Submission to Senate Standing Committee on Rural Affairs and Transport

The management of the Murray-Darling Basin

The Australian Wetlands and Rivers Centre, School of Biological, Earth and Environmental Sciences, University of NSW provides the following submission.

Terms of Reference

The management of the Murray-Darling Basin, and the development and implementation of the Basin Plan, with particular reference to:

(a) the implications for agriculture and food production and the environment;

Most of the rivers of the Murray-Darling Basin are regulated rivers through the building of dams. This allows water to be diverted, mostly for irrigation (95%), upstream of the large wetland areas which are hotspots for biodiversity. Such working rivers are experiencing significant environmental problems, which have not been alleviated by respite provided by floods in 2010. There is a need to deal with long term ecological degradation. Biodiversity is declining and water quality problems are exacerbated by reductions in flows. These effects are becoming more widespread with death of floodplain eucalypts, increasing blue-green algal blooms and increasing salinity. Returning water to the rivers will significantly improve this problem. This should not necessarily result in a pro rata decline in irrigated agriculture, particularly where water use efficiencies can be improved. Reduced irrigation water availability may further stimulate innovation and investment in farming practices and technologies which can be sustained through both dry and wet periods.

(b) the social and economic impacts of changes proposed in the Basin;

There will be costs particularly for the irrigation industry and associated service industries in returning flows to the Murray-Darling Basin Rivers but there will also be benefits of increasing environmental flows into the rivers of the Murray-Darling Basin, particularly for many landholders and their communities in NSW. This is because the

development of rivers (dams and diversions) has reduced the extent and frequency of downstream flooding of Murray-Darling Basin Rivers. There is a long term socioeconomic cost to many landholders that own wetlands because of reductions to flooding. Flooded land has commanded a premium price over dryland areas because of its potential to provide more output in terms of grazing livestock. There are an estimated 6.29 million hectares of wetlands in the Murray-Darling Basin and most of this (93.1%) is floodplain (data from Kingsford et al. (2004). Marine and Freshwater Research 55:17-31). Only about 3% of wetland area is in conservation reserves and so 97% of wetlands are on privately owned or leased land. Owners of this land who have relied on it for livestock grazing have been affected by river regulation. The increase in river flows put forward in the Guide would favour many of these communities. Community wellbeing is also contingent on the ecosystem services provided by rivers. Many communities of the Murray-Darling Basin and those outside it use the rivers for recreation and there is considerable potential for increased boating, fishing and wildlife viewing

River regulation and over-allocation of water resources has also resulted in significant costs to government through the buyback program and water use efficiency. There are also costs of insufficient flows reaching wetland systems, notably the Lower Lakes and the Coorong where costs of recent lack of flows amounted to more than $2 billion, including the cost of the desalination plant for Adelaide.

(c) the impact on sustainable productivity and on the viability of the Basin;

Returning more environmental flows to the rivers of the Murray-Darling Basin will improve water quality and environmental health and ultimately the long-term viability of the Basin. It is possible that markets will increasingly reflect environmental costs in their products with rewards for irrigation communities that operate in sustainable river environments. Increasing degradation of environments is likely to be a future problem for irrigation industries in some markets as there is growing understanding of the source of agricultural products and their impact on the environment.

Increasing water efficiency and also ensuring that the most can be made from a megalitre of water are critical to ensuring and growing agriculture in the Basin. There is considerable disparity in the different commodities and their return on investment for a megalitre of water and this could be improved through market mechanism.

(d) the opportunities for a national reconfiguration of rural and regional Australia and its agricultural resources against the background of the Basin Plan and the science of the future;

Reconfiguration will depend on changes to agricultural resources and associated markets. There should be maximum opportunity provided towards driving a sustainable Murray-Darling Basin whose environments are represented in a sustainable form, albeit compromised but where there is vibrant irrigated agriculture.

There is a need for investment in the science of water management. Currently, despite the considerable investment in the buyback of water and general return of environmental

water, there is little monitoring of the effects of increased environmental flows and so it will be difficult to show that this has been a good policy investment. Good science and monitoring is essential and governments should establish funding mechanisms to ensure that the most innovative and applied science is done on the rivers of the Murray-Darling Basin, capitalising on previously collected long-term data sets. There is a clear need to develop robust models that link ecology to river flows for the rivers and allow assessment of the best management and the effects of increased environmental flows. This will also considerably improve management capability and outcome.

(e) the extent to which options for more efficient water use can be found and the implications of more efficient water use, mining and gas extraction on the aquifer and its contribution to run off and water flow;

There are considerable opportunities for increasing water use efficiencies with large losses to evaporation and seepage from the distributary irrigation channels. Improving efficiencies should be a priority for obtaining environmental water for the rivers and investment by governments between farm and river should have all water saved returned to the river, given the current state of the rivers. In addition, large off-river storages, particularly on the rivers of the Darling River basin experience considerable evaporation loss. Identifying innovative measures for saving water would be beneficial in this area. This may involve better utilisation of upstream storages for water, particularly in the coordinated timing of flow delivery to reduce transmission losses.

More efficient water use may be problematic for groundwater systems as seepage can move into these aquifers and so establishing more efficient water distributary systems may actually reduce recharge of aquifers. Gas extraction may be a serious issue in terms of intercepting groundwater systems and either contaminating these or allowing them to flow out of the aquifer.

The efficient delivery of environmental flows may also be affected by interceptions by floodplain earthworks.

(f) the opportunities for producing more food by using less water with smarter farming and plant technology;

The critical long term challenge for obtaining a balance between irrigated agriculture and the environment is to maximise the efficiency with which water is used for growing agricultural plants. Obviously, improving on farm use of water will allow for more water to be used in the growth of more plants, potentially expanding irrigation.

(g) the national implications of foreign ownership, including:
(i) corporate and sovereign takeover of agriculture land and water, and
(ii) water speculators;

A critical issue is the potential movement of water from communities and also outside the physical constraints of the river as a delivery system. There is a need for some certainty

in these areas for production and environmental management. Any impacts of foreign ownership should be considered for its impact on these two factors.

(h) means to achieve sustainable diversion limits in a way that recognises production efficiency;

Producers should be rewarded for their on farm production efficiency. This can be done through the use of more water to increase production. There is also a need for equity in ensuring access funding programs. Finally, retirement of water to meet the sustainable diversion limits from irrigation production should be on the basis of environmental need, the most cost effective way of achieving this and also identification of least viable and efficient production areas.

(i) options for all water savings including use of alternative basins; and

Most options for water savings have been considered. Other potential options should not be part of identification of water savings. These include water interception options such as farm dams or floodplain earthworks. These ultimately deny the river and downstream users and the environment of rights to river flows.

Diverting water from other river basins will impact on the environments of those basins and also agriculture and other industries that rely on the water. This should not be considered an option.

Professor Richard Kingsford
Director of the Australian Wetlands and Rivers Centre
15/12/10