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# 11 Concluding comments

## Key points

- Although built on the sound foundations of the National Water Initiative, water policy in the Murray-Darling Basin has been poorly designed and, therefore, difficult to implement. Ideally the Basin Plan should have been finalised before the buyback began, and infrastructure upgrades made only after the buyback had started to indicate those irrigation areas that have a long-term future.
- The short-term and long-term goals of recovering water for the environment need to be clarified and addressed separately. Short-term urgent environmental watering needs can be best met through a portfolio approach, and longer-term needs addressed through the buyback.
- The amount of water that has been recovered already and is likely to be recovered through existing programs is substantial. It will likely exceed the lower bounds of what some commentators have called for in terms of minimum flows necessary for a moderate probability of achieving a healthy river system.
- Depending on how the Murray-Darling Basin Authority defines the Basin-wide SDL level, there is some likelihood that current water recovery programs will recover more water than is necessary to meet the obligations of Basin jurisdictions.
- Some of the funds allocated to the Sustainable Rural Water Use and Infrastructure program should be recovered and used for other purposes. To the extent necessary, some of these funds might be used to top up the funds committed to the buyback. Some might also be directed to a structural adjustment program to assist irrigation communities, which is not wholly dependent on subsidising irrigation infrastructure.

The problems associated with the Murray-Darling Basin (Basin) have vexed the Commonwealth and State Governments for many years. Various initiatives undertaken at various times have been met with only limited success in terms of improving the environmental sustainability of the Basin, in general, and increasing environmental water flows, in particular. There were reasons for optimism with the release of the National Water Initiative (NWI) and the subsequent agreement between all Basin jurisdictions, leading to the creation of the Murray-Darling Basin Authority.

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Aspects of the Australian Government's recent initiatives in water policy are well founded. For example, a water buyback can quickly address the overallocation of water entitlements using a willing seller model. Similarly, the case for a Basin Plan based on revised Sustainable Diversion Limits (SDLs) is sound. By contrast, there was always a weakness in the proposition that large-scale, taxpayer funded infrastructure works could effectively and efficiently contribute to solving the problems in the Basin.

## **11.1 Diversifying the Australian Government's water purchase program**

The Australian Government asked the Productivity Commission to report on market mechanisms for recovering water in the Basin for the environment, and ways in which it could diversify its current approach. A general conclusion is that purchasing water from willing sellers is a sound approach to meeting the Australian Government's commitment to obtain additional water for the environment. Indeed, it should be the preferred method for recovering water, taking precedence over subsidising investment in water saving infrastructure.

The Commission has also been at pains to distinguish between the short-term and long-term objectives that are inherent in the Government's buyback and affiliated programs. The Department of Environment Heritage and the Arts (DEWHA) has made much of the buyback being a means to 'restore the balance', which is parlance for easing the transition to the lower SDLs that are seemingly inevitable under the forthcoming Basin Plan. But the Government's statements and actions suggest that it is also concerned about meeting the short-term objective of providing water to meet urgent environmental watering needs. The Minister has mentioned the importance of the buyback to restoring '... the rivers and water resources of the basin ...' (Wong 2009c), and the Government has greatly accelerated the buyback, seemingly to achieve more environmental watering in the short to medium term than it originally envisaged. So short-term priorities also seem to be important.

This distinction provides a framework for considering ways the Australian Government should 'diversify' its programs.

Regarding the 'transitional' objective, the Commission's main observations include that the Government could make much more use of purchasing entitlements on the market and that it could improve its tender process (where it is necessary to use this mechanism), largely through expediting the settlement of contracts. Where markets are well developed, the Australian Government should purchase water on-market and leave the tender mechanism to those parts of the Basin where markets are

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underdeveloped or non-existent. The transparency of how DEWHA conducts the buyback should also be improved.

Regarding the short-term environmental watering objective, the Commission sees merit in the Commonwealth Environmental Water Holder (CEWH) being given a budget to purchase a portfolio of products (additional to the entitlements it receives from the buyback) that might help to address short-term urgent watering needs. It is somewhat ironic that much concern is expressed about the urgent plight of environmental assets, but the focus on entitlements has meant that little water has actually been delivered to date — 76 gigalitres to the end of January 2010. An alternative approach that focused on greater use of seasonal allocations and other similar products might have achieved far more in the short term. There seems to be little point in amassing future supplies of water if ecosystems are seriously or irreparably damaged in the meantime.

The Commission has also recommended further attention be given to removing impediments to trade in water markets.

But while the gains from these recommendations are non-trivial, far greater gains can be achieved by radically rethinking how the different ways of recovering water are integrated. This requires that the buyback be seen in the larger context of water reform policy.

## **11.2 The implementation of water policy**

Water reform policy in Australia is based on many sound principles, many of which were articulated in the NWI of 2004. But governments have been slow to implement these reforms, and subsequent initiatives including the *Water Act 2007* (Cwlth) (with its Basin Plan), and the commitment to the buyback and infrastructure upgrades now raise questions about the integration and sequencing of water reform initiatives.

### **The National Water Initiative**

The NWI pushed strongly for the further development of markets in water including through: clarifying property rights; unbundling water from land; the development of compatible water registers; and the efficient pricing of water (incorporating full cost recovery). The parties also agreed to make a more explicit allowance for the needs of the environment, and to address ‘overallocation’ and ‘overuse’ in the context of developing statutory water plans.

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### *Addressing overallocation and overuse*

The process that the parties agreed to take in addressing overallocation and overuse was methodical, in the sense that water plans were first meant to establish the extent of overallocation or overuse before corrective measures were to be applied. The risk assignment provisions would reveal who was to bear the risk of reductions in allocations or reliability, and to the extent that governments bore the responsibility, various water recovery measures were to be used, including the purchase of water. The selection of water recovery measures chosen was to be primarily on the basis of cost effectiveness, but with a view to ‘managing socio-economic impacts’. While the NWI process does not clearly articulate the objective of water planning, other than to say that it will provide for ‘secure ecological outcomes’ and ‘resource security outcomes’, it contains some recognition of the need to make tradeoffs between competing outcomes (see ss. 36-37).

This process was given further substance in a report to the Department of Prime Minister and Cabinet on the NWI and water trading by Price Waterhouse Coopers (PWC). PWC recommended that state governments contemplating recovering water through market mechanisms should first develop an appropriate framework before embarking on any large scale purchases of environmental water. The framework would require, among other things, that the government: ‘...clearly define the objective/s for each water purchase and the parameters around them (for example, the community’s valuation of environmental outcomes and the resulting price that should be paid in the market)’ (PWC 2006, p. xviii).

The point in raising this is that a sound process for recovering water had been agreed, but by and large is not being used. Few water plans have addressed overallocation to date, and events have largely been overtaken by the Water Act and the commitment to develop a binding Basin Plan.

### **The buyback should have come after the Basin Plan**

The Australian Government’s buyback and infrastructure programs are now being implemented. More than \$1.3 billion dollars of the \$3.1 billion set aside for the buyback has been spent and more than half of it will have been committed by the time the Basin Plan is finalised in mid 2011. Slower progress has been made delivering funding through the \$5.8 billion Sustainable Rural Water Use and Infrastructure (SRWUI) program, but DEWHA claims that \$4.4 billion of this is committed, subject to due diligence assessment.

In the Commission’s view the ideal sequencing of initiatives would have been for the Basin Plan to have been finalised before committing taxpayer funds to

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compensate irrigators for policy induced reductions in the availability or reliability of water for consumptive use. (The obligations of the states should have also been clarified before the buyback.) This would have allowed sufficient time between the announcement of the SDLs and their subsequent implementation in 2014 and beyond, to implement a buyback and ease the transition to the new limits. By and large the Commission considers that any worthwhile infrastructure expenditure should have been deferred until the buyback had largely worked its course, thus reducing the risk of gold plating assets that might subsequently become stranded. It would also have allowed a clearer perspective on developing any additional programs for assisting irrigation communities to adjust to the lower levels of water availability.

Instead, the two water recovery programs are proceeding rapidly — the buyback very rapidly — and uncertainty in the market place is rife.

### **Cost–benefit analysis and cost effectiveness**

As far as the Commission is aware, little prior consideration was given to the costs and benefits of the Water Act and the intention to restore the basin to environmental sustainability through the imposition of a Basin Plan. Neither, it seems, were the buyback or SRWUI programs subject to close scrutiny before they were introduced. There is therefore little information in the public arena to assess the public interest in these programs, and in respect of the Restoring the Balance (RTB) and SRWUI programs, whether the funds allocated were appropriate, either in absolute terms or relative to one another.

Of central importance is the Basin Plan itself, and whether it will lead to the best use of the Basin’s water resources (as the objects of the Act would suggest it should). Assessing this would require considering the tradeoffs between environmental and consumptive uses and a careful weighing up of all of the costs and benefits — whether environmental, social or economic. If the RTB and SRWUI programs are seen only as a means of transitioning to the lower SDLs under the Basin Plan, it would be sufficient to assess them only in terms of cost-effectiveness. However, to the extent that they are argued to provide other benefits (for example recovering water in the form of entitlements can give different options to rules based water), or impose other costs (for example, decreased return flows from ‘saving water’ through infrastructure programs), they too should have been subject to cost–benefit analysis.

While the SRWUI program does not appear to have been subjected to ex ante cost–benefit analysis, it does require that particular projects meet due diligence tests,

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which include a cost-benefit test. Again, little public information is available on the rigour of these analyses. For example, the Northern Victoria Irrigation Renewal Project have cited a benefit to cost ratio of 1.54 for stage two of the Food Bowl project (which will be part funded through the SRWUI program), but the analysis is not publicly available. While greater than one, this figure does little to inspire confidence that these sorts of projects are unambiguously in the public interest.

In the Commission's assessment, subsidising infrastructure is generally a poor use of taxpayer funds. The benefits are predominantly private in nature, and the likelihood is that most of the 'low hanging fruit' has already been picked. Furthermore, subsidising irrigation infrastructure is inconsistent with the cost recovery principles in the NWI. There may be some intangible benefits to local communities but it is not clear that the 'sustaining irrigation communities' objective that the Australian Government has set itself, is best addressed through subsidising infrastructure, nor is it obvious that DEWHA is the best agency for delivering programs for this purpose.

As a rule, therefore, the guiding principles should be a sound Basin Plan, and the use of cost effectiveness as the main criterion for choosing water recovery options. This suggests that purchasing entitlements is the best way of meeting the transitional objective the government has set. However, the end point is still unknown and the way the Basin Plan is being developed gives cause for concern.

### **11.3 How much additional water is needed for the environment in the long term?**

The Basin Plan requires that SDLs be set for each sub catchment and the Basin as a whole. There must also be an environmental watering plan. According to the Water Act, SDLs must be set using the best available scientific knowledge and they must reflect an environmentally sustainable level of take. As discussed in chapters 4 and 6, the Commission has concerns about this approach. But before returning to this theme, it is worth recapping on just how much water may be necessary to achieve a level of health considered acceptable from an ecological or scientific perspective.

#### **Achieving ecological health in the longer term**

There are various claims about how much water needs to be recovered on average for the environment. Clearly, the amount required will vary from year to year and from catchment to catchment, depending on seasonal conditions, the availability of

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water and the varying needs of the environmental assets concerned. The most authoritative claims at the Basin-wide level include:

- In a report for the then Murray-Darling Basin Commission in 2002, Jones et al (2002, p. 17) concluded that, with operational improvements, 1950 GL of new environmental flow allocations would lead to a moderate likelihood of achieving a healthy system, and 4000 GL would provide a high probability of achieving this outcome.
- The Research Centre for Freshwater Ecology Scientific Reference Panel reported to COAG on the ecological outcomes of returning flows of 350, 750 and 1500 GL per annum. It concluded that 1500 GL — combined with improvements in structural, operational and water quality management (for example use of regulators and weir pool raising) — would provide considerable ‘whole-of-river and local ecological habitat benefits’ (SRP 2003).
- The Wentworth Group have argued for additional flows of between 2116 GL and 4350 GL to have a moderate to high probability of having a healthy connected river system (Wentworth Group 2008, p. 11). The Group asserts that these are the best estimates that science can provide at this time (table 11.1).

The basis for calculating these additional quantities varies, so it is difficult to compare them. But as a rule, these quantities are additional to the rules-based water set out in state water plans and their equivalent.

The range of volumes is roughly 1500 GL to over 4350 depending on the level of health that is targeted, and the estimated probability of achieving that level of health. Where the MDBA will set the Basin-wide SDL is unknown, but given its science based approach to setting SDLs, and the limited additional evidence it has to work with, the MDBA will presumably settle on something in this range.

#### *How much additional water is required?*

The additional water that needs to be recovered to achieve the scientific based targets discussed above depends on how much water has already been recovered and is expected to be recovered under existing programs. Considerable progress has already been achieved through several programs with approximately 1210 GL of expected average flows almost recovered (table 11.1). These include the Living Murray Initiative (485 GL by mid 2010), Water for Rivers (70 GL for the Murray by 2012), NSW Riverbank (47 GL by mid 2011), and what has already been purchased through the RTB (532 GL). This water already represents approximately half the Wentworth Group’s minimum additional flow, and is about 77 per cent of the 1500 GL benchmark used by COAG.

**Table 11.1 Likely environmental water recovery under major existing programs**

<i>Program</i>	<i>Estimated average annual flow</i>
	GL
The Living Murray (end 2009-10 expected) <sup>a</sup>	485
Water for Rivers (Murray River share expected by 2012) <sup>b</sup>	70
NSW RERP (end of 2010-11 imputed) <sup>c</sup>	47
NVIRP stage one <sup>d</sup>	75
Restoring the Balance (end Jan 2010)	532
Restoring the Balance (imputed balance of program) <sup>e</sup>	736
SRWUI to date	<b>na</b>
SRWUI (imputed total on completion) <sup>f</sup>	595
<b>Total</b>	<b>2540</b>

<sup>a</sup> Long Term Cap Equivalent. <sup>b</sup> Water for Rivers target of average annual flows. <sup>c</sup> Based on average price paid to date of \$1250 per ML of entitlement, and average expected reliability of entitlements purchased to date of 44 per cent approximately. <sup>d</sup> NVIRP estimate of long term average annual water savings. <sup>e</sup> Based on average price paid to date of \$1633 per ML of entitlement, and average expected reliability of entitlements purchased to date of 67 per cent approximately. <sup>f</sup> Based on the assumptions that all of the \$5.8 billion SRWUI budget will be spent on water recovery projects, that infrastructure is half as cost effective as purchasing entitlements, and that 50 per cent of water saved is earmarked for the environment. **na** Not available.

Sources: DECCW (pers. comm. 10 March 2010), DEWHA (sub. DR85), MDBA (sub. DR87), NVIRP nd, Water for Rivers 2009a.

The additional water that stands to be recovered through the balance of the RTB and through the SRWUI program could easily take the total to above the Wentworth minimum target. So far, the RTB program has purchased entitlements for an average cost of approximately \$1633 per ML, but these are of varying reliability. Using DEWHA's average reliability estimate, the cost is approximately \$2440 per ML of average annual flow. If these prices prevailed during the balance of the buyback, DEWHA could expect to recover approximately 736 GL of additional average annual flows with the remaining funds.

Little information is available on the net water savings that can be achieved through infrastructure, so it is hard to estimate how effective the Government's SRWUI program will be.<sup>1</sup> The Commission has serious doubts about the net gains to be made, once the loss of return flows are considered, not to mention the illusory savings resulting from more accurate metering. But for the sake of argument if infrastructure investment was half as cost effective as buybacks, and 50 per cent of

<sup>1</sup> In the National Plan for Water Security, the Howard Government estimated that infrastructure investment could achieve a 25 per cent saving of total irrigation water use or approximately 2500 GL per annum (Howard 2007).

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the water savings were allocated to the environment, the \$5.8 billion budget<sup>2</sup> could yield savings of another approximately 595 GL of annual flow. If this conservative estimate of savings came to pass, total water recovered would be 2540 GL.

While this is a very rough projection, it does suggest that, even in the absence of the Basin Plan, the existing water recovery programs could recover substantially more than the Wentworth Group's minimum target.

FINDING 11.1

*Without even implementing the Basin Plan, the amount of water that is likely to be recovered for the environment through existing programs is substantial. It will likely exceed the lower bounds of what some commentators — such as the Wentworth Group — have called for in terms of minimum flows necessary to achieve a moderate probability of achieving a healthy river system..*

### **Maximising net benefits to the community**

As noted in chapter 6, the Commission is concerned about the way that the MDBA is interpreting the Water Act's definition of a SDL. That concern is that the MDBA is setting SDLs using a science-based approach that does not give adequate regard to the opportunity cost of water or the value that the community attaches to watering environmental assets. Further, the Basin Plan is attempting to achieve desired environmental, economic and social outcomes solely through allocating water, when a mix of inputs might achieve the same or similar outcome with less water. For all of these reasons, the Commission is concerned that the MDBA may set more stringent SDLs than is in the best interests of the Australian community.

The Commission is not rejecting the case for allocating more water for the environment. This is patently necessary to restore some semblance of health to the Basin's environment. But potential now exists for one misallocation of resources (too little water for the environment) to be replaced by another (higher than necessary social and economic cost). To the extent that there is scope to do so, the MDBA is encouraged to define SDLs in a way that has more explicit regard for the objects of the Water Act, which include that the Basin resources be managed in the public interest, and to optimise economic, social and environmental outcomes (ss. 3(a) and 3(c)). If a strict legal interpretation of the SDL definition precludes this, the Act should be amended.

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<sup>2</sup> The total budget for the SRWUI program is \$5.8 billion, but some of this has been allocated for grants to local government (for example \$200 million for the Strengthening Basin Communities program), and hence is not being directed to investment in water saving infrastructure.

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If this approach is taken, the optimal basin-wide SDL — that is, the one that maximises returns to the community when all of the costs and benefits are considered (whether environmental, social or economic in nature) — will be higher (and conversely the amount reserved for the environment lower) than if a science only approach was taken. From this perspective, it is conceivable that the amount of water that existing programs are expected to recover, could exceed what a revised Basin Plan would require.

## 11.4 Where to from here

The Commission has outlined a suite of water policy recommendations in this report that would promote the public interest in water policy in the Basin. Some are targeted at making the existing buyback work better, others at sharpening the Australian Government's ability to address short-term environmental watering needs. But the most substantial are directed at improving the institutional framework.

In the Commission's view, the institutional framework for recovering water should have been clarified before deciding on how and where water would be recovered. Under this approach, the buyback of entitlements — as a means of transitioning to the lower levels of water availability under the Basin Plan — should have commenced only after the Plan had been ratified (and the assignment of risk between irrigators and governments decided). Urgent short-term needs could have been addressed through the purchase of seasonal allocations. And to the extent that they provide net benefits to the community, investment in new irrigation infrastructure should have come after the buyback had given some indication of where the more viable areas were likely to be. Above all, sound cost-benefit analysis should have preceded intervention.

It is not possible to wind back the clock, but there is still much that Basin jurisdictions could do to provide greater institutional certainty for the recovery and management of water for the environment in the Basin. The most urgent is to commit to the setting of SDLs that will provide a high level of protection for the environment that is consistent with what is best for Australians — present and future — as described above.

Having set more appropriate targets it would then be appropriate to rely much more on buybacks to close the remaining gap, commensurate with the extent of the Government's obligations. In the Commission's view, as much as possible of the funds currently ear-marked to the infrastructure program should be recovered and used for other purposes. This might not be popular with irrigators and some

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jurisdictions. But if some of the funds are redirected to the buyback, this opposition might be more muted than before the buyback commenced. Some regions do not stand to gain very much from the infrastructure program, and diverting funds into the buyback might provide more uniform compensation to irrigators across the Basin.

In the collective enthusiasm of Basin jurisdictions to address the real environmental problems that exist in the Basin, good policy processes and principles have been overlooked. Short-term needs could have been addressed more effectively while a more coherent long-term strategy was being developed. Greater care is needed to ensure that the very substantial resources committed to the Basin produce the highest net returns to the community for the taxpayer funds expended. As the measures are currently conceived and sequenced, the Commission fears that the benefits will not justify the substantial public expenditure and the socioeconomic dislocations imposed.