

# Council of Australian Governments' Water Reforms and the Environment

by Professor Peter Cullen

In recent years Australia has been implementing radical water reforms at the cutting edge of water management. Many of these reforms are about improving the efficiency of water use. Another major thrust of the reforms is to reverse the degradation of our waterways through the provision of environmental allocations for rivers. Water rights, trading and markets are also key elements in the reforms, as is more comprehensive assessment of proposals for further water developments.

After five years of Council of Australian Governments (COAG) initiated water reform we can now ask if we have achieved, or are we on track to achieve, demonstrable benefits to the environment?

This is not a trivial exercise. From an ecological perspective it is hard to measure small changes in wildly fluctuating systems. We have little agreement as to what the key indicators of success are – the return of icon species or the health of communities for instance. We are unclear how long it will take for ecological benefits to be measurable after flows have been changed. In many systems we have so little knowledge of 'river health' before we apply more appropriate flow regimes that it will be very difficult to measure change afterwards.

The Cooperative Research Centre (CRC) is frequently asked whether we can see benefits flowing to the

environment as a result of the water reforms, and since we have been actively involved in setting environmental allocations and other processes, this question is of interest to us. It is a question that persists, and one we are keen to answer.

Earlier in the year the CRC assembled a group of ecologists from around Australia to address this question. The team looked at various elements in the COAG water reform process to assess likely ecological benefits. The following key points emerged:

## WATER HAS TO BE USED EFFICIENTLY

Every litre of water diverted from a river has an impact on the ecosystem. Efficient use of the water we divert will allow us to continue to enjoy the benefits of consumptive water use whilst minimising the environmental impacts of these diversions.

To ensure water is used efficiently, it needs to be sold at prices that discourage waste. Water allocations and charges should be based on the actual volume of water extracted rather than simply permission to pump for certain hours or when the river reaches a certain height.

Water trading promotes water conservation because saved water can be sold. The development of trading will allow the movement of water to its highest value uses and to the most suitable and productive lands. A critical issue for the development of water trading is the separation of water from property rights.



Supply channel and waterwheel, Murrumbidgee Irrigation area, NSW.  
Photo: B van Aken, CSIRO

## COMPREHENSIVE ASSESSMENTS FOR NEW DEVELOPMENTS

In some regions, water resources are not yet developed, and the COAG water reforms require more comprehensive assessment of development proposals than in the past. There is no excuse for repeating past mistakes. When assessing water resources it is essential to look at the whole catchment. All water must be considered not just in the channel, that moving occasionally over the floodplain and the groundwater. The downstream impacts on estuarine and coastal systems must be part of any comprehensive assessment. Assessment has to consider the ecological impacts of transferring water between basins, which introduces biota from one river basin to another. Assessment of new developments must recognise that water diversions impact throughout a river basin, they do not stop for State borders.

## WATER QUALITY

The storage and diversion of water affects its quality. Water released from large storages may be unseasonably cold and it may be anoxic. Return flows from agriculture may contain pollutants, such as nutrients or pesticides. Assessment of the impacts of diversions on water quality must consider ecosystem health as well as the needs of downstream users.

*diverted  
water has  
an impact*

## MANAGE AT A CATCHMENT SCALE

Because land use within the catchment impacts upon the quantity and quality of the water resource, it is critical that water management is integrated with catchment management. We do not know the amount of water intercepted by farm dams or the impact of this on rivers and groundwater, though it is likely to be significant in many catchments.

## ADAPTIVE MANAGEMENT

Our knowledge of the ecosystem water requirements is improving, but it is not perfect. The allocations we make should be based on best available knowledge. To learn, we must incorporate our knowledge from present allocations into future allocations and monitor their impact. A balance has to be struck between having the flexibility to react to new information whilst providing resource security for consumptive users.



*An AUSRIVAS reference site: McDonalds Creek, ACT.  
Photo: K Roberts, CRCFE*

Without some security, water users will not be able to make the necessary investments in water infrastructure. We believe a period of five to eight years between review of allocations allows this. Granting water rights in perpetuity reduces our capacity to adjust allocations in the future, if necessary.

## KNOWLEDGE STRATEGY AND INFORMATION EXCHANGE

The development of a knowledge strategy, which identifies key knowledge gaps and how they can be overcome, is imperative if water is to be managed in a sustainable way. Agencies, technical experts, landholders and community groups must share knowledge and build working partnerships. The trust and value in these partnerships will only be realised with transparent processes and effective sharing of information.

Adopting these key COAG water reform principles will benefit the environment we all live in.

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