



# Quenching our thirst for water

The drought has brought into sharp focus the issue of water supply and management in Australia. The House of Representatives Agriculture Committee is examining the role of the Commonwealth in ensuring an adequate and sustainable future water supply for rural and regional communities and industries, and in balancing the competing demands for water nationwide. *About the House* reviews some of the evidence presented to the committee so far.



In some ways it's simple. Water in Australia is a scarce resource. Given this, we need a clear set of priorities about what we use it for, and we have to minimise waste within that framework.

In many other ways it's incredibly complex. There are human, environmental, business, community, financial and, of course, political dimensions to every decision made regarding water use and management in Australia.

"Water, along with energy and population, will be consuming national issues in the 21st century," says the CSIRO in its submission to the House Agriculture Committee's water inquiry.

"There are going to be losers," Professor Peter Cullen told the inquiry about water reform. "I think the art of this is to try to ensure that we get policy levers that minimise the losers."

The CSIRO provides the following facts about water.

On average, in Australia we use 24 million megalitres of water a year (a megalitre is one million litres, or about enough to fill an Olympic swimming pool). Australian water use increased by about 65 per cent between 1983/84 and 1996/97. Urban centres showed either low increases or net decreases in water consumption over that period. The increase was mostly due to increases in irrigated agriculture. Irrigation now accounts for 75 per cent of our total water use.

In other words, while there are undeniable gains to be made in urban water use and reuse, when you're talking about the biggest potential gains in water, irrigation is the key.

And when you're talking irrigation, you are talking the Murray-Darling. About 70 per cent of Australia's irrigation occurs within the Murray Darling Basin (MDB). The MDB occupies about one seventh of Australia's land mass, and accounts for more than 40 per cent (\$8.5 billion) of the nation's gross value of agricultural production.

The Basin, which is the catchment area for the nation's major rivers, the Murray and the Darling, covers over one million square kilometres. Its area is spread across four states (Queensland, NSW, Victoria and SA) and one territory (the ACT). And that is where many people say the problems start coming in.

The states have constitutional control of land management and a large say in water management. Different states have different standards; in particular, 'upstream' states are accused of having little regard for the impact of their policies further downstream. Queensland is identified as a major culprit for excessive land clearing, including within the MDB catchment.

Reduced cover of native vegetation has multiple effects. In the first instance the reduction of groundcover available to soak up water leads to a rising water table and, in many prone places, increased salinity as that water rises to the surface. Native vegetation also holds the soil together, providing protection from wind erosion,

particularly during droughts; provides nutrients; contributes to pest control; and provides habitat for native fauna.

The Queensland state government recently unveiled new penalties for underhand land clearing after releasing figures showing 61,000 hectares of bush was illegally cleared in Queensland between 1999 and 2001. This was on top of large amounts of legal clearing (about 700,000 hectares in the same period).

The cleared land is being used for grazing and cropping—in many cases, irrigation crops such as cotton, which use huge amounts of water that is diverted from MDB tributaries and prevented from travelling downstream. There has been an accelerating boom in these industries in the last 20 years. According to some reports, flows across the border from Queensland into the Murray-Darling in NSW are just 45 per cent of pre-development levels.

One Queensland cotton farm alone, Cubbie Station, has enough dam capacity on-farm to swallow up Sydney Harbour. Under existing water licence arrangements Cubbie has paid just \$3,800 for the right to divert and store 440,000 megalitres of water, plus \$3 a megalitre for the first 500 megalitres. The market price for a megalitre of water further down the river system in South Australia is about \$1,000. The Queensland government recently announced interim changes to set a water 'harvesting' charge of \$3 a megalitre for all water pumped directly from rivers. This could see Cubbie's water bill increase to \$1.3 million.

This sort of move towards a more user-pays, market-based approach to pricing water is supported in multiple submissions to the inquiry, including a submission from the Australian Bureau of Agricultural and Resource Economics (ABARE).

**"We must use this drought to try to lift the general level of water literacy amongst Australians."**

In its submission ABARE says, "the current regime of uniform pricing for water delivery is still not adequate to guide efficient resource use". When the price is right (and a trading system is in place), water will 'flow' to the most efficient uses and out of less efficient ones. "Pricing needs to reflect the increasing social costs in water supply and use and to take account of capacity constraints," ABARE says.

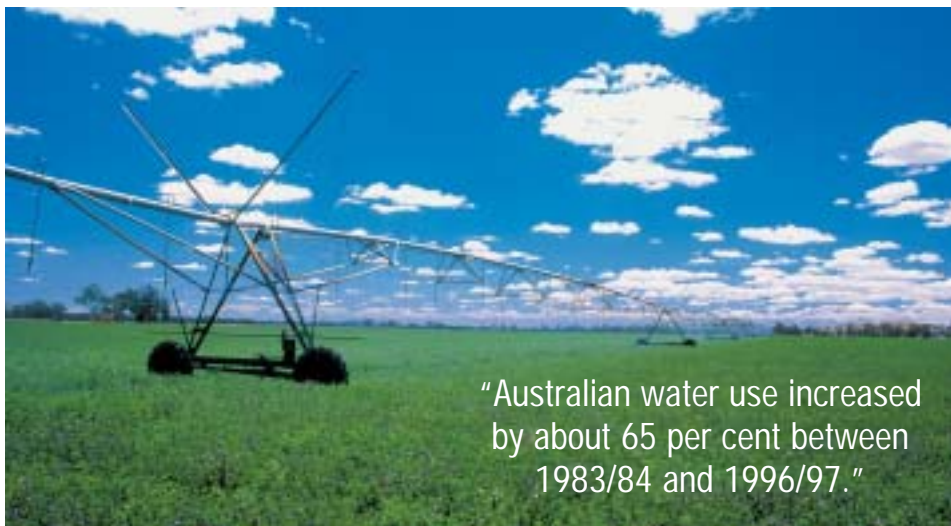
The states' prominent role in water management emanates from section 100 of the Australian Constitution, which reads: "The Commonwealth shall not, by any law or regulation of trade or commerce, abridge the right of a State or the residents therein

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to the reasonable use of the waters of rivers for conservation or irrigation.”

The CSIRO argues in its submission that the Commonwealth now has a “pivotal and increasing role” in determining what is “reasonable”. It calls for the setting of a national “vision” and policy framework for water use, based on the values of “efficiency, fairness, sustainability and reward for effort within the obligation to others”.

The vision should also set out fundamental principles for water use. These amount to a set of priorities. “The primary right to water should be to satisfy the basic human need for sufficient water of adequate quality for drinking and hygiene,” the CSIRO says. Next is the right of the environment to have adequate water to maintain the integrity of ecosystems (an “environmental flow”). Finally, the commercial use of water needs to be tempered. “There should be no permanency of right to use, but rather a licensing arrangement, with a set of safeguards of sufficient duration to give forward planning assurance, reduce risk and enable investment,” the CSIRO says.



“Australian water use increased by about 65 per cent between 1983/84 and 1996/97.”

Irrigation now accounts for 75 per cent of our total water use. Photo: CSIRO Land and Water

ABARE also notes that “many of the benefits provided by environmental flows are not valued in a market and allocation of water to the environment has become a government activity. Maximum social benefits from environmental allocations can be gained by withdrawing water from low value uses and allocating water to high value environmental uses”.

The calls for reductions in irrigation are not just coming from a few sources. Recognition has also come from groups such as Victoria’s Association of Rural Water Authorities, which represents the bodies that manage and deliver water for irrigated agriculture across the state.

The Association has called for a National Water Efficiency Strategy from the Commonwealth. Its submission recognises that “in catchments where water resource

development is mature, commitments made to consumptive water entitlements may need to be reduced (for example, in the Murray-Darling Basin). Different scenarios could see a need for structural adjustment assistance (a Commonwealth agricultural responsibility) or compensatory measures for the modification of water property rights or entitlements (a state responsibility)”.

Professor Peter Cullen says there are five things which are “fundamental to going forward”:

- clarifying water access and property rights;
- restoring environmental flows to stressed rivers;
- providing federal resources to end broadscale land clearing of remnant native vegetation;
- creating mechanisms for farmers to be recompensed for sustainable land management; and
- implementing reforms to markets for agricultural produce.

Professor Cullen is a leading member of the ‘Wentworth Group’ of scientists, which has been active in presenting options for managing Australia’s scarce water supplies, including the *Blueprint for a Living Continent* document. He was the founding Chief Executive of the Cooperative Research Centre for Freshwater Ecology, serving as Director from 1993 to 2002, and was awarded the Prime Minister’s Prize for ‘Environmentalism of the Year’ in 2001 for his work on the National Action Plan for Salinity and Water Quality.

“We have quite a lot of water in the Murray-Darling Basin that we are not using very efficiently,” he says. Using it more efficiently will require targeted capital investment and other initiatives, such as getting pricing right and a workable trading system in place.

“The land and water audit showed for one of our recent years that 80 per cent of our profitability from agriculture was coming off one per cent of the land. We should be investing infrastructure on that one per cent.”

There is a range of engineering and other techniques that could be used to “claw-back” water. Piping channels is one area currently being studied.

“I think it [the study] will show us that there are a lot of savings to be made in various sections by piping or even just stopping evaporation. It will show us that in other reaches you pay a lot of money for very minor advances. You have to subject each of these ideas to reasonably rigorous cost-benefit analysis. It [piping] will be part of the solution in some bits, but it is not a panacea for the whole Murray-Darling Basin.

“There are a lot of technical fixes on the table and many of those are going to be part of a final outcome. But how do you fund them and who funds them? And I come back to the property rights issue. What is equitable; who should be compensated and who should not?”

“Until you get the property rights issue sorted out, no-one knows who is going to be the beneficiary of an investment, be it in infrastructure or markets or whatever.”

Professor Cullen is wary about some farmers and farm organisations asserting “rights” where no real legal rights exist.

Praising the Council of Australian Governments (COAG) water reforms of 1994, he says “the tragedy is that they have only been half-implemented and we need to reinvigorate that water reform agenda, including water rights”. The reforms have stalled—even been “sabotaged”—by state and federal bureaucracies, he says. “We have not implemented the hard bits.”

Professor Cullen is especially critical of bureaucrats, who keep saying they need ‘time to consult’. “They have been consulting since 1994, so it’s not as though they have not had a long time to consult,” he told the committee. “I suspect—I hope I am wrong—that they are not able to get through it, so we need to get other people who can.”

Professor Cullen is also critical of the states, especially NSW and Queensland, in the area of catchment management.

“Integrated catchment management has been a really interesting principle and there has been really good progress in South Australia and Victoria,” he says.

“I had hoped that the National Action Plan on Salinity (NAP) and the Natural Heritage





Reduction of groundcover leads to increased salinity. Photo: CSIRO Land and Water

Trust (NHT) would really reinforce that, but in some ways it has sabotaged it, because when we put large amounts of money on the table to go through regional groups, there has been a concerted wish by state agencies to make sure that funds do not flow directly to those regional groups. In my view they often seem to get creamed off to support (state) bureaucracies rather than deliver what we think we should be getting.”

Professor Cullen says changes to structures of funding natural resource management have moved to marginalise the Murray-Darling Commission, a backward step. “It is very unfortunate that NAP and NHT are bypassing the commission. I think the commission worked well because up until those two programs came on deck it was getting substantial NHT money and it has the right process to allocate those to priority areas.”

Now, instead of the states sitting around the one table, looking at what each other was saying or doing, it is one-on-one negotiation between state and federal bureaucracies. “I do not think we are getting a nationwide view,” Professor Cullen says. “I hope that does not feed through to a total disillusionment amongst the communities that are involved in the regional catchment committees.”

Encouraging best practice is another way to increase efficiency and clawback water.

“Australian farmers have a very long and proud tradition of being very innovative,” Professor Cullen says. “They do adjust to

changing circumstances and come up with better ways of achieving various outcomes. I think we have to build on that ingenuity and provide encouragement and support for that. The thing that keeps puzzling me is the gap between our leading farmers and our worst farmers. It seems to me that if we can put some pressure on the tail we can move the average up quite markedly.”

The Executive Director of Land and Water Australia, Andrew Campbell, agrees there is huge room for improvement, with big differences between different industries.

“If you look at what rice has achieved, they have dramatically narrowed the gap between average practice and the best and worst practice, and cotton has similarly made big strides,” he told the committee. “But the irrigation of pastures has huge variations between the more and the less efficient operators, and that is where the big gains are to be got.”

He says in the dairy industry the more efficient water users are using about one-third of the water for the same amount of butterfat as the less efficient users.

Professor Cullen says no matter how many efficiency gains are made, “we should probably find ways of helping people on very marginal land who are not making a profit anyway—and are causing a lot of damage—to get off the land”.

Others should be paid for taking extra steps toward sustainable land management.

“Every land-holder has a duty of care to maintain some native vegetation and to not

export soil, chemicals or salt or nutrients from their property,” he told the committee. “From time to time in particular areas, farmers are expected to have a higher duty of care than the general one, and in that case we would like to see some mechanism for paying them for those environmental services that they are asked to provide.

“You can see the obvious example: farmers in the Sydney water supply catchments may well be required to adopt some farming practices which are non-optimal for agricultural production but do increase the supply of good quality, clean water, and there is a way that can be recompensed.”

The *Blueprint for a Living Continent*, which Professor Cullen presented to the committee, says, “paying for such services is not ‘farm welfare’, it is recognising the value of these services”.

“An innovative approach being trialled by the Victorian government is the auctioning or tendering for farmers to provide ecosystem services—through their Bush Tender scheme.

“The values involved are often very large. One way of estimating ecosystem service values is to consider what it would cost to provide them in other ways. Clean water, for example, can be made available by using pumps and screens and filters in place of good catchment management. Where such ‘technological solutions’ exist, they are usually 10 to 100 times more expensive than maintaining ecosystems.

“New York City recognised this when they saved more than \$15 billion by avoiding the need for building new filtration facilities by paying for improved catchment management practices in the Catskill Mountains upstream from the city, and by changing the way land in that region can be developed and used for agriculture. Under current projections, increasing stream salinity in the Murray River is projected to raise water quality costs in South Australia by \$17 million a year if action is not taken.”

Professor Cullen says all these initiatives will require funding.

“We must use this drought to try to lift the general level of water literacy amongst Australians,” he says. “(But) we need some new money to break the gridlock. If we leave it as it is, we will just have a stand-off; we will not take this opportunity in front of us now.”

The committee is continuing its hearings around Australia. ■

#### Links and contacts

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