Professor Mike Young & Fiona McKenzie,
WENTWORTH GROUP OF CONCERNED SCIENTISTS

It's the water, stupid!

In the lead up to the July 3 meeting of the Council of Australian Governments (COAG), our greatest fear was that there would be no recognition of the urgency of the desperate situation facing the Murray Darling Basin. There's been a litany of reports. The recently released Sustainable Rivers Audit points out that all but one are in either poor, very poor, or extremely poor condition. It's an old problem that's been with us for a long time. In 2002, before the drought, we put a dredge in the mouth of the River Murray because it had stopped flowing. We knew then, as a nation, that the river was in serious strife. More recent reports warn us to expect serious ecosystem losses in a matter of months. Parts are already lost and other areas already beyond saving.

On 3 July, our national leaders chose more plans above rapid action, politics above vision. At a time when they should have empowered someone to solve this problem and solve it quickly, they have choked. Perhaps if our leaders had visited enough ecosystems on the point of collapse, inhaled the smell of acid sulfate soils and talked to local irrigators, they may have acted differently.

To be fair, COAG did agree to appoint an independent authority and this is important. However, the authority has not been empowered to act quickly. It hasn't been made responsible for delivering results – to maintain the river at a minimum level, and set up the water that's necessary to do that and to deliver the environment in all states a share of inflows. The River Murray needs an authority that can make decisions as quickly as rivers and rainfall change.

COAG also confirmed significant investments in infrastructure and pipes, but it will take a long time before this delivers any water to the River Murray's water dependent ecosystems. There is a real risk that we could end up gold plating parts of the system that should have been closed down.

One can only guess that with such a lack of urgency evident, COAG must have instead decided to pray for rain. The problem is that rain won't fix our chaotic water management systems or a failed water sharing regime. The Prime Minister and Premiers know that big decisions need to be made. All know that the real need was to replace the existing sharing regime and cap on the maximum amount of water that can be pumped out of the river with a system that gives all states and the environment a share of inflows.

Australia is learning the hard way that long dry periods are common. We had a long dry that started in 1938 and lasted for twelve years. During the wetter second half of last century, we almost forgot what a long dry was. Nature has reminded us. Could we cope if the current dry period lasted for twelve years, until 2014? Australians need to ask whether or not we are managing the river in a state that would enable us to last for another four or five years in the climatic regime we're in now. Are we ready for it?

Australia, as a nation, needs to understand that small losses in rainfall mean very, very large reductions in the amount of water that's available for consumptive use, and for the environment. In a standardised river model (see table) a small 10% reduction in rainfall can mean a whopping 2/3 reduction in the amount of water available for use – unless we are prepared to abandon agreed plans. A reduction in rainfall of 10% typically means around 30% less run-off, but the amount of water that evaporates still has to be found. The fixed costs of running a river remain!

The sad thing is, we already know the solution. It isn't rocket science. As the late Peter Cullen said, it is really pretty simple housekeeping - how much water do we have to allocate? Cullen also said "We don't have all the answers – nobody does – but before we start laying bricks and mortar, we have got to get the foundations right, otherwise the cathedral will tumble with the smallest of tremors."

Scientists have said time and time again that we need to know how water flows into the system, to manage that, to manage forestry, farm dams and ground water. It should be obvious to anyone that if we don't start balancing the books for the system as a whole, then we go further into the red.

Many Australians would be shocked to learn that advice being given to Ministers is they should expect a decline in inflows into the system of 2,570 GL by 2023. A predicted result of this long list of unaccounted processes. But the largest number anyone has ever proposed to recover for the river is 1,500 GL! The reality is that net effect of all the plans currently on the table is to reduce not increase river flow. What's critical is that we move quickly. We must move quickly for the sake of the communities and quickly for the sake of the river, but more importantly, quickly for the sake of Australia.

One of the immediate measures that needs to be taken is to require offset of the impacts of all new forests, farm dams and other forms of interception high up in the catchment where water comes from.

Whether as a nation we opt to use a rapid Coles-Myer like share buyback and go in and pay well above market price for water, or whether we pay compensation payments to irrigators, the one thing we can and must do right now is give the environment some water.

▶ **More information: see 'Water works' on page 21**

An illustrative overview of the consequences of a shift to a drier regime for a 10,000 GL system similar to the River Murray's.*

(Readers are encouraged to enter their own assessment of how best to configure such a system if, as Perth has experienced, there is a 20% decline in mean rainfall).

Mean rainfall shift		10% reduction in mean rainfall	20% reduction in mean rainfall
Mean inflow	**10,000**	**7,000**	**4,000**
Mean evaporation	2,000	2,000	2,000
Mean flow to the sea	2,000	2,000	…..
Net volume available for discretionary use	**6,000**	**3,000**	…..
Environmental entitlement	1,500	1,500	…..
Consumptive user entitlement	4,500	1,500	…..
Unallocated water	**0**	**0**	**0**
Reduction in mean volume available to consumptive users		67%	….%

* Murray-Darling Basin historical records indicate that mean annual inflows into the southern River Murray system including the Lower Darling is 11,229 GL per annum and the median inflow is 9,033 GL per annum.