Submission to Productivity Commission on Rural Water Use and the Environment: The Role of Market Mechanisms

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1 The Authors

- *Australian Conservation Foundation*

The Australian Conservation Foundation ("ACF") is committed to inspiring people to achieve a healthy environment for all Australians. For 40 years it has been a strong voice for the environment, promoting solutions through research, consultation, education and partnerships. It works with the community, business and government to protect, restore and sustain our environment.

- *Environment Victoria*

Environment Victoria is the state's peak non-government environment organisation. We have been campaigning across Victoria for more than 30 years, ever since the successful 1969 drive to save the Little Desert from subdivision. EV works with all sectors of society to develop and encourage innovative and practical outcomes to environmental problems.

2 Executive Summary

ACF and EV welcome the study into the role of market mechanisms in rural water use and the environment and value the opportunity to provide input.

We broadly view the negative environmental externalities caused by the management of water resources, primarily to meet the needs of irrigated agriculture, as falling into two categories;

- problems of water *quantity* (including overallocation and overuse or overextraction); and
- problems of water *quality* (including salinity, turbidity, nutrient run-off, cold water pollution).

In general, we see clear opportunities for market mechanisms to contribute to the prevention and remediation of both categories of environmental problems and we urge their adoption wherever this is the case, for example by recovering water to address overextraction by purchasing water entitlements on an open market, by tender, auction or 'options' schemes[1] and, in the case of water quality problems, by trading credits for salinity or other pollutants.

We believe that optimal policy solutions are most likely to be a 'smart' mixture of market and non-market mechanisms. There are many cases where it is important to use regulatory mechanisms to establish targets and timelines, to establish basic community expectations and minimum environmental standards, to clarify cost-sharing arrangements, or otherwise specify particular outcomes, for example:

- The amount of water that needs to be returned to the environment in order to achieve certain environmental outcomes that society values such as fish spawning and recruitment, successful colonial waterbird breeding events or healthy river red gum forests; or

[1] Heaney, A., Beare, S. & Hafi, A. 2005. Water Resource Management: using water options to meet environmental demands. ABARE conference paper presented at Outlook 2005, March, Canberra.

- Specifying a ‘cap’ that represents the maximum amount of salinity, nutrients or other pollutants that can be tolerated without causing environmental harm.

In such cases it seems that market mechanisms alone would fail to achieve the necessary outcomes since they are not capable of *setting* targets or ‘caps’. Market mechanisms may, however, represent the most efficient and effective way of *achieving* the targets once they have been set using other policy tools.

We would like to see, firstly, that the full range of market mechanisms is made available to address environmental problems *as appropriate*, and secondly, that the mix of market and non-market mechanisms is determined primarily on the basis of cost-effectiveness with a view to managing the socio-economic impacts as provided in clause 79ii of the NWI.

We reject the notion that the environment should be excluded from the market and consider this to be an ideologically driven barrier to trade without basis in good economic policy and contrary to the intergovernmental NWI which was widely welcomed by agricultural and environmental interests.

We see a gap in policy frameworks for managing market failure and perverse incentives, for example, to sell environmental water that should be addressed. Considerable progress remains to be made in water pricing and the reform process should map out a transition period from the beneficiary pays to polluter pays within the context of the NWI.

3 Market Mechanisms and Water Recovery

The development or strengthening of property rights and water markets that allow trading in water extraction licences provides an important opportunity for governments or other entities to enter the market and purchase water which can then be returned to the environment to address overextraction. The opportunity to use market mechanisms alone or in combination with other measures for water recovery is recognised in the NWI, clause 79(ii) which states:

ii) where it is necessary to recover water to achieve modified *environmental and other public benefit outcomes*, to adopt the following principles for determining the most effective and efficient mix of water recovery measures:

a) consideration of all available options for water recovery, including:

- investment in more efficient water infrastructure;
- purchase of water on the market, by tender or other market based mechanisms;
- investment in more efficient water management practices, including measurement; or
- investment in behavioural change to reduce urban water consumption;

b) assessment of the socio-economic costs and benefits of the most prospective options, including on downstream users, and the implications for wider natural resource management outcomes (eg. impacts on water quality or salinity); and

c) selection of measures primarily on the basis of cost-effectiveness, and with a view to managing socio-economic impacts.

We are keen to see an optimised mixture of all of these measures used to achieve the objectives, outcomes and elements of the NWI, in particular to return overallocated or

overused systems to environmentally-sustainable levels of extraction and provide sufficient water to achieve environmental and other public benefit outcomes.

We are concerned by the resistance that some parties to the NWI and the Living Murray Initiative are expressing about the use of market mechanisms to address overextraction. We see no grounds for adopting such an ongoing position. Market mechanisms should be used as one element in a portfolio of water recovery mechanisms, as detailed in the NWI, to address overextraction.

Failing to use market mechanisms will limit water recovery opportunities and drive investment in less cost-effective measures rather than maximise return on the taxpayers' investment. Also, because of the time needed to build infrastructure etc for water efficiency measures, rejecting market mechanisms can delay policy implementation.

For example, the Murray Darling Basin Commission (MDBC) estimates that the intergovernmental agreement to return an average 500GL/year of environmental flow to the River Murray under the 'First Step' of the Living Murray Initiative will not be achieved within the 2009 timeframe if only infrastructure and efficiency based water recovery methods are used (see figure below).

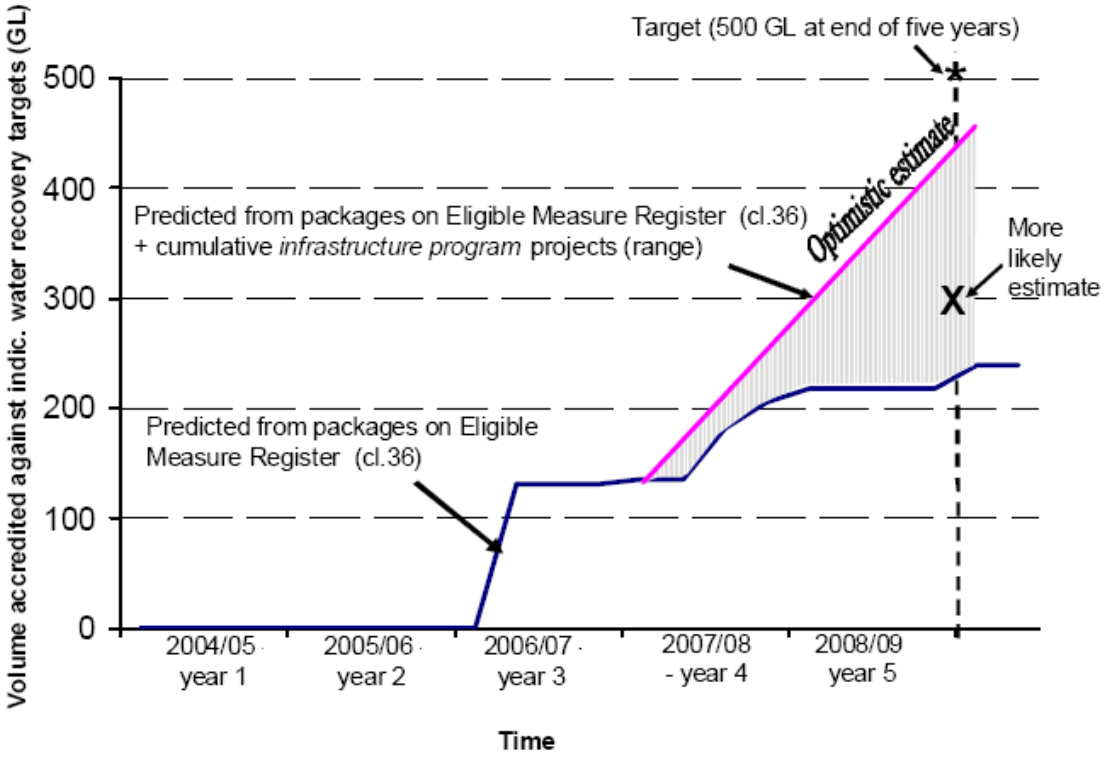

Figure showing the predicted volume of water capable of being recovered from infrastructure and efficiency measures currently identified by the parties to the 'First Step' (Graph from Attachment 3 to the MDB Ministerial Council 38 Communique).

Despite this, the MDB Ministerial Council rejected calls in September 2005 from the South Australian Government, the Australian Floodplain Association, environmental NGOs, leading scientists - including Professor Peter Cullen - to adopt the use of market mechanisms for water recovery and instead only requested the MDBC to provide advice on market based options at the next Ministerial Council meeting in April 2006. We see no reasonable basis for such rejection of market mechanisms and urge the Productivity Commission to provide to address this within the terms of reference of this study.

4 Water Trading

Water trading is a principle tenet of the NWI and widely supported by entitlement holders as it will increase the ease with which they can buy and sell water, enhancing their flexibility in decision making and business efficiency. In general, environmental groups are also supportive of water markets, recognising that water trading can be neutral or benefit the environment in a number of ways but also note the existence of risks to the environment in trading water entitlements[2].

We urge that caution, openness and transparency be accompanied by frequent and ongoing assessment of the cumulative impact of water trading and a commitment to protect the environment from any unintended negative impacts. The time lag between trading activities and the appearance of environmental damage, caused for example importing large amounts of water into high salinity impact zones, indicate that market mechanisms alone cannot optimise the distribution of water resources in the absence of other policy tools such as regulatory requirements for site-use licences to prevent inappropriate water transfers or a 'reserve' system to protect flows for high conservation value freshwater assets. Once again, to prevent or address environmental externalities, we believe that optimal, long-term water trading policies will comprise a mixture of market and non-market mechanisms.

Within a market environment, we are strongly of the view that as a legitimate water user, the environment should have the same standing in the market as other water users.

However we note the lack of policy frameworks for managing market failure and perverse incentives to trade water. Environmental water should be managed to deliver environmental outcomes, not to address the budget shortfalls of government agencies. The institutional arrangements and public accountability of environmental water managers are poorly defined. This is a major gap in policy that must be addressed by providing environmental stakeholders with legal standing to question the use of environmental water entitlements.

Victoria provides a significant example of how perverse incentives to trade environmental entitlements can work. The Kerang Lakes Environmental Water Allocation of 27,600 ML is intended for use on Ramsar listed wetlands and other parts of the Murray River System. However, water delivery charges levied by Goulburn Murray Water require a portion of the environmental water entitlements to be sold to pay these costs. Money from the sale of water has also been used to fund the construction of fish ladders in rivers located in southern Victoria.

Figures from the Department of Sustainability and Environment as set out below detail past sales of the EWA.

Year	**Amount Traded**	**Funds Generated**	**Funds Spent On**
1994/5	10 000 ML	In excess of $300 000	On ground works/service delivery costs
1997/8	11 944 ML	In excess of 350 000	On ground works/service delivery costs
1999/00	3243 ML	In excess of $61 000	Service delivery costs
2000/1	380 ML	$4879.20	Service delivery costs
2001/2	12 047.3 ML	In excess of $480 000	On ground works/Service delivery charges

[2] Jones, G. 2005. Managing the ecological risks of water trading. Watershed. April.

Goulburn Murray Water has charged between $9.20 and $20 per ML for delivery of the EWA.

In November 2001 the *Inquiry into the Allocation of Water Resources* undertaken by the Victorian Parliament's Environment and Natural Resources Committee assessed the management of the Kerang Lakes EWA. Their conclusion was that

> *The need for a [environmental] water allocation to be sold to fund delivery costs [sets] an undesirable precedent, as delivery of the environmental allocation thus becomes dependent on financial, not ecological, constraints (IAWR, 197).*

The Environment and Natural Resources Committee also noted that Goulburn Murray Water had failed to pay the environment for the use of the Murray River and other streams as a water delivery system.

We see no grounds for introducing barriers to trade that allow corporations or other licence holders to refuse to sell water to the environment or the introduction of punitive exit-fees or other mechanisms that impede water moving from one use to another. The flexibility that water trading offers irrigators should also be available to the environment enabling efficient adaptability to changing circumstances including improved knowledge about environmental water requirements or the long-term impacts of climate change. Within that context, we believe entitlement-holders should be paid a fair price for their water on an open market.

Recent work by ABARE Economics[3] discusses water 'options' contracts as a particular market mechanism for returning water to the environment as part of a portfolio of environmental water entitlements with tangible benefits for irrigation licence holders as well as the environment.

Structural adjustment methods outlined in the recent paper by Young and McColl - "*Managing Change: Australian structural adjustment lessons for water*" - discusses the need to change water resource allocation so that it more accurately reflects resource constraints and scarcity, and will enhance the longevity of rural communities through more sustainable practices. Their paper also discusses methods for acquiring environmental water with positive repercussions for rural areas. These adjustment methods include the use of market mechanisms. We see great value in the principles underpinning these papers and urge the Productivity Commission to address them in the study.

We question arguments to the effect that governments or other entities entering the market and buying water on behalf of the environment will inevitably distort the market since we understand that tender and auction schemes can avoid this problem. We hope that the Productivity Commission will also address these issues as part of their study. As a practical matter, we note in relation to the LMI 'First Step' that the outstanding 260GL of water only represents 2.6% of total diversions from the River Murray – a tiny amount, especially in the context of the high degree of uncertainty with which flow is managed as part of River Murray operations.

We note that while insufficient progress has been made in addressing over-extraction in the Murray River System, irrigation industries have benefited from a substantial financial windfall by governments creating water markets,. The first auctions of permanent water entitlements in northern Victoria valued water at $239/ML. Today prices are around $1000/ML. This represents a substantial transfer of wealth from public to private ownership. Governments should require the beneficiaries of water markets to meet clearly defined targets for water recovery. This is not currently occurring.

[3] Hafi, A., Beare, S., Heaney, A. and Page, S. (2005). Water Options for Environmental Flows. www.abareconomics.com/publications/nat_res_managment/2005/e-reports/eReport_WaterOptions.pdf

The water market provides few environmental benefits unless Governments are proactive in acquiring water for the environment and we would encourage The Productivity Commission to assess the benefits of acquiring a percentage of each water trade for use by the environment.

As well as addressing environmental externalities we see market mechanisms as pivotal to opportunities for floodplain grazing communities to maintain their livelihoods. Floodplain grazing as conducted around the Macquarie Marshes, Gwydir Wetlands, Narran Lakes etc is an economically efficient agricultural activity which has supported grazing communities for up to six generations in a manner which is largely consistent with the environmental values of the areas. It seems however that these communities have been left out of the national water reform process and the unfettered harvesting of water upstream is impeding their economically efficient use of rural water.

We acknowledge and support the recent 'Riverbank' announcement by NSW Premier Iemma to invest $105 million to buy water entitlements in inland NSW; prioritising the Macquarie Marshes, Gwydir Wetlands, Lowbidgee Floodplain and the Narran Lakes. This substantial investment should make a significant difference to the long-term future of these stressed river and wetland systems and the communities that rely upon them, especially if matching funding is forthcoming from the Australian Water Fund.

5 Water Pricing

It is well recognised that water pricing is important in providing market signals to promote water efficiency and ensure that the community receives a fair return on major capital investments in dams etc. EV and ACF support full cost recovery and upper bound pricing as required by the NWI.

We understand however that 'full cost recovery' as defined by some governments only includes contemporary delivery costs and does not reflect 'sunk costs' from the initial capital outlay on dams built in previous years. Given that the governments' definition of 'full cost recovery' falls well short of the total investment, this should be an added incentive to achieve 'full cost recovery' as soon as possible.

We also support the view that the cost of all negative environmental externalities should be incorporated into the price of irrigation water in accordance with the 'polluter pays' principle. We note that this principle is not currently reflected in water reform processes, rather a 'beneficiary pays' principle is being adopted, as exemplified by the $500 million committed to recover an annual average 500GL of environmental flow for the River Murray.

As an equity issue, we believe this is appropriate to address the historical 'legacy' of water overallocation and overuse and that today's water entitlement holders should not be expected to pay for the previous mistakes of government and bureaucracies. However, full cost recovery and the polluter pays principle should be reflected in future water prices and a transitional period between the beneficiary pays to polluter pays should be mapped out within the context of the NWI.

It is totally unacceptable that flooplain harvesting in northern NSW and Queensland occurs at low to zero cost for the water whilst the environment of Ramsar listed wetlands degrades due to water deprivation and floodplain graziers are driven out of business requiring enormous investment of public money to address the externalities caused. We hope that the Productivity Commission will address this within the context of their terms of reference.

5 Choosing Appropriate Market Mechanisms

The characteristics of environmental water allocations should reflect the ecological requirements of the river, wetland etc for which they are allocated. The specific requirements of freshwater assets will vary greatly depending on many factors and the frequency, duration, magnitude and seasonality of different flow components including overbank flows, low flows, summer freshes etc is crucial for maintaining or restoring the ecological values that characterise the assets.

We are concerned that some water recovery processes in Australia are proceeding without any understanding or consideration of what the ecological needs of the asset in question are and they are failing therefore to recover water with the right sort of characteristics, in terms of level of security, capacity for carry-over in dams etc. This is happening because the water recovery process is based on where efficiency measures can be easily identified rather than identifying the required flow characteristics and then developing a portfolio of water products that match those characteristics.

This highlights the importance of using market mechanisms for water recovery because of the flexibility and specificity with which water of particular characteristics can be procured.

It also highlights the risk of bias towards any one particular type of market mechanism. We are very supportive of the work being done by ABARE on 'options' contracts. However, it is important to avoid 'options' contracts being the *only* market mechanism used to recover water since although it might provide large volumes of inexpensive water during wet years, it does not, for example, provide water during dry years. Environmental water should comprise a portfolio of water products of which water from 'options' contracts are one element.

Tradeable Permits, Offsets and Credits

Offsets are based on the notion that an acceptable level of environmental harm can be used to drive improvement in environmental management practice. Binning and Young[4] state, and ACF and EV agree, that tradeable permits, offset and credits have a role to play in a comprehensive policy tool kit. In determining that role for the management of river systems and water, it is crucial to design trading systems such that they:

- Are based on the recognition that pollution permits or offsets are tools of last resort, and should not be seen as an alternative but rather complementary to regulation that establishes a 'safe minimum standard' of environmental performance in line with community expectations;
- Are subject to a declining cap ensuring progressively lower levels of environmental harm;
- Are based on realistic metrics and sound accounting, in accord with ecological theory and field experience;
- Are administratively transparent and accountable;
- Stimulate technological innovation and the 'environmental modernisation' of industry to progressively remove the source of harm to the environment; and
- Generate significant and measurable environmental benefits that would not otherwise have occurred.

Leveraging New Private Investment in Sustainable Water Use

In 2001, ACF, together with the CSIRO, and several leading businesses with an interest in the future of rural Australia (including Berri, ABN AMRO, and Southcorp Ltd),

4 Binning, C. & Young, M. (2000) *Native vegetation: insitutions, policies and incentives. Report to the National R&D Program on Rehabilitation, Management and Conservation of Remnant Vegetation*, Environment Australia, Canberra.

commissioned the Allen Consulting Group (ACG) to produce *Repairing the Country: Leveraging Private Investment*[5] - a pioneering approach to natural resource management.

The aims of the ACG package are to:

- Catalyse new, large-scale private investment in new rural ventures with environmental benefits;
- Match private interests with the delivery of public good outcomes;
- Bridge the gap in the investment chain between capital, land and knowledge;
- Foster innovation, enterprise and regional development opportunities;
- Reveal information about ecosystems, improving the NRM knowledge base; and
- Use policy instruments and institutions that have proven successful in raising private capital in other public interest areas, such as health, education and built infrastructure.

A well designed programme to mobilise substantial private sector investment in sustainable and profitable water enterprises and industries would include:

- Seed funding for environmental enterprises with good commercial potential;
- Taxation offsets to help drive private finance of commercial ventures that deliver real benefits for river systems and catchments;
- Tax-preferred investment statutory investment companies – pooled development funds – to help connect capital, land and knowledge;
- An environmental enterprise fund to administer the programme; and
- Environmental accreditation to ensure alignment between business plans and the conservation needs of river systems and catchments.

ACF and EV commend the Allen Consulting report to the Commission.

6 New Market Mechanisms

We hope that the Productivity Commission will examine the applicability of mechanisms like the Victorian "Bush Tender" scheme where competitive tendering is used to enable water licence holders to sell water to the environment either on the temporary or permanent market.

As indicated previously, we are excited about the opportunities precipitated by ABARE's work on 'options' contracts as one part of a portfolio of water products that make up environmental water allocations.

We know the Productivity Commission is aware of 'cap and trade' mechanisms for reducing nitrous oxide and sulphur oxide pollution in the US and trust these mechanisms will be drawn on.

We would like to draw the Productivity Commissions attention to the following paper presented at the recent OECD workshop on agriculture and water: sustainability, markets and policies.

Catchment-Sensitive Farming: Tackling Diffuse Water Pollution From Agriculture in the United Kingdom – Policies And Drivers. Presented by Soheila Amin-Hanjani**,** Head of Branch, Catchment -Sensitive Farming Policy, Water Quality Division, Department for Environment Food and Rural Affairs (Defra), London, United Kingdom.

We wish the Productivity Commission well in their deliberations and look forward to participating in the ongoing debate around issues raised.

5 ACF (2001), *Repairing the Country: Leveraging Private Investment*, report to the Business Leaders' Roundtable, ACG, Melbourne. [Online www.acfonline.org.au/uploads/res_private_investment.pdf]