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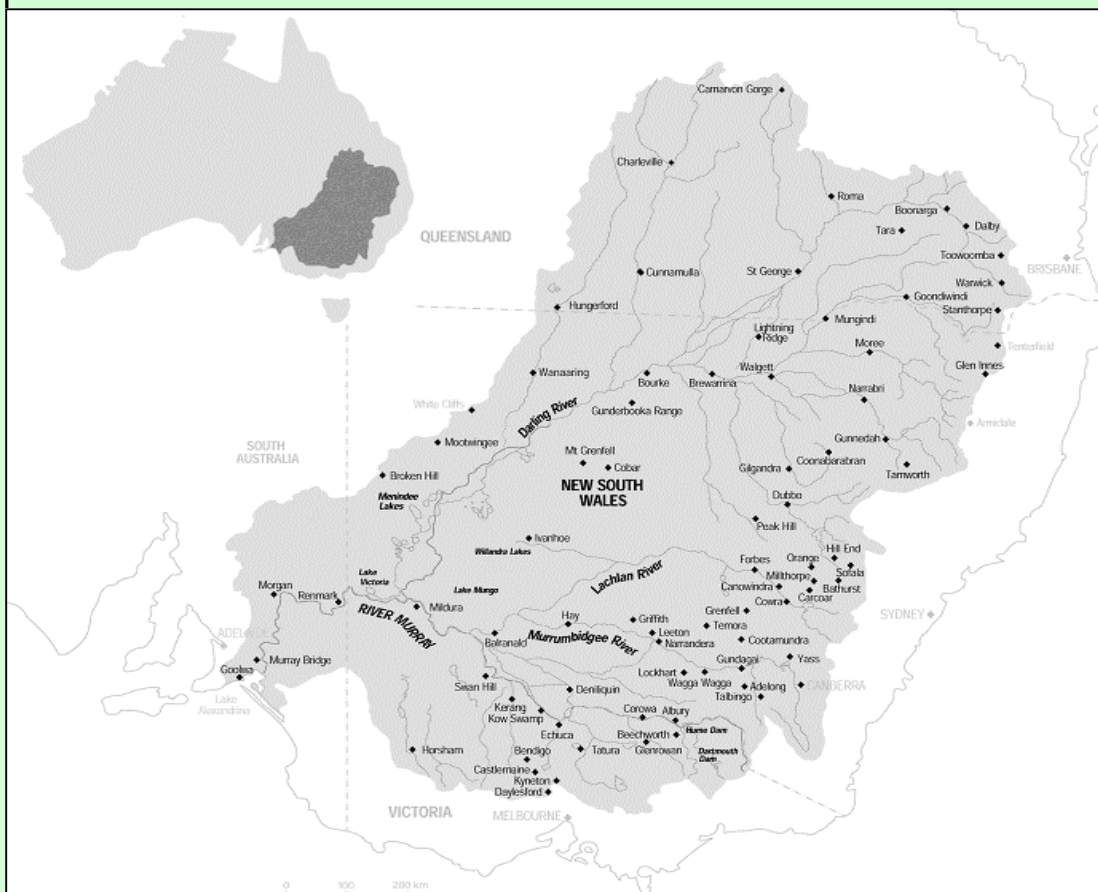
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# Risk & Sustainable Management Group

## Murray Darling Program Working Paper: M08#2

### Managing the Murray–Darling Basin: some implications for climate change policy John Quiggin

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# **Managing the Murray–Darling Basin: some implications for climate change policy**

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## **Abstract**

Among the many environmental problems facing Australia, the problems of managing the Murray-Darling Basin and of responding to climate change are notable for their complexity, intractability and for the wide range of people and regions affected. Consideration of policy successes and failures in the management of the Murray-Darling Basin may help in the design of a more effective, and cost-effective, response to the problem of climate change

## **Managing the Murray–Darling Basin: some implications for climate change policy**

Among the many environmental problems facing Australia, the problems of managing the Murray-Darling Basin and of responding to climate change are notable for their complexity, intractability and for the wide range of people and regions affected. Both have been the subject of extensive debate and policy attention for at least the past fifteen years. In both cases, however, the problems remain largely unresolved, and crucial policy measures, though accepted in principle, have yet to be implemented in practice.

The problems of the Murray-Darling Basin were recognised earlier, and rather more progress has been made towards resolving some of the key issues. In hindsight, however, it is clear that the policy process has been far from satisfactory. Consideration of policy successes and failures in the management of the Murray-Darling Basin may help in the design of a more effective, and cost-effective, response to the problem of climate change.

It is also important to consider interactions between the problems of the Murray-Darling Basin and problems of adaption to climate change. There is a significant likelihood that the severe drought conditions that have prevailed for most of the 21st century so far reflect in part, a drying of the climate of South-Eastern Australia associated with human-caused climate change (Wentworth Group of Concerned Scientists 2006).

### **Expansion, maturity and crisis**

Randall (1981) suggest that the evolution of policy regarding water resources may be divided into two phases: an expansionary phase, and a mature phase. An expansionary water economy is characterised by relatively low social cost of expanded water use, in total and at the margin. In such circumstances, the welfare cost of subsidies to water use is small. Investment in infrastructure is primarily directed towards expanding supply. When the expansionary phase reaches its inevitable end, and a mature water economy

emerges, the problem of managing the resource is complicated by the persistence of policies inherited from the expansionary phase.

In the case of the Murray–Darling Basin, Quiggin (2001) argued that the expansionary phase coincided with the operation of the River Murray Waters Agreement from 1915 to 1987, while the mature phase began with the adoption of the Murray–Darling Basin Agreement. Subsequent elements of the mature phase have included the imposition, in 1994, of ‘the Cap’, a limit on aggregate diversions of water from the Murray–Darling Basin and the announcement, in 2004, of the National Water Initiative, a co-operative project involving Commonwealth, State and Territory governments with a primary focus on the Murray–Darling Basin (Council of Australian Governments 2004).

It is arguable, however, that recent events indicate that, rather than a steady approach to maturity, policy regarding the Murray–Darling Basin has entered a crisis phase. There is widespread agreement that existing policy responses have been inadequate. However, there is no corresponding agreement on an appropriate policy response, or even on the political framework within which such a response should be formulated.

The emergence of a crisis, is a common signal of the end of the expansionary phase in the management of water resources, and other natural resources. In some cases, the immediate crisis is resolved and a ‘mature’ economy emerges, leading eventually to the emergence of a sustainable system of governance. In other cases, there is no such resolution and the expansionary phase is brought to a halt by the partial or total collapse of the resource concerned. It remains to be seen which of these outcomes will occur in the Murray–Darling Basin.

### **Water rights: the panacea that wasn’t**

The outlook for water policy in Australia was considerably more optimistic fifteen years ago. The beginning of the mature phase in Australian water policy coincided with the high point of market-oriented microeconomic reform. The most important single initiative of the reform process launched in

the 1990s was part of the National Competition Policy agreement reached at the Council of Australian Governments in 1994. The policy approach adopted there reflected the faith in markets, and disregard of institutional constraints that characterized public policy, including National Competition Policy, at this time. In particular, the 1994 reforms introduced some but not all elements of a water market, with inadequate regard for issues of governance and sequencing, or for the sustainability of existing allocations (Bell and Quiggin 2007).

The first step in the reform process was to convert existing water licenses, attached to particular parcels of land, into tradeable property rights, with an expectation (eventually fulfilled) that these rights would become permanent. The assumption underlying this reform was that trade would permit water to be allocated to its most valuable use, thereby ensuring a range of socially optimal outcomes.

There were a number of problems with this analysis. First, the policy generated a substantial increase in the value of rights that had previously been given away, in part because of the assumption that, being licenses, they could be withdrawn if necessary. The problem was most evident with ‘sleeper’ and ‘dozer’ licenses. ‘Sleeper’ licenses were those that had never been used, while ‘dozers’ had some history of use, but were inactive at the time of the reforms.

Because sleeper and dozer licenses had the same legal status as other licenses, they were converted into tradeable property rights. That is, a limited right conditional, in many cases, on the development of irrigation infrastructure was turned into an unconditional claim on scarce water. The effect was to increase the severity of the overallocation problem that was already well known. (Quiggin 2007)

It was expected that trade would help to solve the problem. In particular, it was assumed, somewhat naively that if use of water for irrigation was excessive, environmentalists or governments could bid for water to be used for environmental flows.

In reality, while a market for temporary water transfers emerged rapidly, markets for permanent water transfers have remained thin. Moreover,

transfers of water rights between catchments have been constrained by concerns about asset stranding and adverse impacts on regional economic activity. Equally importantly, in the decade following the COAG reforms, there was no movement towards the purchase of water rights for environmental flows. Environmental flows remained a residual demand to be satisfied after higher-priority claims had been met.

The most effective component of the 1994 reforms was the ‘Cap’ which required that average extractions of water for irrigation use in each catchment should be no higher than the level prevailing when the Cap was imposed. Initially intended as a temporary measure, the Cap has remained a central feature of policy ever since. Attempts to develop scientific estimates of sustainable yields of water for each catchment are only just beginning (CSIRO 2007 ). Until this process is complete, the Cap remains the primary constraint preventing further unsustainable expansion.

However, the Cap initially applied only to extractions from streams. The creation of tradeable water rights encouraged rent-seeking in the form of the appropriation of unpriced sources of water, including surface flows and groundwater. Over time, restrictions were imposed on the extraction of groundwater and the use of farm dams and other devices to capture surface flows.

However, as with other large-scale reforms, the problem was one of sequencing. The creation of fully tradeable water rights should have been the final stage of the reforms, after sustainable levels of use had been identified for all stages of the water cycle. The premature conversion of revocable licenses into property rights derailed the reform process for a decade or more.

### **The National Water Initiative**

By 2004, events including drought had exposed significant deficiencies in both urban and rural water policy in Australia. The response was another agreement emerging from the COAG process, the National Water Initiative (Council of Australian Governments 2004), which subsumed the the Living



Murray program established by the Murray–Darling Basin Ministerial Council in 2002. As regards irrigation, two issues were central to the National Water Initiative .

The first was the development of permanent trade in water rights, and in particular interstate water trade. Despite earlier difficulties, the National Water Initiative was premised on a commitment to convert water entitlements into fully tradeable property rights and to facilitate the development of markets for those rights.

The second was a commitment to restore environmental flows averaging at least 500 GL. Unfortunately, this commitment was not backed up by a willingness to purchase existing rights from water users. Instead, it was implicitly assumed that the necessary savings could be made through technical improvements to irrigation systems.

Moreover, the 500 GL target was inadequate. A Scientific Review Panel, commissioned to assess options for restoring 500, 1000 or 1500 GL of annual flows to the environment (compared to median natural flows of around 10 000 GL) came to the conclusion that 1500GL was the minimum amount needed (Jones et al 2002).

### **The National Plan**

Only three years after the announcement of the National Water Initiative, based on co-operation between Commonwealth and state governments, Prime Minister John Howard unilaterally announcing the National Plan for Water Security (Howard 2007). Although the National Plan was described as ‘accelerating the implementation of the NWI’ it amounted to an abandonment of the co-operative approach in favour of a Commonwealth takeover of water planning throughout the

The documents supporting the Plan made clear the Commonwealth view that the NWI had failed and that the blame for this failure rested almost entirely with the States. State governments were accused of dragging their feet and failing to meet agreed goals.

There was, of course, a party-political component to this charge. The Howard government was facing an election, and criticism of ‘wall-to-wall Labor governments’ formed a central party of its campaign strategy. The National Water Plan was one of a series of major initiatives announced in 2007 as responses to perceived or actual failures of State and Territory governments.

In important respects, the Commonwealth was as much to blame for the failure of the NWI as the States. On the crucial issue of water trading, the Howard government itself was divided and ineffectual. Minister for Water Malcolm Turnbull favored the relaxation of constraints on trading between catchments and between rural and urban users, while the National Party vigorously resisted such changes.

Nevertheless, the judgement implicit in the Plan, that the NWI was not working, was supported by the evidence. The first report of the National Water Commission, issued in November 2006 rated the states’ performance as poor or, at best, adequate on a wide range of issues (Turnbull 2006).

Unfortunately, the Plan was at least as ineffectual as the Initiative. Victoria refused to accept the Commonwealth takeover, arguing that irrigators in Victoria, where water allocations were generally conservative, would suffer from being lumped in with other states, particularly New South Wales, where over-allocation had been widespread.

Progress on reclaiming water for the environment remained glacial. The main focus of the plan was on the provision of public subsidies for on-farm irrigation works aimed at increasing the efficiency of water use. Such an approach is necessarily less efficient than the purchase of water rights on the open market, allowing sellers of water rights to choose between on-farm works, changes in land allocation or switching away from irrigated agriculture.

Many of these issues remained somewhat academic during 2006 and 2007. Severe drought conditions reduced inflows to levels unprecedented in the recorded history of the Basin. Moreover, despite the announced budget of \$10 billion, little money was actually spent under the Plan. Given the lack of any coherent rationale, this was, perhaps, fortunate.

## **Resolving the crisis ?**

The election of the Rudd Labor government in November 2007 has opened up some new possibilities for the resolution of the water in Australia crisis. In February 2007, Minister for Water Penny Wong announced a \$50 million tender for the purchase of irrigation water rights to be diverted to irrigation flows. Constrained by resistance from the National Party, the Howard government had been unable or unwilling to take this obviously necessary step. Some limited measures had been taken by state governments, including the NSW RiverBank program (Department of Environment and Climate Change, 2008).

The election of a federal Labor government also increases the possibilities for co-operative agreements with Labor state governments. However, there is a large gap between possibilities and actual outcomes. At the time of writing (March 2007) agreement between the Victorian and Commonwealth governments on management of the Murray–Darling Basin remained elusive.

## **Climate change and the MDB**

Severe drought conditions in 2006 and 2007 have reduced inflows of water to the Murray–Darling river system to the lowest levels on record. Climate models suggest that rainfall in the Murray–Darling Basin will decline as a result of climate change, and that, as a result, inflows to the system will also be reduced.

Under the principles of the NWI, the risk of climate change should be borne by water users. Hence, if inflows decline, the volume of water rights should be scaled back accordingly.

The underlying principle is sound, but many issues remain to be resolved. In particular, climate change is likely affect both average rainfall and the frequency of droughts, and therefore the reliability of water supply.

Adjusting the allocations associated with water rights to take account of the resulting changes in inflows will be a complex and challenging task.

### **Lessons for climate policy**

The successes and failures of water policy in Australia hold important lessons for policies aimed at reducing or offsetting emissions of greenhouse gases. As with water, an expansionary phase in which concerns about the capacity of the environment to absorb CO<sub>2</sub> emissions were disregarded is coming to a close, and it remains to be seen whether it will be succeeded by a mature carbon economy, or by crisis and collapse.

Again as with water, the tradeable property rights seem certain to play a central role in the global policy response to climate change. Thus, the concerns about sequencing, definition of rights and the tradeoff between flexibility and certainty will be critical in achieving a sustainable response.

In the case of climate change, the most important implication is that governments should avoid 'grandfathering' policies that confer permanent rights on existing emitters of greenhouse gases. It is important to avoid locking in existing emissions by requiring excessive compensation levels.

A second important lesson is the need to ensure that controls on one source of emissions do not encourage the expansion of emissions from other sources. Requiring Australian firms to purchase emissions quotas may result in a shift of production to jurisdictions where emissions are uncontrolled.

As regards developed countries that choose not to control their emissions, the most appropriate response would be the imposition of border taxes to take account of the resulting implied subsidy. In relation to less developed countries, it is necessary to provide incentives, through the Clean Development Mechanism and similar devices to minimise growth in emissions.

Finally, the interaction between climate change and water policy is a reminder that policy issues cannot be addressed in isolation. A successful policy framework must be sufficiently flexible to take account of unforeseen

complications, such as the emergence of climate change as a problem for water policy.

### **Concluding comments**

The management of the Murray–Darling Basin has important implications for broader resource management issues. Although the central thrust of policy has been broadly correct, progress has been far slower than was hoped and expected when reform began in the early 1990s. Failure to pay appropriate attention to issues of sequencing and institutional governance has been an important problem. In particular, it would have been preferable to scale back allocations associated with water licenses before converting them to fully tradeable property rights. The resulting ‘grandfathering’ of excessive allocations created problems that are only now being addressed. Designers of climate change policy should take care to avoid similar mistakes.

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