to the 4% trade limit and purchase from private diverters in northern Victoria. This could effectively sterilize the operation of the market for five years;

- **Temporary Trade:** much of the permanent water trade is coming from entitlement holders who have traditionally made their water available to the temporary water market. Buyback may therefore erode the volume of 'allocation' available for purchase and so also place upwards pressure on the market price for allocation.

The temporary water market has been an essential mechanism to facilitate adjustment and optimise business decisions across irrigation enterprises. In wetter years, that water will have been used by its owner to grow opportunistic cash crops or fatten lambs. By contrast, in drier years, much of that water has traditionally been sold to dairy farmers to supplement reduced allocations to maintain permanent pasture. This arrangement benefits both the seller and the buyer:

- The seller has optimised the value of his entitlement based on the differential between the gross margin he is able to generate by using the water himself or accessing the current market price; and
- The buyer has been able to rely on being able to access surplus water in drier years as an operating cost to off-set against tax rather than having to invest capital in purchasing additional security.

A reduction in the volume available and an increase in the market price on the temporary market will disadvantage buyers who will have to access more expensive alternative resources to supplement pasture feed.

The ultimate outcome will be to reduce the profitability of dairy farmers and undermine NVIRP's objective to promote a vital regional economy.

3 NVIRP & Buyback

3.1 The Question

The final question that the Productivity Commission is invited to consider concerns:

- potential methods to maximise synergies between water purchase and the *Sustainable Rural Water Use and Infrastructure program.*

NVIRP is the major investment under the *Sustainable Rural Water Use and Infrastructure Program*. This involves investing $2 billion over the next eight years. The question is how best to coordinate NVIRP with the program *Restoring the Balance in the Murray-Darling Basin,* so that they generate maximum synergies.

3.2 Program Objectives

3.2.1 *NVIRP Objectives, Vision and Strategy*

NVIRP has three core objectives:

- to promote the sustained viability of the GMID as the Food Bowl of Victoria;
- to create an irrigation supply system that meets world's best practice and minimises its footprint to maximise its resilience in the face of climate change; and
- to generate water savings to enhance environmental flows, secure water for irrigation and secure Melbourne's water supplies.

These three objectives are integrated and delivered through NVIRP's investment in modernising the GMID supply system.

Historically, some 60% of the length of the irrigation supply system comprised smaller spur channels. These are inefficient to run, provide a low level of service, and are leaky and costly to maintain.

As a result, the shared vision of NVIRP and G-MW is that:

> *Within 10 years, every customer will be connected to a common user system (the backbone) by a connection which is owned by one or more landowners and managed by them.*

NVIRP has two main component programs to deliver this vision:

- construction of a state-of-the-art, highly efficient, automated backbone, with low losses, that will provide near on-demand supply through high-flow, accurate meters; and

- compensation payments to provide incentives for individual irrigated farms to create new private connections to that backbone.

3.2.2 *Restoring the Balance: Objectives*

By contrast, *Restoring the Balance in the Murray-Darling Basin* has a single objective:

> *To acquire water entitlements from willing sellers that represent value for money, and use the water allocated to them for the environment. This will improve the health of the Basin's rivers, wetlands and floodplains.*[4]

This is a simpler focus than for NVIRP and picks up only one of its three objectives.

3.3 Integration Scenarios

3.3.1 *Untargeted Buyback*

Buybacks as a stand-alone untargeted program have the potential to generate the following outputs and outcomes:

- a Swiss-cheese effect, with a scattering of dewatered properties across the landscape with no linkage to a coherent regional plan for future optimal land-use;
- an increase in the cost of future infrastructure reconfiguration as the remaining properties are randomly located across the region;
- undermining of the value of the investment in new infrastructure when water is purchased directly from the new automated backbone;
- higher unit costs for the remaining water users;
- reduction in productivity where water is taken from highly productive soils ideally suited to irrigation with low impacts, while leaving other less-desirable areas still heavily irrigated;
- diminished community confidence in the process, given little evidence of coherence or commitment to the bigger picture and longer term viability of the region.

3.3.2 *Targeted Buyback*

By contrast, targeted water purchases, combined with investment in infrastructure reconfiguration, have the potential to generate significant synergies and support NVIRP's wider objectives. This targeting could yield the following outcomes:

- reduced demand on remaining spur channels. A targeted buyback of 300GL would represent some 50% of the remaining water access share located within spur channels;

[4] www.environment.gov.au/water/publications/mdb/restoring-balance.html

- promote system rationalisation and generate consequential water savings through closing redundant channels and removing older meters that under-record;
- reduce the costs of future connections. Buybacks from properties distant from the backbone will help lower the average cost of new connections, as it reduces the number of high-cost, distant connections;
- increased productivity. Buybacks from lower productivity areas and smaller properties will help promote future productivity gains, as more water can be allocated to larger properties able to generate higher returns on better soils;
- reduced environmental impacts. Buybacks from areas with high environmental impacts from salinity will help promote a sustainable future for the supply system by reducing demand in higher risk areas and increasing associated eco-system services; The Commonwealth expects to purchase around 60GL a year outside the 4% cap whilst retaining its capacity to purchase water within the cap.

190GL has been offered up in the current Buyback round by irrigators across the GMID. This provides NVIRP with an opportunity to direct the roll-out of the Buyback program by targeting access and funds to those properties that also best support its own objectives.

3.3.3 *Buyback / NVIRP interaction*

NVIRP can draw on a number of mechanisms to help create positive synergies between the two programs:

- priority access can be given to the Buyback program to those properties that also promote NVIRP's wider objectives;
- additional incentives can be provided to properties to relinquish the residual delivery share that remains once the water access share has been sold, where this allows channel closure and removal of older meters. The extra payment creates stronger incentives for irrigators to participate; and
- the termination fees due to G-M Water can be included in the incentive payments paid by NVIRP for those irrigators selling delivery shares in locations where channel closure is promoted.

3.3.4 *NVIRP Prioritisation Protocol*

NVIRP will select candidates for exemption from the 4% cap (i.e. for inclusion in the targeted buyback scheme), based on a number of criteria:

- **traffic light prioritisation:** a map has been developed that identifies a 'red zone' based on judgments regarding the salinity or productivity of the location - this will promote withdrawal from locations less suited to irrigation. Priority access to the targeted buyback program will be given to properties located within this zone;

- **distance from the backbone:** this helps prioritise access to those properties that will facilitate outcomes that support NVIRP's objectives regarding water savings and costs - removal of peripheral properties will reduce costs of new connections and facilitate closure of channels; and
- **wider benefits:** where water sales align with wider regional economic plans and objectives (specifically allows channel rationalisation and/or backbone rationalisation).

3.3.5 *NVIRP Conditions*

Applicants also have to meet certain requirements for inclusion in the targeted buyback scheme:

- all DS has to be given up or transferred to the backbone - i.e. no DS or supply points can remain on spur channels;
- if any water access share remains, it must be disassociated from the land and location;
- there is a ban on any future water trading from the 'green' to the 'red' zones; and
- consideration of the surrender of the water-use licence for the property if all DS is disposed of. This sets a high bar for any future development.

3.4 Hierarchy for Payments & Buyback

The following is an outline framework for determining the level of support from NVIRP for irrigators seeking access to the targeted buyback scheme.

3.4.1 *Stage 1 Payment Principles*

In Stage 1 of the irrigation modernisation program, the connections payment is set at the lesser of two variables:

- the actual costs incurred; or
- the average value of water savings in terms of $/km channel decommissioned or $/DS transferred to the backbone

This means that cost effective solutions were funded that could be justified by actual costs incurred. In addition, they generated reserves for more expensive projects in Stage 2.

A low transaction cost option was also promoted whereby an individual could claim 30% of the average value of the water savings with 'no-questions asked'. This covered situations where an individual merely closed an outlet on a redundant spur channel or sold water. The no-questions asked was raised to 60% where property purchase was involved – justified on the basis of additional minimal costs.

3.4.2 *Stage 2 / Buyback Principles*

This same methodology is promoted here with a 'no-questions asked' option available, with the payment being the value of the Termination Fee (which is roughly equivalent to 30% of the standard payment).

The challenge is how to validate the ceiling for payments above this level, as there are few 'real costs' by which to set the upper bound. In these cases it is proposed that the primary principle should be 'sufficiency', i.e. that payments should be enough to create incentives to promote the outcomes that NVIRP seeks.

3.5 Proposed Payment Protocol

The following charts establish an incentives payment framework based on the location of the property and the extent of benefits generated. In all cases any NVIRP payment triggers the conditions identified at Section 4.1.3 above.

3.5.1 *Incentive Categories*

Four main incentive categories are identified:

- Ballot: i.e. right to apply for inclusion within the 4% cap
- Exemption: automatic eligibility for exemption from the 4% cap
- Local benefits: where an action proposed generates water savings at a local level
- Larger project: where the action proposed can generate wider benefits

The first table (Table 4-1) identifies how the location of the property determines which incentive category the applicant can access. Three locations are identified:

- backbone customers with no spur channel supply;
- exempt automatic from 4% cap: these are customers on spur channels > 2km from the backbone and/or in a red zone;
- exempt special: these are customers on spurs within 2km of the backbone but who can generate benefits from channel decommissioning or removal of structures.

Table 4-1: Location and Incentive Category

	Access to Incentive Category			
Zone	**Ballot**	**Exemption**	**Local benefits**	**Larger project**
Backbone	Yes	No	Possible with savings	Possible with savings
Exempt automatic	Yes	Yes	Yes	Yes
Exempt special	Yes	No	Yes	Yes

3.5.2 *Payment Schedule*

Table 4-2 then identifies which payments/requirements apply to those different incentive categories.

There are five payment options:

- 4% cap: is the category only within the 4% cap ballot or also able to access the >4% exemption?
- Delivery Share (DS) requirement: is there an obligation to relinquish all DS, and/or move any residual DS to the backbone as part of the buyback deal?
- Termination fees: Are these paid by the landholder or by NVIRP?
- S&D provision: who is responsible for paying for any stock and domestic pipeline required as a result of the relinquishing of DS - the landholder or NVIRP?
- NVIRP payment: is there access to additional funds from NVIRP?

Table 4-2: Payment Schedule for NVIRP & Buyback

	Incentive Category			
Type of Incentive	**Ballot**	**Exemption**	**Local Benefits**	**Larger Project**
4% Cap	Inside 4%	Outside 4%	Outside 4%	Outside 4%
DS requirement	n/a	Yes	Yes	Yes
Termination fees	Landholder	NVIRP	NVIRP	NVIRP
S&D provision	Landholder	Landholder	NVIRP	NVIRP
NVIRP payment	n/a	n/a	60% min	85% min

3.5.3 *Case Studies*

The following examples provide indicative case studies to demonstrate the application of the payments protocol.

a) Local benefits

A landholder more than 2 km from the backbone with the potential to demonstrate channel closure would be defined as 'Exempt Automatic' in Table 4-1 and so able to access the **'Local Benefits'** incentives category.

Under Table 4-2, that category then triggers the following possible payment elements:

- access to the 4% cap exemption to allow sale of the Water Access Share
- a requirement to relinquish any DS or move it to the backbone
- termination fees paid for by NVIRP

- NVIRP considers payment for the provision of a piped stock and domestic supply to replace the previous supply from the irrigation channel
- NVIRP also considers payment of 60% of the value of any water savings generated by decommissioning any redundant channels.

b) Backbone

The second case study involves a landholder on the backbone who has no spur channel access and is unable to generate any water savings.

Under Table 4-1, a landholder with these characteristics is only eligible for the **'Ballot'** incentives category. Under Table 4-2 this triggers access to the following factors:

- the landholder can apply to be part of the ballot for inclusion within the 4% cap;
- the relinquishing of DS does not apply;
- the landholder would be responsible for any termination fee payable;
- the landholder would be responsible for any costs required to retain a S&D supply; and
- no premium payment would be eligible from NVIRP.

3.6 Prioritisation Management

Targeting Commonwealth buybacks to create synergies with NVIRP requires integration across a set of skills and interests:

- a commitment to maximise water recovery for the environment;
- an understanding of the complexities of the NVIRP infrastructure reform exercise - its design, location and payment schemes; and
- an appreciation of the commercial realities of running an irrigation property.

This is a challenging mix of skills and experience. It is proposed that this integration can be best achieved through an approach that pulls together staff from across three key agencies:

- **DEWHA:** to provide the oversight on water recovery and confidence to the major investor in the program;
- **NVIRP:** to provide the required technical appreciation of the program; and
- **Rural Finance:** to provide the depth of commercial understanding required to provide confidence to sellers that their best interests are being considered.

It is proposed that the integration would work best with a staff member from DEWHA explicitly seconded to the NVIRP office and Rural Finance acting as an agent for the combined agencies. Rural Finance has considerable relevant experience from its responsibility for administering Natural Disaster Relief Schemes and other programs such as Exceptional Circumstances Interest Subsidies on behalf of the Commonwealth and Victorian Governments.