NEW SOUTH WALES GOVERNMENT RESPONSE

TO THE

PRODUCTIVITY COMMISSION

MARKET MECHANISMS FOR RECOVERING WATER IN THE MURRAY-DARLING BASIN

October 2009

OVERVIEW

NSW recognises the important role that market mechanisms can play in improving water use efficiency and environmental outcomes in the MDB. In recent years, NSW has gone further than any other jurisdiction in reforming water planning and management systems, establishing a framework for water trade, and implementing programs to strengthen and deepen water trade. NSW is committed to the objectives of the National Water Initiative to achieve a nationally compatible market, regulatory and planning based system of managing surface and groundwater resources that optimises economic, social and environmental outcomes.

NSW supports the use of a portfolio of water market measures including the Commonwealth water buy-backs where there is a clear environmental demand. NSW believes that a clear understanding of the demand for water for various environmental assets should be the main basis for planning of all water recovery measures, including market measures.

For cost effective delivery of required environmental outcomes, water recovery planning needs to be integrated with land management program planning. Healthy ecosystems require water but they may also require appropriate land management in relation to factors such as grazing, fencing and weed management, which require landholder participation. The efficient supply of environmental water and allocation of government funds will be compromised where all parties do not make informed decisions and work towards commonly agreed objectives.

Further information is required on the watering needs of key environmental assets in the Basin, to ensure water recovery is targeted appropriate. Without this information and targeting, it is possible that the buyback could result in:

1. water acquisition in regions where it may not deliver maximum benefits or match regional environmental water demand;
2. sub-optimal investment in irrigation modernisation projects; and
3. impacts on irrigation assets, supply reliability and broader regional economies and communities.

The prolonged record of drought and associate low inflows into the Basin's river systems, the uncertainties posed by future climate change, and the future agreement in 2011 of a new sustainable diversions cap and its subsequent incorporation in NSW MDB water sharing plans in 2014 create considerable uncertainty for the planning and implementation of water resource policy. A clear understanding of the environmental objectives of water recovery at an early stage will assist to lessen this uncertainty.

SCOPE OF THE STUDY

NSW supports the approach taken in the Issues Paper to identify appropriate, effective and efficient mechanisms that could be used to diversify the range of options to purchase water entitlements under the Australian Government's 'Restoring the Balance' (RTB) in the Murray-Darling Basin program. This approach allows for the consideration of a broader range of future market mechanisms that may be implemented in the future as additional information is acquired, with

potentially increased and more efficient participation in the water market by environmental water managers.

Current purchase programs being undertaken in NSW include the Living Murray (TLM) program, which concludes in 2009, for which both the Commonwealth and NSW Governments have made substantial purchases. Other water purchase programs include the Water for Rivers program, which has substantially concluded its purchasing activity, and NSW Riverbank, which will conclude by June 2011. These programs are operated by Water for Rivers and the Department of Environment, Climate Change and Water (DECCW).

ISSUES

What are the objectives of the restoring the balance program?

Is the focus on acquiring entitlements the best way of achieving the environment's needs?

Buying entitlements is an appropriate mechanism to address some of the key needs of the environment in the Murray Darling Basin. However, the overall approach should entail a mix of options to achieve optimal environmental outcomes in the Basin. The focus on acquiring entitlements should be supported by investment in water savings from infrastructure projects where cost effective water recovery can be demonstrated, to ensure the environment's share of water is increased and reflected in new sustainable diversion limits to be set under the MDB Plan. Consideration should also be given to the effectiveness of other market mechanisms, including allocations and leases, in addressing environmental needs in the Basin.

NSW consider that a mix, or portfolio, of water market products is appropriate within NSW, including High Security (eg. for core habitat maintenance), General Security (eg. for improved wetland condition) and Supplementary Access (eg. for restoration of catchment 'signature' flow events). Unregulated entitlements may also be useful in targeting specific environmental assets and downstream passage of flow events where these flows can be protected.

Clearly articulated environmental objectives and a related water recovery procurement strategy, including where and when the recovered water is intended to be used, increases the effectiveness of market mechanisms for acquiring water to achieve environmental needs. Such a strategy would also promote investment efficiency and allow for the review of socioeconomic implications, and effective and transparent planning would assist to minimise unnecessary adjustment costs. Further, the coordination of water purchase and infrastructure investment by Government could minimise the potential risk of stranded assets or conflicting investment objectives.

In addition to the focus on acquiring permanent entitlements, there may also be short-term environmental benefits in obtaining seasonal allocations that can be provided immediately to key environmental assets that are in dire need of water, such as critical fish refuges. Such benefits could also be obtained by leasing

entitlements in areas where there are no willing sellers but where there are key environmental assets.

Is a 'no regrets' presumption a reasonable basis for purchasing entitlements, and at what point does this cease to be the case?

Due to the immediacy of environmental needs of the Basin, the 'no regrets' presumption was a reasonable basis for initial water purchase activity, although clear targets for environmental water recovery and use are required to be as established as soon as possible. It is possible that there will be financial transaction costs incurred by the Australian Government once more information is available about the specific environmental objectives of the RTB program, such as the costs of reconfiguring the water assets through selling and buying water entitlements to meet the identified needs of the environment. Some of these transaction costs may be minimised if water recovery is targeted to meet specific environmental objectives.

As more information becomes available on environmental responses to water purchases and the potential effects of climate change on river flows, it would be appropriate to reassess the ongoing 'no regrets' philosophy. The potential to invest in different catchments, differences in the opportunity costs of water purchases and non-uniform environmental outcomes may support a more targeted approach being applied as experience is gained. As such, the 'no regrets' presumption should be the subject of on-going review based on the best knowledge currently available, particularly as the development of the Basin Plan progresses.

The purchase of water entitlements within NSW irrigation districts needs to be better aligned with the Commonwealth's Farm Modernisation Assistance Scheme and Private Irrigation Infrastructure Operators Program. These programs aim to facilitate business assessments of infrastructure requirements for sustainability and to identify non-viable assets to enhance the long term capacity of irrigation districts to adjust to reduced water availability. However a 'no regrets' approach to the purchase of water entitlements may contribute to an increased risk of stranded assets in irrigation districts which has the potential to undermine work being done under the farm modernisation and infrastructure operator's programs.

What are the arguments for continuing the buyback after the new Basin Plan is implemented in 2011, and associated state water sharing plans start to be implemented in 2014?

The Basin Plan will introduce a revised distribution of water between consumptive and environmental uses to ensure the environmental requirements of the Murray Darling Basin are met. The buyback program was established to address the urgent need to secure the health of the Murray Darling Basin environmental assets. The scientifically determined environmental requirements of the MDB will inform the development of the new sustainable diversions limits, which will be incorporated into NSW's Water Sharing Plans from 2014. Purchase of water entitlement should continue beyond the initial implementation of the Basin Plan until the environmental targets expressed in that Plan are reached.

What implications do environmental demands across the Basin have on the targeting of purchases and the mechanisms and instruments that should ideally be used?

As environmental needs and objectives become defined through the Basin Plan process, it should become more feasible to target purchases and mechanisms accordingly.

Further consideration needs to be given to how environmental requirements will be delivered in unregulated streams such as within the Darling Basin. Environmental water should be part of a holistic package that includes riparian revegetation, water quality improvements, fish passage remediation and in-stream habitat rehabilitation. It is also important that consideration of the environmental needs of the Basin includes appropriate examination of the needs of all species, including fish communities, waterbirds and floodplain wetlands.

As the discussion paper outlines (Table 2), NSW General Security entitlement provides useful quantities of water during average conditions. However, under conditions of extreme water scarcity (i.e. severe drought), this entitlement type may not translate into quantities of allocated water sufficient to meet environment requirements. For example, at present many important fish habitats are in critical need of water, but the entitlement purchased thus far is unable to provide for this need. This example also highlights the need for the Basin Plan to integrate the recovery of 'held' water entitlements with rules on sharing of water during periods of critical human and environmental need. Without adequate water at the required time, water-dependent ecosystems lose their capacity to provide for environmental and other public benefit outcomes.

The purchase of water also needs to be supported by broader initiatives aimed at achieving improved river health outcomes. This could include investment in the removal, modification and installation of works such as the modification of weirs for uninterrupted flow paths for aquatic fish communities, multi-level off-takes on storages to reduce cold water pollution, and works to restore wetlands. NSW is already investing in initiatives such as these to complement water purchase, including under programs supported by the Commonwealth such as the NSW Wetlands Recovery and Rivers Environmental Restoration Programs. Significant improvement can be achieved without solely relying on the purchase of entitlements.

Community perceptions and acceptance of environmental water purchases will be vital to their success. Appropriate levels of community consultation and education are required to ensure that local communities are informed about the RTB program. In particular, clarification of the Commonwealth's environmental objectives, and how the success in achieving these objectives through water purchases is being measured, would assist in strengthening the community's support of the RTB program.

A key element of developing this community support will be through the valuation of benefits associated with recovering water for the environment, which can be difficult. The Wentworth Group suggest that the accounting framework, such as that underpinning the Sustainable Rivers Audit, would allow the development of an

environmental benefits index that could be used to assess the value for money of water either purchased or obtained via infrastructure.

Should the buybacks be designed to reduce structural adjustment costs or should adjustment be addressed separately? If the former, are their particular buyback mechanisms that should be used to do this?

The buy-back program should be independent of structural adjustment. If the buyback creates the necessary conditions to necessitate a structural adjustment program its basic objectives and design would be quite different.

For example, the small-irrigators exit grant package is a useful adjustment tool for these irrigators, but provides limited environmental value. From experience, if buy-backs are not carried out as a price-preserved adjustment activity such as by reverse tender, the most appropriate mechanism for government buy-back is a gradual and sustained market participation, as this allows a broader participation base and more considered involvement by landholders and irrigators without exciting short-term price impacts and tertiary market behaviour.

It is also noted that the buybacks will assist irrigators who want to leave the industry, and may also assist adjustment for those who sell part of their entitlement and invest the proceeds in improving their continuing irrigation enterprise. In some cases the funds will be reinvested in regional communities, however in other cases those who exit the industry may also exit agriculture and the region. The extent to which this has or will occur is unknown, but this may have an impact on service industries and rural towns that are dependent on the irrigation industry. Further work may be required to identify what, if any, impacts the buyback are having on regional communities.

Having a range of mechanisms for achieving targets for environmental water may provide rural communities with greater flexibility to achieve structural adjustment while still achieving environmental goals. Monitoring and consideration of the socio-economic impacts of the buybacks is a key element of the process of water recovery, including well understood and transparent impact assessment procedures.

<u>The market for water</u>

What impact has the Restoring the Balance program had on the price of water entitlements to date?

It is difficult to determine the impact of the RTB program, or other water purchase programs on water prices to date, particularly given the effect of other factors such as the ongoing drought. The impact also appears to vary between catchments. For example, in the Murrumbidgee and Murray, where significant quantities of water were acquired under The Living Murray and Water for Rivers over a short timeframe, prices were noticeably affected. In other regulated valleys such as the Gwydir, Macquarie and Lachlan, prices have fallen or remained stable since purchase programs commenced.

Increases in price in southern valleys may reflect the strong recent participation in the entitlement market by a number of environmental purchasers, and the very low levels of pre-existing entitlement trade. Publication of average prices paid for entitlements from previous tendering rounds will inform the market and will be useful in guiding future trades.

There should be ongoing monitoring of the implementation impacts of the RTB program on water prices, particularly in relation to the effect of the program's size and limited time period.

What impact has the entrance of the Commonwealth (and other governments) into the market for water had on background trade in water between third parties?

Market mechanisms used to purchase entitlements are likely to have a greater effect on prices if they are operated over a short time frame that does not allow for adjustments in rural planning and enterprise change. Entry of the Commonwealth and other governments into the market has created a level of short term competition in some areas, but there is little or no evidence yet that trade between third parties has been impeded.

<u>What market mechanisms should be considered?</u>

What are the advantages and disadvantage of the different market mechanism that could be used to obtain water for the environment?

In addition to the advertised expression of interest process currently utilised for the permanent purchase of entitlement, there is potential to use market mechanisms to influence seasonal flow event management in unregulated systems such as the NSW Barwon-Darling to improve in-stream and floodplain environmental outcomes. This could occur, for example, through options or conditional lease contracts to limit pumping from certain events under predefined conditions.

To limit the impacts of pumped extraction on individual river flow events through entitlement acquisition alone the Commonwealth would need to own a majority of the entitlement that has pumping rights to these events. Equivalent environmental outcomes may be achieved with option or conditional lease contracts at a lower cost. For example, in the Narran River which crosses the Qld – NSW border and flows to the Narran Lakes, contractual arrangements with private water storages have been offered by private vendors to assist with event based sourcing and delivery of environmental water following experience with the purchase of water by the MDBA in March 2008.

Although there is a future opportunity to deepen the water market with innovative product development such as allocation leasing, in the short term the ongoing drought has so exaggerated the pricing and delivery risks for either party in such arrangements that they have not developed greatly beyond concept stage.

Purchasing entitlements by standing in the market is the preferred mechanism utilised by NSW RiverBank, once the purchaser has been introduced to the range of potential vendors, but may not be compatible with Commonwealth Government's procurement processes, or with its substantially greater budget.

When purchasing entitlements through a tender NSW experience has been an expression-of-interest process preserves the vendor's right to negotiate when compared with fixed and binding tenders. The acquisition process should ideally be flexible enough to allow larger parcels to be accepted at a premium to enhance efficiencies.

A large single tender round can be stressful for participants, and allows for opportunistic market behaviour, whereas multiple rounds or standing open processes may be more palatable to vendors and allow more considered vendor financial planning. Trade prices are reported on the government register in NSW, and specific trade information has been summarised on the DEWHA website which provides good guidance for ongoing vendor participation.

In unregulated systems, purchasing 'pumping opportunity' could be achieved through the purchase of extraction rights to reduce pumping from single flow events, if irrigators are contracted and/or agree (collectively) to let the purchased volumetric proportion of each event flow through without pumping. For example, in the NSW Barwon-Darling, purchased account water that would have otherwise been extracted could be transferred to entitlements held by the Commonwealth Environmental Water Holder (eg. at Toorale). The CEWH water accounts would not need to be debited unless the Commonwealth wanted the increased flow "shepherded and re-allocated" beyond the Barwon-Darling system, that is not re-regulated for consumptive use downstream. Accumulating CEWH water accounts through purchase and transfers from others would reflect the reduced level of extraction on the river system.

Purchased unregulated entitlement water could be shared between irrigators and the environment through lease-back arrangements. For example, the Commonwealth could purchase water entitlement, which could then be leased-back to vendors subject to contracted extraction rules (involving flow thresholds and antecedent conditions) where the environment has first call on the water. Leases could have a sunset condition and/or have an annual ramping down factor such that a lower long-term extraction limit is met. There is also the potential for structural adjustment benefits with this approach, by implementing within a timeframe that would allow for introduction of on-farm efficiency measures or enterprise adjustments to offset the proportion of water moved back to the environment.

<u>Do we need a portfolio of mechanisms and water products?</u>

What mix of market mechanisms and water products should the Australian Government be using to achieve its environmental objectives?

The appropriate mix of market mechanisms and water products that the Australian Government should be using depends on its key environmental objectives and intended outcomes. The multifaceted nature of environmental demands will be best addressed by the use of an appropriate mix of market and non-market mechanisms on a case by case basis.

NSW supports recovery of a diverse portfolio of entitlements including High Security, General Security and Supplementary Access entitlements. However, consideration should be given to the particular impacts of the recovery of the different types of entitlements, particularly in regards to specific industries and communities. An over-reliance on one type of entitlement may lead to individual industries being disproportionately affected by the buyback. For example, a focus on General Security entitlements may have an increased impact on industries based on annual cropping.

Inclusion of Supplementary Access water entitlement in the portfolio of mechanisms would reduce the impact of extraction from the smaller but more frequent natural tributary flows that occur downstream of water storages, and add flexibility to environmental water management options. Mechanisms for recovery of Supplementary Access entitlement, however, should reflect the lower level of security relative to other entitlement categories. Similarly, unregulated catchments in the northern part of the MDB that require adjustment to achieve significant rehabilitation of environmental values may also benefit from purchase of entitlement, in conjunction with improved operational rules.

Consideration should also be given to a range of market mechanisms other than the purchase of entitlements, including open market purchases and auctions, depending on the particular circumstances of the purchase. The Productivity Commission has previously advised that current efforts to source environmental water could be more effective if they were supplemented with additional water products (such as seasonal allocations, leases & options, forwards contracts & covenants, tenders for ecosystem services) and water-related products (such as rights to river capacity). A preliminary economic analysis indicated that acquiring environmental water through option style products (based on allocation thresholds) could be a more cost effective strategy to achieving environmental benefits relative to entitlement purchase. Developing these products may be important in river systems where the pace of buyback is perceived to be too slow.

Whether water options can provide a more cost effective solution to meeting environmental requirements depends on the environment and the irrigation sector having inter-seasonal differences in consumptive demands etc. Unpublished research by Industry and Investment, NSW, investigated the nature of climatically driven agricultural demands and stochastic water supplies in the Murrumbidgee and Murray Valleys of NSW using existing models of irrigated agriculture in these catchments to estimate the marginal value of water at particular allocation levels. This involved the use of simulated allocations from the hydrology models IQQM and MSM Bigmod for over a period of 106 year historical climatic conditions.

Catchment scale agricultural returns were first computed for a base case water availability under current water access rules. The value of water foregone was determined by the change in agricultural returns with various caps in place over the same period of historical climatic conditions. The results showed the annual value of water sourced for the environment was much lower than the equivalent price of entitlements in each catchment and could represent value for money if such products captured sufficient environmental benefits, although this has yet to be demonstrated.

If the presumption that the demand of water from agriculture and the environment is fundamentally different (i.e. that low flows are of most value to irrigators whereas high flows are generally of most value to the environment) can be demonstrated and taken advantage of, then it is possible that environmental demands could be met at lower overall costs to society. The extent of benefits of this approach, versus that of entitlement purchase, depends on a range of factors including the trading activity of the environmental manager. An environmental manager could buy and sell allocations annually to achieve similar environmental outcomes. One potential source of gain however, is that irrigators can better plan their operations under an option product rather than rely on the decisions of others in the market concerning the sale of allocations.

Other examples of market mechanisms for purchasing water entitlements or other similar property rights.

NSW RiverBank

NSW RiverBank is a $105 million environmental fund set up by the NSW Government in 2005 to buy water for our most stressed and valued rivers and wetlands over five years. NSW RiverBank's main mechanism for water purchase has been a competitive expression-of-interest process combined with standing in the market. RiverBank will also participate in the trading of annual water allocations where this is consistent with its business objectives. In doing so, this will improve the ability of the market to achieve an economically efficient distribution and use of water over time. NSW RiverBank is the first instance of an entity established by Government to improve the efficiency of water distribution and use through the purchase of water on behalf of the environment. Its initial years of operation have been important in informing governments generally of the potential for market mechanisms in addressing environmental water management objectives.

To August 2009 more than 93.5 Gigalitres of water entitlement has been purchased by NSW RiverBank for the environment within the Gwydir, Macquarie, Lachlan and Murrumbidgee valleys. Since 2008, water purchased by RiverBank has been released into a number of wetlands including the Macquarie Marshes, Lower Murrumbidgee (Lowbidgee) wetlands, and the Gwydir and Gingham wetlands. This adaptive environmental water has supported waterbird, frog breeding and fish spawning and migration events, as well as improving the health and condition of severely stressed native wetland vegetation including River Red Gum, Black Box and Lignum.

TLM NSW Market Purchase Measure

The Living Murray (TLM) First Step initiative was established in 2002 by the Murray-Darling Basin Ministerial Council with the aim of increasing environmental flows in the Murray River system by recovering 500 gigalitres (GL) of water by 2009 to improve the ecological condition of six Living Murray icon sites. As part of this initiative the NSW Market Purchase Measure was initiated by the NSW Government in 2007 with the aim of acquiring up to 125GL of high and medium reliability water access entitlements from the NSW southern connected part of the Murray-Darling Basin. DECCW used an expression of interest (EOI) process,

combined with direct negotiation with sellers or their agents, and by June 2009 had contracted or settled approximately 114 GL of long term cap equivalent entitlement.

The use of tender-based market mechanisms by DECCW has proven to be an efficient means of acquiring a range of water entitlement products within defined budget parameters. The impact of these purchasing programs on the total pool of entitlement has been limited, with less than 10 percent of the total market volume being acquired for particular entitlement products within the priority catchment areas.

Upgrading infrastructure

Should water purchasing and infrastructure upgrades be coordinated and, if so,how?

In some cases, current buyback programs may result in efficient water users who for debt reasons and low water allocations decide to leave the industry, resulting in inefficient delivery systems and suboptimal environmental outcomes. Targeted buybacks could also lead to the closing down of whole sections of inefficient delivery systems and free up money for water efficiency projects in more sustainable areas.

Soundly-based infrastructure schemes potentially have an important role to play in conjunction with buybacks, in balancing the objective of government policy to sustain regional irrigation communities whilst also recovering water for environmental requirements. ACIL Tasman found, in order to effectively manage the risk of paying too much to return the target flows to the environment, there is a solid *prima facie* case for considering investment in identifying and proving up an expanded set of infrastructure projects (ACIL Tasman, 2008). They concluded that the process should be open to unit costs above current apparent market prices for water which would allow both the wider portfolio benefits of infrastructure (in relation to government objectives of sustainable regional communities) to be taken into account, and the likelihood of a rising market price for buybacks. ACIL Tasman also observed that the two instruments of infrastructure and buyback will compete with and complement each other at the margins, which implies a need for sound, thorough and compatible processes for weighing the costs and benefits of different initiatives.

As such, a well coordinated government approach is crucial given the nature of these two instruments and the government commitment to invest in both. Members of Wentworth Group recently highlighted the potential risks in commitment to large infrastructure projects when there is uncertainty regarding where the reduction in usage demand as a result of buybacks will fall (ACIL Tasman, 2008). A coordinated government approach and monitoring is important in managing such risks.

In coordinating water purchasing and infrastructure upgrades the Commonwealth needs to work with the states and irrigation areas to identify appropriate areas for buyback and for infrastructure investment. The ideal focus would be on purchases in areas which serve environmental, irrigation and socioeconomic outcomes.

Further, consideration should be given to a cost-reflective approach to delivery of infrastructure.

Impediments to the use of particular market mechanisms

There is currently a range of impediments to water purchases across the various Basin States, including caps on trading. Ideally all states would work towards an open market for water which takes into account the physical nature of water rights.

To this end, the NSW and Commonwealth Governments recently agreed to a Memorandum of Understanding (MOU) to lift the NSW embargo on water trades associated with purchases of water for the environment. The MOU provides a clear plan for water purchases in NSW until 2012-13 and will facilitate the completion of trades under the Commonwealth's 2008-09 water purchase tender. The MOU also commits both governments to developing and implementing effective water shepherding arrangements.

However, there remain barriers to trade in the Basin. Victoria has lifted the four percent limit only for Commonwealth purchases, which leaves a significant trade barrier in place. The Productivity Commission should consider ways in which these remaining impediments could be removed equitably.

In addition, where irrigation is effectively subsidised, for example through failure to implement full cost recovery for state-owned storage and delivery infrastructure, trade can be impeded through price distortions. In some cases, government actions and intervention may also have the effect of distorting prices.

The imposition of termination fees can add to the costs in trading entitlements while reducing revenue to the vendor. The imposition of these fees is unlikely to encourage the efficient use or investment in infrastructure improvements due to the fee being based on the current capabilities of the irrigation companies. Alternatively, a spatial component of supply could be factored in and facilitated by irrigation companies to meet the buyback mechanisms in place. The short-term impact on the cost of the buyback is significant in reducing the volume of water recovered relative to on-river purchases.

References

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