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by

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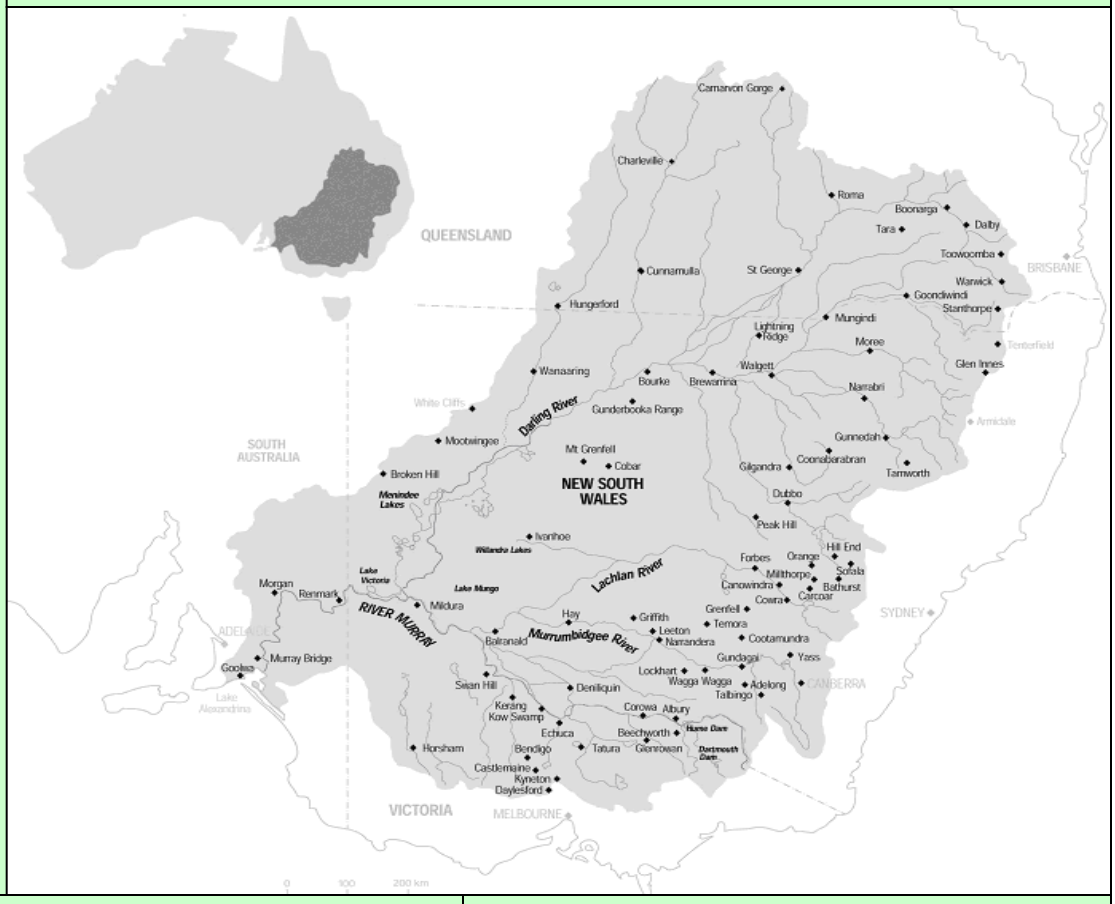

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Water Policy after the drought

For most of the last decade, water policy in Australia has been dominated by emergency responses to what was, on most measures, the worst drought in our history. Irrigators have received only small fractions of their normal allocations of water, while urban water users have been subject to restrictions of a stringency unparalleled in our recent experience.

Debate continues on the extent to which the recent drought was the result of (natural or anthropogenic) climate change, and therefore on whether it can be seen as an exceptional shock or as a foretaste of a hotter and drier climate. At a minimum, it seems clear that the relatively wet conditions of the second half of the 20th century, which formed the basis of most water planning, are unlikely to recur.

Despite the breaking of the drought in most regions, therefore, Australian water policy must deal with a fundamentally new environment. The era of abundant water availability, already reaching its limits in the 1980s, is now clearly behind us.

When resources are scarce, the price mechanism invariably comes into play, either openly or through various forms of quasi-markets. The central theme of water policy pronouncements over the past two decades has been the need to make water prices and water markets more transparent and efficient. Policy practice, however, has been far less consistent.

This paper presents a summary of the development of water policy in Australia, and an assessment of the current state of play. The analyses focuses on the contrast between the policies of the Victorian government, which seek to maintain rationing in various forms, and those embodied in the Commonwealth government's Water for the Future Plan, which has shown at

least some willingness to use prices and market-based policy instruments to achieve a more sustainable and efficient allocation of water resources.

1. History

The history of irrigated agriculture in the Murray–Darling Basin has been dominated by government or government-sponsored development initiatives. Until the 1980s, Australian irrigation policy was in the expansion phase characteristic of water systems where resource constraints are not immediately binding[1]. By the late 1980s, however, the capacity of the Basin to support additional diversions was close to exhaustion. The response, adopted in the early 1990s, was twofold.

First, the Murray-Darling Basin Commission implemented a Salinity and Drainage Strategy to improve water quality in the River Murray to control land degradation and, where possible, to rehabilitate land resources. The strategy is estimated to have reduced salinity levels at Morgan (the offtake for water to Adelaide) by around 100 EC units (about 20 per cent) (Department of Water, Land and Biodiversity Conservation, South Australia 2006).

Second, a series of initiatives were introduced to to replace bureaucratic systems of water allocation based on licenses with a unified market system based tradeable water rights. It was hoped that markets would ensure that water was allocated to its most socially valuable use. The market-based approach was first set out in the communique of the 1994 Council of Australian Governments meeting, which set out an agenda for water reform

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[1] Alan Randall (1981), 'Property entitlements and pricing policies for a maturing water economy', *Australian Journal of Agricultural Economics*, 25(3), 195–220 provides an excellent discussion.

In 1995, a Cap was imposed on extractions of water from the system. Under the Cap extractions were limited to the volume of water that would have been diverted under the levels of development prevailing in 1993-94. The Cap was initially an interim measure, designed to prevent unsustainable growth in water use while a more market oriented approach was developed.

By the early 2000s, it was apparent that policy had failed to generate sustainable allocations of water. These problems were exacerbated by years of severe drought. The crisis produced a series of responses, each reflecting the actual or perceived failure of its predecessors : the Living Murray Program (2002), the National Water Initiative (2004), the National Plan for Water Security (2007). There were also initiatives at the state level, largely devoted to improving the efficiency of irrigation systems. Despite substantial public expenditure, these measures achieved little or nothing.

Advocates of centralised control over water supplies have frequently blamed state government obstruction for the failure of water reform. In reality the picture is far more complicated. Different states have taken different positions. Among the states, South Australia, the biggest loser from the current system has been an active proponent of reform, while other states have sought to preserve an unsustainable status quo.

Conversely, particularly under the Howard government, these differences were reflected in divisions within the Commonwealth government, with some, such as Malcolm Turnbull promoting reform and others, including Howard himself, actively obstructing it.

2. Victoria

The policies adopted the Commonwealth government have been confused and contradictory, but have involved a gradual movement towards prices that reflect the social cost of water, and towards the use of market mechanisms to improve the allocation of water. Those of the Victorian government have been

more consistent. Unfortunately, however, they have been consistently misguided.

Among a series of policy failures, three examples stand out: restrictions on irrigation trade, permanent restrictions on urban water use and the Food Bowl Modernisation Project. In all these cases, the Victorian government has intervened to dictate patterns of water use that reflect neither the economic value of water nor the benefits of allowing rural and urban water users to make their own choices regarding how much water to use and how to use it.

Limits on Water Trading

A central theme of the National Water Initiative was the need to allow trade in water entitlements, along with temporary trade in annual water allocations. The idea was to allow water to be allocated to its most valuable use, and to allow holders of water rights to maximize the value of their assets.

Progress towards this goal proved frustratingly slow. In large measure this was because of restrictions imposed at the behest of the Victorian government

Victoria applied the 4 per cent annual limit rigorously with the explicit aim of restricting trade. The 4 per cent annual limit was applied separately to each of the 10 irrigation districts in the state, and separately to different reliability classes of water access entitlements (high and low reliability water shares). In addition, a 10 per cent limit was applied to total transfers of water entitlements out of any jurisdiction.

Because of the limits imposed in the agreement, and continued resistance to the use of market mechanisms, the NWI yielded minimal progress in its first three years of operation. The combination of continuing drought conditions, the maturing of markets for temporary and permanent irrigation

entitlements and the entry of the Commonwealth as a buyer brought the contradictions inherent in the NWI into sharp relief.

As demand and prices increased, so did the number of holders of water rights willing to meet that demand by selling their entitlements. The Victorian limits became an effective restriction on trade, to the extent that applications to sell permanent entitlements reached the limit in the first few days of the irrigation season.

Commenting on the Victorian policy, the National Water Commission observed[2]

> The annual 4% limit on water entitlement trading out of an irrigation area is being reached in regions in several basin states, with a wide range of undesirable consequences. The Commission considers that the 4% limit has impeded the use of buyback programs to assist in returning overallocated water systems to sustainable levels of extraction; unfairly and arbitrarily penalised willing sellers of irrigation entitlements; distorted patterns of water trade out of irrigation areas (including interstate trade); inhibited desirable and necessary structural change; and complicated interstate collaboration in other areas of water reform.

Policies aimed at preventing irrigators from selling their entitlements are collapsing under the weight of their own contradictions. Faced with the prospect of paying higher costs for increasingly unreliable water allocations, irrigators in a number of districts have voted to sell their entitlements *en masse*. Some are retiring, and others moving to districts where irrigation is more cost-effective.

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[2] National Water Commission (2009), 'Australian water reform 2009: Second biennial assessment of progress in implementation of the National Water Initiative', http://www.nwc.gov.au/www/html/147-introduction---2009-biennial-assessments.asp

Permanent water restrictions for urban users

As in most Australian cities, households in Melbourne were subject to stringent water restrictions during the long drought of the first decade of the 21st century, which threatened to exhaust water supplies. And, as in most Australian cities, the restrictions were relaxed, but not removed when rain broke the drought and refilled the dams. The current policy of the Victorian government is that restrictions on the use of water are to remain in place indefinitely.

It is worth reflecting on how extraordinary a policy this is. Except in emergency conditions such as wartime or temporary interruptions of supply, rationing of consumption of goods and services has been virtually unknown in Australia. In the case of water, supply restrictions have been inposed in drought. In the emergency context of a drought, people are generally happy to comply with restrictions, and substantial reductions in usage can be achieved. But the longer restrictions are maintained, the less effective they are likely to be. Voluntary compliance tends to decline as emergency fades into normality, and people find new ways to use water which satisfy the letter, if not the spirit, of restrictions.

Despite the somewhat puritanical appeal of 'saving water', the idea that urban dwellers should be forced to restrict their water use to leave more for agriculture lacks any coherent ethical basis. One particularly misleading idea is that water used in urban areas comes at the expense of food production and is therefore morally undesirable. Within agriculture (and subject to some of the restrictions mentioned already) water flows to the use where it has the highest value. In general, the result has been that the allocation of water to non-food crops, such as cotton and wine grapes have expanded, at the expense of food crops including rice and fruit.

In a market system, such outcomes are the inevitable result of the workings of the price mechanism. It may be reasonable to contemplate alternatives to

the market system that might do a better job in feeding the world as a whole. But arbitrary interventions that sacrifice suburban vegetable gardens in order to provide more water for commercial crops make neither ethical nor economic sense.

Finally, and perhaps most importantly, permanent restrictions on water use are counterproductive with respect to the security of essential supplies. Until the last decade, urban water systems were managed on the basis that, under normal conditions, supply would be sufficient to meet all demands at the prevailing (low) prices. Under drought conditions, restrictions could then be imposed to reduce consumption, beginning with relatively modest restrictions and proceeding gradually to more stringent measures.

In the presence of growing demand, and with the exhaustion of low cost supplies of water derived from rainfall in catchment areas in or near urban centres, the usual outcome would be an increase in prices. Such an increase would finance the addition of new sources of supply such as desalination and recycling plants. Less obviously, but equally importantly, higher prices would provide households with incentives to invest in water-saving appliances, efficient irrigation systems and so on. If prices are allowed to do the job of matching long-run supply and demand, restrictions are still available as an option to manage short-run shocks, such as droughts.

By contrast, under current policy, the capacity of moderate restrictions to constrain consumption is used to avoid matching supply and demand under normal conditions. So, in the event of an unexpected shortfall in supply, the only policy instruments remaining are large price increases or draconian restrictions on water use, neither of which are likely to be very cost-effective.

Restrictions on water use are, in the end, an abridgement of freedom that can only be justified by emergency conditions, such as a drought of unforeseen severity. Permanent restrictions on water use have no place in Australian society.

The 'Food Bowl Modernisation Project'

The 'Food Bowl Modernisation Project' sounds hard to disagree with, which may be an indication that it should be viewed with more than usual scepticism. The first stage involved spending more than $1 billion to upgrade irrigation facilities in the hope of reducing 'losses' of water through leakage, seepage and evaporation (leakage refers to water that flows through the walls, and seepage to the absorption of water into the soil from the bottom of channels). The water saved as a result, estimated at 225 gigalitres, is to be divided equally between agriculture, the environment and urban use in Melbourne.

The Food Bowl project sounds like a win all round, and has attracted considerable support. The main criticism has come from irrigators and support groups such as 'Plug the Pipe', who object to Melbourne receiving any additional water.

The estimated water savings have been sharply criticised, most recently by Victoria's Auditor-General. In a recent report, the AG concluded that 'Cost-benefit analyses were superficial and there was no information to support the basis for water savings assumptions (p 15) and that 'There was no evidence that any ofthe projects had undergone a robust assessment of the need to invest in asset solutions, rather than non-asset solutions, as the main way to increase irrigation efficiency or to secure Victoria's water supplies.' (P viii)

Claimed environmental savings are particularly dubious. From the historically dominant viewpoint of irrigators, 'leakage' and 'seepage' represents a loss of water that could otherwise be put to use. But this water is not necessarily lost to the environment. Strictly speaking, and with the exception of evaporation, all water lost in irrigation returns to the environment in one form or another. Because groundwater and streamflows are closely linked, a substantial proportion of the water that leaks or seeps

from irrigation channels eventually returns to the river system from which it was taken.

Even accepting the government's estimates, the cost of water saved through the scheme is around $4000/ML, compared to a market price for high reliability water entitlements of between $1000/ML and $2000/ML. Since irrigators are already able to trade in this market, the water provided to them must be evaluated at this price, yielding a benefit of a little over $100 million (75 GL at $1500/GL = $110 million). The remaining water for the environment and urban use amounts to 150Gl at a cost of around $900 million or $6000/ML. If the double-counted return of leakage and seeage is disregarded, the cost of water for Melbourne reaches $10 000/ML, as much as ten times the price for which the water could be bought from irrigators willing to sell it.

Water for the Future

The election of the Rudd government produced yet another initiative: the Water for the Future plan (2008). Ambiguous both in concept and execution, this plan nonetheless offers some hope that Australia may finally have got water policy right. In particular, and for the first time, the government has been willing to tackle the over-allocation problem through large scale repurchase of water entitlements.

The focus on repurchase represents a reversal of the priorities presented in the Howard government's National Plan for Water Security, a poll-driven exercise produced largely by Howard himself. Despite promising expenditure of more than $10 billion, Howard sought no advice Treasury, eliciting a rare protest from Treasury Secretary Ken Henry.

It is easy to see why Treasury was bypassed. The policy thinking that went into the plan was very similar to that of the Victorian government. Markets and prices, supposedly central to the National Water Initiative, were barely

mentioned. Instead, the main plan was to spend $6 billion on upgrading irrigation systems. As Treasury would certainly have pointed out, such a plan makes no sense if the cost of the water 'saved' in this way exceeds the price at which irrigators are willing to sell their entitlements.

Howard's plan did include $3 billion allocated to the purchase of water entitlements, but this was presented as a last resort, to be considered only after the budget for engineering works had been exhausted. The only redeeming feature of the Howard plan was that, having been prepared with an eye to election-year cosmetics, it was substantially 'back-loaded'. That is, very little money was budgeted for the first two years, and so very little had been spent or committed by the time the government lost office.

The Rudd government has reversed the priorities of the Howard plan, and has focused attention on the purchase of water entitlements from willing sellers. As at 31 December 2009 the *Restoring the Balance in the Murray-Darling Basin* program had secured the purchase of 766 gigalitres of water entitlements worth over $1.2 billion.[3] That is about three times the amount claimed for the Food Bowl Modernisation project, at about the same cost.

Unfortunately, the Rudd government has maintained Howard's commitment to spend $6 billion on engineering works. It seems unlikely that many such projects will be cost effective, so much of this money is likely to be wasted. There are many more worthwhile opportunities for large-scale capital expenditure in improving Australia's river systems.

For example, increased flows of sediment and nutrients from river systems, the result of urban settlement and agricultural land use, are a major contributor to the decline of inshore reef systems in the Great Barrier Reef. Projects that aimed to restore water quality and assist in more sustainable

[3] http://www.environment.gov.au/water/publications/mdb/restoring-balance.html

land use could help to enhance the resilience of the Great Barrier Reef to threats such as climate change.

The Way Forward

In some respects, the outlook for water policy in Australia is more hopeful than it has been for some time. The breaking of the drought has staved off the prospect of a catastrophic failure of agricultural and ecosystems. The Commonwealth government has finally broken the taboo against market purchases of water entitlements, improving the chances of a return to sustainable allocations.

On the other hand, there is a substantial risk that further billions will be wasted on engineering schemes with overstated 'savings' of water achieved at massive cost. There are plenty of genuine problems in Australia's river systems that could be addressed with this money.

And, looming above all is the prospect of climate change. In the absence of global action to mitigate climate change, a combination of reduced rainfall and higher evaporation could reduce inflows to the Murray-Darling Basin by 50 per cent or more over coming decades. Droughts like that of the last decade would become normal rather than exceptional events. The result would be to render most forms of irrigated agriculture unviable. Severe damage to natural ecosystems would be inevitable.

We can, perhaps, remedy the mistakes of the past in relation to water policy. But such efforts will be in vain unless the world as a whole can avoid similar mistakes in relation to the global climate.

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