AUSTRALIAN CONSERVATION FOUNDATION

20 December 2010

Submission to the Senate Rural Affairs and Transport Standing Committee Inquiry into the management of the Murray-Darling Basin

"environmental failure now threatens the long-term economic and social viability of many industries and the economic, social and cultural strength of many communities."[1]

ACF welcomes the opportunity to provide a submission to this Inquiry into the management of the Murray-Darling Basin. We trust that this input will improve and strengthen the water reform process in the Murray-Darling Basin.

In less than a century, water extraction from the rivers of the Murray-Darling Basin has increased by 500 per cent.[2] Such over-extraction is unsustainable and has already caused severe environmental degradation and social and economic disruption, especially at the lower end of the Murray River. Although there is broad agreement that the *status quo* cannot continue, some Basin communities reject core elements of the Guide to the Basin Plan to the extent that they question the very need for a Basin Plan at all. This threatens to destabilise 20 years of largely bipartisan water reform progress to the detriment of the whole nation. An overhaul of Australia's most iconic and largest river-system cannot be achieved by providing an overwhelming amount of technical information alone. Much more must be done to clearly articulate the benefits of developing and implementing a Basin Plan that sets sustainable limits on irrigation water use.

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1 Guide to the proposed Basin Plan, p. xiv

2 "In less than a century, water extracted from the Murray-Darling Basin has increased five-fold, from 2,000 GL a year in the 1920s to over 10,000 GL a year". Murray Darling Basin Authority http://www.mdba.gov.au/media_centre/mdba_eletter/basin_news_08__09_2010
http://www.mdba.gov.au/media_centre/mdba_eletter/basin_news_08__09_2010

Executive Summary and Key Recommendations

Recommendation 1: Make the Case for Change

The Committee should recommend that the Government and MDBA lead Basin and non-Basin communities towards a shared vision for a healthy Basin and a clear understanding of the realities of water over-extraction, environmental damage and the future impacts of climate change upon the ability of the Basin to continue to support viable ecosystems, industries and communities. The Authority has failed to communicate that the consequences of business as usual will lead us to a dead river which will not support environmental, social or economic values. The Committee should advise the Government and Authority Board to advocate the benefits of a transition to sustainable water-use in the Basin and not undermine public confidence in its commitment to delivering a strong Basin Plan.

The Authority must engage urban and metropolitan audiences as well as people who live and work in the Basin.

The Authority should promote its own commissioned assessments of the environmental and economic benefits of water reform.

With the draft Basin Plan expected by mid 2011, and the final decision on the Basin Plan likely to be made within this term of Parliament, there is a critical need to engage regional communities across the Basin, and support them in planning for the introduction of sustainable limits on irrigation water use.

Recommendation 2: Model scenarios across the full range of options and properly understand the costs and benefits of change

The Murray-Darling Basin requires a scientifically rigorous and environmentally sound Basin Plan that will properly address over-extraction of water and provide a high degree of certainty around returning important wetland and river assets to health. We are advised that the MDBA's decision to only look at the lower range of environmental water because the higher range would have significant social and economic impacts is not supported by the Act.[3] Returning amounts of water within the lower range would be insufficient to fulfil Australia's Ramsar Convention obligations and would fail to maintain the ecological character of internationally significant wetlands.[4] The Guide itself states that the lower range would leave five regions in poor condition. Even that outcome would be greatly dependent on a return to wetter climatic conditions, which, according to CSIRO predictions, is unlikely.[5]

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3 Nicola Rivers, Principal Solicitor Environment Defenders Office, Vic.

4 Pittock, J. & Finlayson, C. M. Freshwater ecosystem conservation in the Basin: principles versus policy. Paper in preparation Nov 2010.

5http://www.clw.csiro.au/publications/waterforahealthycountry/mdbsy/pdf/WaterAvailabilityInTheMDB-FinalReport.pdf

Information, data and modelling on the direct and indirect short, medium and long term benefits of returning between 4,000 GL and 7,600 GL per annum, as well as costs, should be established and published for public discussion between now and the release of the Proposed Basin Plan. This would provide the Australian public with an understanding of what could be achieved and what the MDBA is currently suggesting be sacrificed as a result of the plan. As part of establishing the base case scenario, the Committee should recommend modelling the costs and implications of a 'business as usual' scenario, ie, continuing to extract water at current cap levels.

The terms of reference for such modelling should include:

- Identify business-as-usual impacts over the short, medium and long term on river health, irrigation, tourism, grazing, fishing and other regional industries from current water management arrangements, climate variability and projected climate change;

- Identify the social, economic and environmental costs and benefits of implementing a Murray-Darling Basin Plan that meets the objects of the Water Act over the short, medium and long term;

- Investigate options to mitigate social and economic impacts from achieving additional flows of between 3000 – 7600 GL a year;

- Make recommendations on how delivering additional flows in the range of 3000 – 7600 GL a year, combined with changed water management arrangements could serve to improve environmental, economic and social outcomes; and

- Work with communities in the Basin to determine how such sustainable diversion limits (SDLs) could be achieved.

Recommendation 3: Value healthy ecosystems

As part of the modelling across the full range of water recovery options, the MDBA should expand its understanding of the social and economic benefits of healthy rivers and wetlands, ie of making sure the natural resource base that underpins all agricultural activities, including irrigation, continues to function into the future.

ACF analysis shows that ecosystem services provided by the 16 internationally significant wetlands in the Basin are worth around $2.1 billion dollars of economic benefit, every year, to the surrounding region.[6] These services include water filtration, water storage, and habitat for pollinator and pest predator species. A report prepared for the MDBA but released after the Guide shows that improving the health of the Coorong wetland from 'poor' to 'good' would generate an

6 http://www.acfonline.org.au/uploads/res/Basin_Plan_economic_analysis_20-10-10.pdf

additional $4.3 billion per year.[7] Information of this nature has been conspicuous by its absence in the media debate. We urge the Committee to advise the Authority to address this omission in the Proposed Basin Plan and in the intervening period to ensure it becomes a legitimate part of the discussion, not an esoteric and unquantified concept.

Recommendation 4: Address climate change impacts

We urge the Committee to advise the MDBA to revisit the way it has approached the certainties and uncertainties of climate change in scenario planning. At the very least the Authority should have its approach peer-reviewed and should make the assessments available for evaluation by third parties. In a recent statement more than 50 of Australia's leading river scientists have warned that the Guide does not make sufficient allowances for the likely impacts of climate change.[8]

Recommendation 5: Provide information on progress towards achieving the SDLs and align water recovery with the Guide

The substantial amount of money available, ongoing programs to achieve SDLs and progress already made in recovering water for the environment need to be demonstrated and emphasised to rural and regional communities that are concerned about the size of the 'gap' and how it is to be bridged. There should be particular emphasis on the fact that compulsory acquisition and non-compensated acquisition are not contemplated.

Gaps between the current diversion limits and SDLs should be presented as net figures rather than gross figures. Volumetric figures for how much water has already been acquired should be accompanied by volumetric figures for water with a high probability of delivery from on-going projects. Water recovered by the states should also be shown in addition to Commonwealth water.

To achieve the best environmental outcomes the ongoing water recovery process under the Federal Government's 'Water for the Future' program should be closely aligned with priority areas identified in the Guide to the Basin Plan, ie, the valleys targeted by the Commonwealth Environmental Water Holder should be the ones identified in the Guide to the proposed Basin Plan as being those where water diversions will need to be significantly reduced.

Recommendation 6: Provide detailed and integrated understanding of environmental needs and how they are to be met

Detailed modelling and information should be made publicly available in the form of an expanded Environmental Watering Plan and Water Quality and Salinity Management Plan with clear linkages identified between these and the establishment of the SDLs. The full suite of opportunities and risks arising from dealing with floodplain harvesting, mining operations, planned environmental water delivery and

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7 http://www.mdba.gov.au/files/bp-kid/1282-MDBA-NMV-Report-Morrison-and-Hatton-MacDonald-20Sep2010.pdf

8 www.wetrivers.unsw.edu.au/2010/11/basin-plan-support/

the linkages between groundwater and surface water require more focus as do how the requirements of non-hydrologically connected wetlands will be met.

Recommendation 7: Support management and investment that complements water recovery and delivers sustainable communities

All Murray-Darling Basin governments should commit to augmenting the current reform processes with a Basin-wide raft of complementary management measures that will augment and optimise environmental flow benefits, promote ecological and community resilience in the light of climate change and protect high conservation value freshwater areas.[9] These should include environmental works and measures and operational changes, for example carry over provisions that would optimise the use of environmental water, as well as payments for ecosystem services, stewardship payments, a functioning green carbon market and new jobs such as those offered by a transition to a clean, efficient energy sector which would be especially beneficial to rural and regional areas.[10]

Rural and regional communities need support to adjust to the reduced availability of water and the Basin Plan should be accompanied by a 'whole of government' response which will target investment into communities and facilitate their transition to sustainable economies. ACF urges the Committee to clearly articulate the need for measures above and beyond the Water Act and Basin Plan at this important t time.

9 Beyond the Basin Plan: ACF (2010). In preparation.

10 ACF & ACTU 2010 'Creating Jobs – Cutting Pollution The roadmap for a cleaner, stronger economy. http://www.acfonline.org.au/uploads/res/ACF_Jobs_report_190510.pdf Viewed 18.05.10

Getting the narrative right - why do we need the Basin Plan and water reform?

In less than a century, water extraction from the rivers of the Murray-Darling Basin has increased by 500 per cent.[11] Such over-extraction is unsustainable and there is broad agreement that it cannot be maintained. The water reform process at an intergovernmental level began in 1994 following the world's longest ever blue-green algal bloom in the Darling River in 1991. The Murray-Darling Basin is now home to these toxic algal blooms, caused by low flows and nutrient pollution so frequently, they gain little public attention, even though they bring major costs and inconvenience, preventing drinking, swimming and stock watering.

In NSW alone, the 1991-92 Darling River outbreak caused an estimated $2.4 million loss of revenue to the tourist industry and up to $2 million was spent on alternative water supplies.[12]

Communities and businesses, particularly in the Lower Murray River, have also faced annual costs of up to $270 million / year[13] from highly saline water. Overall, the estimated annual costs are substantial: $130 million in agricultural costs, $100 million in infrastructure costs, and $40 million in environmental costs. These include impacts on productivity, land values, aesthetics, remediation, damage and loss of wetlands and habitat for wetland species.

Rivers die from the bottom up. The consequences of over-extraction and poor river health for the lower part of the Murray are obvious – increased salinity, acid sulphate soils and no water for irrigators no matter how big their water licences are. For example, there used to be 23 dairy farming families around the Lower Lakes, now there are 3. The others went out of business because they were unable to irrigate pasture with salty water and were unable to physically get pumps into the water as the water level receded.[14]

These are just some of the costs and consequences of an unhealthy river system. This is why we need water reform and why we need a scientifically robust Basin Plan, a plan that will enable, as its original proponent, former Prime Minister John Howard said "*addressing once and for all water over-allocation in the Murray-Darling Basin*".[15]

It is time to put the Murray-Darling Basin onto a sustainable footing – one where water quality is reliably 'fit for purpose', where the environment can sustain wetlands and wildlife, and where communities face greater certainty because their

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11 "In less than a century, water extracted from the Murray-Darling Basin has increased five-fold, from 2,000 GL a year in the 1920s to over 10,000 GL a year". Murray Darling Basin Authority http://www.mdba.gov.au/media_centre/mdba_eletter/basin_news_08__09_2010

12http://www2.mdbc.gov.au/nrm/water_issues/water_quality/?MySourceSession=a946a783e36a73e4e3bafd5696f09f84&maintain_session=1

13 http://www2.mdbc.gov.au/salinity/land_and_water_salinity.html

14 Kerri Muller, NRM Consultant, pers comms.

15 http://www.nalwt.gov.au/files/national_plan_for_water_security.pdf

livelihoods are based on a well-managed, modernised, efficient and sustainable system that is resilient to challenges such as drought and climate change.

'Business as usual' means ongoing uncertainty for communities who cannot maintain businesses or communities based on an unhealthy system. It also means more damage to the environment. Across the Basin, 90 per cent of the Basin's floodplain wetlands have been destroyed[16] and since 1983, waterbird populations across the Basin have declined by 80 per cent.[17][18] The Basin Plan must provide enough water to enable more frequent and successful breeding events to reverse this trend which experts say will continue with business as usual.[19]

'Business as usual' would also mean that average river salinities in key tributary rivers will rise significantly, endangering their use for irrigation and urban purposes within 20 to 50 years, and about 3.4 million ha of land in the eastern and southern regions of the Basin will be salt-affected within 50 years. [20]

The *Salinity Audit of the Murray Darling Basin* completed a decade ago found the average salinity of the lower River Murray (monitored at Morgan) would exceed the 800 EC threshold for desirable drinking water quality in the next 50–100 years. By 2020 the probability of exceeding 800 EC will be about 50 per cent. At the downstream end of several tributary river valleys, rising salinity was expected to be even greater, threatening consumptive use of water resources and in-stream environmental values. The Macquarie, Namoi and Bogan Rivers was expected to exceed the 800 EC threshold within 20 years, and exceed the 1,500 EC threshold for irrigation crop and environmental damage within 100 years. The Lachlan and Castlereagh Rivers was expected to exceed 800 EC within 50 years. The Condamine–Balonne, Warrego and Border Rivers would exceed 800 EC before 2020. The Avoca and Loddon Rivers already exceed 800 EC on average. Some reaches of these rivers will rise to higher salinity levels again.

The Audit also found that the cost of a one EC unit rise in river salinity at Morgon (SA) was between $93 000 and $142 000 per year. River salinity was predicted to rise by 330 EC units iver the next century.[21]

The natural resources of the Basin provide a basis for many recreational activities. In total, tourism in the Basin is worth over $3.4 billion.[22] Many landholders directly benefit from healthy functioning rivers and floodplains, such as floodplain graziers and dryland farmers where preliminary studies suggest that flooding adds around $6.8 million in gross profit per property over 15 years. [23]

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16 http://www.environment.gov.au/soe/2006/publications/commentaries/water/pubs/water.pdf
17 http://www.environment.gov.au/soe/2006/publications/commentaries/water/animals-response.html
18 Porter & Kingsford (2009).
19 Guide to the Basin Plan, page 114.
20 MDBC, *The Basin Salinity Management Strategy2001-2015*, 2001, p.1
21 MDBC, *The Salinity Audit of the Murray Darling Basin*, 1999, p.vi
22 MDBA/MDBC, 2006, www.mdbc.gov.au/about/tour_the_basin/riverine.html
23 Socio-economics of floodplain agriculture in the Murray-Darling Basin. Arch Consulting. Aug 2010.

Importantly, there are significant economic benefits arising from healthy rivers and wetlands. International studies highlight the high economic values of the services wetlands provide across the world. One study published in the journal *Nature* found that globally wetlands' services were worth $4.8 trillion annually.[24] The ACF recently showed that services provided by the 16 internationally significant wetlands in Murray-Darling Basin – services such as water filtration, water storage, habitat for species that provide free but valuable services such as pollination or insect and pest predation – are worth around $2.1 billion dollars in economic benefit every year to the surrounding regions.[25]

Healthy rivers and wetlands provide for many values in the basin. Unhealthy rivers do not. The rivers and wetlands of the MDB need a scientifically robust Basin Plan that will return enough environmental flow to give them a high probability of being restored to health and continuing to underpin a range of environmental, economic, social and cultural values. The only alternative to sustainable levels of extraction is unsustainable levels of extraction and that will not underpin any of the values we recognise in the Basin in the long-term.

Recommendation 1: Make the Case for Change

The Committee should advise Government and the MDBA to lead Basin and non-Basin communities towards a shared vision for a healthy Basin and a clear understanding of the realities of water over-extraction, environmental damage and the future impacts of climate change upon the ability of the Basin to continue to support viable ecosystems, industries and communities. The Authority's leadership has failed to communicate that 'business as usual' will lead us to a dead river. A dead river does not support environmental, social or economic values. To date the MDBA has not adequately articulated the benefits of a transition to sustainable water-use in the Basin.

The public statements of the MDBA have damaged public confidence in the Authority's commitment and ability to deliver a strong Basin Plan.

The Authority must engage urban and metropolitan audiences as well as people who live and work in the Basin.

The Authority should promote its own commissioned assessments of the environmental and economic benefits of water reform.

With the draft Basin Plan expected by mid next year, and the final decision on the Basin Plan likely to be made within this term of Parliament, there is an critical need to engage regional communities across the Basin, and support them in planning for the introduction of sustainable limits on irrigation water use.

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24 Costanza, R. et al (1997) "The Value of the World's Ecosystem Services and Natural Capital", Nature, **387**. See also ACF wetland report www.acfonline.org.au/uploads/res/Wetlands_economic_report_1-6-10.pdf

25 http://www.acfonline.org.au/uploads/res/Basin_Plan_economic_analysis_20-10-10.pdf

What does the Guide to the Basin Plan offer?

According to the Guide to the Basin Plan, if the proposed SDLs are achieved, there will be significant outcomes. There will be better quality drinking water and better salt removal from the Basin. Rivers will once again connect with the rest of the system far more often. Many threatened species will be helped in their recovery. The rate of waterbird decline will be significantly reduced or even stabilised. River red gums will become healthier. Dangerously low native fish numbers will increase. Overall the Murray-Darling Basin will be much healthier.[26]

The rivers and wetlands will be far more resilient to pressures from water extraction, drought and climate change and the Murray Mouth will be open at least 26 per cent more often than it currently is, which will greatly improve water quality, fish passage, and the viability of communities and businesses in the Lower Murray, including important social and economic benefits.[27]

A summary of the scenarios put forward in the Guide to the Basin Plan are as follows:

Scenario 1: additional 3,000GL for the environment:
This scenario, which requires a 22 per cent reduction in current diversion limits, requires some environmental trade-offs to occur as not all environmental water targets and objectives can be achieved all of the time. It is unclear where these trade-offs would occur. End-of-system river flows would be significantly improved, but in some regions those flows would still be considered 'poor'. That also means they are contributing very little water into the rest of the Basin – much less than they once did. The Murray Mouth would remain open in 90 per cent of years as distinct to "open nearly all the time" under without-development conditions and 64 per cent of the time under current arrangements.[28] The salt export target is unlikely to be met in all years. Failure to achieve this target is likely to result in salt accumulating in wetlands and on floodplains, which will then make its way into the river system, affecting all users.

This scenario is most likely to just slow the ongoing decline in waterbird numbers, and maintain the current abundance, which has declined by 80 per cent.[29] It will provide some benefits to native fish,[30] numbers of which are around 10 per cent of the original populations that once supported a commercial fishery. It is unlikely to achieve the target of maintaining or restoring 75 per cent of river red gums to good condition.[31]

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[26] Guide to the proposed Basin Plan, page xxviii
[27] Guide to the proposed Basin Plan. See page 93 for example.
[28] Guide to the proposed Basin Plan, page 113
[29] Guide to the proposed Basin Plan, page 114
[30] Guide to the proposed Basin Plan, page 115
[31] Guide to the proposed Basin Plan, page 117

Scenario 2: additional 3,500GL for the environment
This scenario may require environmental trade-offs in different parts of the Basin. If climate change has more severe impacts on flows than anticipated by the Authority, there will definitely need to be trade-offs. In comparison to the first scenario, where end-of-system flows would not even achieve a 'moderate' rating in some rivers, this scenario is likely to go close to achieving the target of 75 per cent of river red gums being in good condition.[32] Flows through the Murray Mouth would increase by 45 per cent on current flows and from 41 per cent to 59 per cent of 'without development' flows and the mouth would be open in 91 per cent of years.[33] The salt export targets are unlikely to be met in all years.

Scenario 3: additional 4,000GL for the environment
This scenario is expected to achieve all the environmental water targets that the MDB Authority have identified. Only a few rivers would retain a 'poor' end-of-system flow rating. This scenario is more likely to result in a steady increase in waterbird numbers and will provide benefits to native fish[34]. It would increase average flows through the Murray Mouth from 41 to 62 per cent of pre-development flows and it would be open in 92 per cent of years.[35] A Murray Mouth that is open more frequently would greatly improve the transportation of salt and nutrients from the Basin, as well as help avoid hypersaline conditions in the Coorong and Lower Lakes, though the salt export target is unlikely to be met in all years. Of the scenarios considered, this scenario has the greatest capacity to deal with the threat of climate change.[36]

Other scenarios: 4,500 – 7,600GL for the environment
The Guide to the proposed Basin Plan indicates that an additional 7,600 GL of water would restore ecological health to all the catchments in the Basin. To date however the Authority has not provided any information on what can be achieved under these scenarios, stating that such reductions "*have been judged to be beyond the range of acceptable reductions*"[37] and "*would not enable it to meet its obligations under the Water Act 2007 (Cwth) to optimise environmental, social and economic outcomes*"[38] and that "*the escalating social and economic effects are likely to outweigh the additional environmental benefits*".[39]

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[32] Guide to the proposed Basin Plan, page 118
[33] Guide to the proposed Basin Plan, page 128
[34] Guide to the proposed Basin Plan, pages 114-115
[35] Guide to the proposed Basin Plan, page 113
[36] Guide to the proposed Basin Plan, page 118
[37] Guide to the proposed Basin Plan, page 82
[38] Guide to the proposed Basin Plan, page 87
[39] Guide to the proposed Basin Plan, page 110

Response to the 3,000 – 4,000 GL / year scenarios offered by the Guide:

The Murray-Darling Basin requires a scientifically rigorous and environmentally sound Basin Plan that will properly address over-extraction of water and provide a high degree of certainty around returning important wetland and river assets to health. We are advised that the MDBA's decision to only look at the lower range of environmental water because the higher range would have too high social and economic impacts is not supported by the Act.[40] Returning amounts of water within the lower range would be insufficient to fulfil Australia's Ramsar convention obligations and would fail to maintain the ecological character of internationally sufficient wetlands.[41]

If the Authority was confident the 3000-4000 GL range would meet the environmental requirements of the Act, then the Authority would be free to do this in order to optimise social and economic and environmental factors. However the Guide itself states that the lower range will leave five regions in poor condition. Even that outcome is greatly dependent on a return to wetter climatic conditions, a situation the CSIRO has said is unlikely.[42] Therefore it appears that the 3000-4000GL range will not meet the environmental requirements of the Act and therefore cannot be preferred based on social and economic grounds.

The tables below shows the end of system flow outcomes from each catchment under current diversion limits, all three scenarios put forward by the MDBA and an additional scenario which provides an additional 7,600 GL of water for the environment.[43] This highlights how many catchments do not acquire 'good' environmental flow condition under the scenarios, and how many catchments would remain in much less than 'good' condition even with the 4,000GL scenario.

Recommendation 2: Model scenarios across the full range of options and properly understand the costs and benefits of change

The Committee should advise the Government and the MDBA to publish information, data and modelling on the direct and indirect short, medium and long term environmental benefits of returning between 4,000 GL and 7,600 GL per annum. The costs and the benefits, direct and indirect, should be established and published for public discussion between now and the release of the proposed Basin Plan. It is important that the Australian public is made aware of what can be achieved and what the MDBA is currently suggesting can be sacrificed.

As part of establishing the base case scenario, the Authority should also model the costs and implications of a 'business as usual' scenario, ie trying to continue to extract water at current levels.

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[40] Nicola Rivers, Principal Solicitor Environment Defenders Office, Vic.

[41] Pittock, J. & Finlayson, C. M. *Freshwater ecosystem conservation in the Basin: principles versus policy*. Paper in preparation Nov 2010.

[42] http://www.csiro.au/resources/WaterAvailabilityInMurray-DarlingMDBSY.html

[43] Compiled by Emma Hollows, Inland Rivers Network, from Figures 6.6 page 68 and 8.3 page 112 of the Guide to the proposed Basin Plan

The terms of reference for such modelling should:

- Identify 'business as usual' impacts on river health, irrigation, tourism, grazing, fishing and other regional industries from current water management arrangements, climate variability and projected climate change (over the short, medium and long term);

- Identify the social, economic and environmental costs and benefits of implementing a Murray-Darling Basin Plan that meets the objects of the Water Act (over the short, medium and long term);

- Investigate options to mitigate social and economic impacts from achieving additional flows of between 3000 and 7600 GL a year;

- Advise on how delivering additional flows in the range of 3000 – 7600 GL a year, combined with changed water management arrangements, could serve to improve environmental, economic and social outcomes; and

- Work with communities in the Basin to determine how such SDLs could be achieved.

Recommendation 3: Valuing healthy ecosystems

As part of the modelling across the full range of water recovery options, Government and the MDBA should expand its understanding of the social and economic benefits of healthy rivers and wetlands, ie of making sure the natural resource base that underpins all our agricultural activities, including irrigation, continues to function into the future.

ACF analysis shows that ecosystem services - including water filtration, water storage, and habitat for species that provide free but valuable services such as pollination or insect and pest predation, provided by the 16 internationally significant wetlands in the Basin - are worth around $2.1 billion dollars of economic benefit, every year, to the surrounding region.[44] A report prepared for the MDBA but released after the Guide shows that improving the health of the Coorong wetland from 'poor' to 'good' would generate an additional $4.3 billion per year.[45] Information of this nature has been conspicuous by its absence in the debate so far. We urge the Committee to recommend the Authority address this omission in the Proposed Basin plan and in the intervening period to ensure it becomes a legitimate part of the discussion not an esoteric and unquantified concept.

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[44] http://www.acfonline.org.au/uploads/res/Basin_Plan_economic_analysis_20-10-10.pdf

[45] http://www.mdba.gov.au/files/bp-kid/1282-MDBA-NMV-Report-Morrison-and-Hatton-MacDonald-20Sep2010.pdf

Environmental flow outcomes under Basin Plan Guide Scenarios

NEW SOUTH WALES

New South Wales Murray-Darling Basin Catchment	Current diversion limits		SCENARIO 1 Additional 3,000GL/y for the environment		SCENARIO 2 Additional 3,500GL/y for the environment		SCENARIO 3 Additional 4,000GL/y for the environment		SCENARIO with an additional 7,600GL/y for the environment	
	End of system flow	Condition	End of system flow	Condition	End of system flow	Condition	End of system flow	Condition	End of system flow	Condition
Paroo	100%	Good	100%	Good	100%	Good	100%	Good	100%	Good
Warrego	84%	Good	84%	Good	84%	Good	84%	Good	84%	Good
Condamine-Balonne	42%	Poor (-)	56%	Poor (+)	58%	Poor (+)	61%	Moderate (-)	80%	Good
Border Rivers	64%	Moderate (-)	71%	Moderate (+)	72%	Moderate (+)	73%	Moderate (+)	80%	Good
Gwydir	40%	Poor (-)	51%	Poor (+)	53%	Poor (+)	55%	Poor (+)	80%	Good
Namoi	79%	Moderate (+)	84%	Good	85%	Good	86%	Good	90%	Good
Macquarie-Castlereagh	76%	Moderate (+)	82%	Good	83%	Good	84%	Good	88%	Good
Barwon-Darling	53%	Poor (+)	60%	Moderate (-)	61%	Moderate (-)	62%	Moderate (-)	80%	Good
Lower Darling	43%	Poor (-)	53%	Poor (+)	54%	Poor (+)	55%	Poor (+)	80%	Good
Lachlan	61%	Moderate (-)	71%	Moderate (+)	73%	Moderate (+)	74%	Moderate (+)	83%	Good
Murrumbidgee	56%	Poor (+)	75%	Moderate (+)	78%	Moderate (+)	82%	Good	100%	Good
Murray	41%	Poor (-)	56%	Poor (+)	59%	Poor (+)	62%	Moderate (-)	81%	Good

Queensland

Queensland Murray-Darling Basin Catchment	Current diversion limits		SCENARIO 1 Additional 3,000GL/y for the environment		SCENARIO 2 Additional 3,500GL/y for the environment		SCENARIO 3 Additional 4,000GL/y for the environment		SCENARIO with an additional 7,600GL/y for the environment	
	End of system flow	Condition	End of system flow	Condition	End of system flow	Condition	End of system flow	Condition	End of system flow	Condition
Paroo	100%	Good	100%	Good	100%	Good	100%	Good	100%	Good
Warrego	84%	Good	84%	Good	84%	Good	84%	Good	84%	Good
Condamine-Balonne	42%	Poor (-)	56%	Poor (+)	58%	Poor (+)	61%	Moderate (-)	80%	Good
Moonie	74%	Moderate (+)	82%	Good	82%	Good	83%	Good	90%	Good
Border Rivers	64%	Moderate (-)	71%	Moderate (+)	72%	Moderate (+)	73%	Moderate (+)	80%	Good

Victoria

Victorian Murray-Darling Basin Catchment	Current diversion limits		SCENARIO 1 Additional 3,000GL/y for the environment		SCENARIO 2 Additional 3,500GL/y for the environment		SCENARIO 3 Additional 4,000GL/y for the environment		SCENARIO with an additional 7,600GL/y for the environment	
	End of system flow	Condition	End of system flow	Condition	End of system flow	Condition	End of system flow	Condition	End of system flow	Condition
Murray	41%	Poor (-)	56%	Poor (+)	59%	Poor (+)	62%	Moderate (-)	81%	Good
Ovens	99%	Good	99%	Good	99%	Good	99%	Good	100%	Good
Goulburn-Broken	49%	Poor (-)	62%	Moderate (-)	64%	Moderate (-)	66%	Moderate (-)	80%	Good
Campaspe	54%	Poor (+)	69%	Moderate (-)	71%	Moderate (+)	73%	Moderate (+)	88%	Good
Loddon	42%	Poor (-)	58%	Poor (+)	58%	Poor (+)	60%	Moderate (-)	81%	Good
Wimmera-Avoca	43%	Poor (-)	74%	Moderate (+)	74%	Moderate (+)	74%	Moderate (+)	80%	Good

South Australia

Victorian Murray-Darling Basin Catchment	Current diversion limits		SCENARIO 1 Additional 3,000GL/y for the environment		SCENARIO 2 Additional 3,500GL/y for the environment		SCENARIO 3 Additional 4,000GL/y for the environment		SCENARIO with an additional 7,600GL/y for the environment	
	End of system flow	Condition	End of system flow	Condition	End of system flow	Condition	End of system flow	Condition	End of system flow	Condition
Murray	41%	Poor (-)	56%	Poor (+)	59%	Poor (+)	62%	Moderate (-)	81%	Good
Ovens	99%	Good	99%	Good	99%	Good	99%	Good	100%	Good
Goulburn-Broken	49%	Poor (-)	62%	Moderate (-)	64%	Moderate (-)	66%	Moderate (-)	80%	Good
Campaspe	54%	Poor (+)	69%	Moderate (-)	71%	Moderate (+)	73%	Moderate (+)	88%	Good
Loddon	42%	Poor (-)	58%	Poor (+)	58%	Poor (+)	60%	Moderate (-)	81%	Good
Wimmera-Avoca	43%	Poor (-)	74%	Moderate (+)	74%	Moderate (+)	74%	Moderate (+)	80%	Good

Climate change and the Guide

The proposed scenarios and modelling done by the MDBA assume a return to average long term climatic conditions combined with 'best estimates' of climate change impacts at 2030,[46] ie, that we will have a reasonably wet future climate. This is not an adequate approach to incorporating climate change into scenario planning. In a recent statement, more than 50 of Australia's leading river scientists have warned that the Guide did not make sufficient allowances for the likely impacts of climate change.[47]

The relationship and connectivity between groundwater and surface water has not been adequately addressed in the Guide. The Guide also fails to take into account how various climate change scenarios will affect water availability.

Climate change impacts have been left out of the Groundwater SDL development, with the Guide detailing that "*no allowance for groundwater is provided for in the proposals*".[48] This suggests the close connectivity between groundwater and surface water in some catchments has been ignored in the Guide.

Recommendation 4: Dealing with climate change
We urge the Committee to advise the MDBA to revisit the way it has sought to approach the certainties and uncertainties of climate change in scenario planning. At the very least the Authority should have its approach peer-reviewed and have the assessments made available for evaluation by third parties.

Achieving sustainable diversion limits and expressing progress towards them

There are significant opportunities in the Basin to use water more efficiently and effectively. Some of these methods, along with the purchase of water from willing sellers, are already delivering water entitlements to environmental managers and making progress to achieving SDLs. A conservative projection of how much water the Federal Government's 'Water for the Future' program is likely to recover by 2014 is an annual average 2,000 GL of water,[49] approximately 1,300-1,400 GL from the $3.1 bn 'water buyback program' and approximately 600 GL from the $5.8 bn 'infrastructure program'.

This is two-thirds of the amount required from across the Basin to achieve the lower scenario put forward in the Guide and half of the upper scenario. The Federal Government has made a further, funded commitment to buying water from willing sellers to bridge the gap between the final SDLs and current diversion limits for

[46] Guide to the proposed Basin Plan page 114
[47] www.wetrivers.unsw.edu.au/2010/11/basin-plan-support/
[48] Guide to the proposed Basin Plan at [xxvi].
[49] Guide to the proposed Basin plan page xxix

surface water[50] and allocated $310 million per year from 2014 until the gap is bridged.[51]

Comments about irrigation companies and irrigators having their water entitlements "cut" are incorrect – the Government's policy is to buy back water entitlements from willing sellers or to make infrastructure or efficiency improvements to update the water delivery systems and save water. State governments have also made significant commitments to environmental water recovery through buying water or efficiency investments or creating new entitlements for water allocated to the environment through operational changes.

Current progress on the Federal Government's 'Water for the Future' program has delivered 920 GL of water entitlements (equivalent to 642 GL of flows on average annually).[52] The First Step of the Living Murray is also close to delivering the annual average 500 GL water for the Murray through a range of projects. In combination with a range of other projects that are planned or part-way to completion (such as the Menindee Lakes proposal, the NVIRP Food Bowl Modernisation Project, Water for Rivers and other state based water recovery programs) much of the required water reallocation to the environment has already occurred.

Publicly available figures in Victoria also show that the combination of buybacks, infrastructure and other investments from state and Federal governments, and other bodies has substantially bridged the gap[53].

The MDBA reports that up to 80% of the water reductions have already been achieved in some river valleys.[54] Reports from the NSW Government show the lower bound scenario has already been fully met in, for example, the Lachlan.[55] The Authority should clearly articulated these achievements and should express the reductions required to achieve SDLs as net figures rather than gross figures.

A broad cross-section of the community supports buy back from willing sellers. Irrigators can choose whether or not they sell all or a part of their water entitlement. They can use the money to retire debt, invest in improved irrigation infrastructure, change from irrigated agriculture to another form of production or they can leave the land if that is what they want to do. Water purchases enable businesses and corporations to make business decisions when they decide to sell their water asset on the market.

Recommendation 5: Achieving SDLs and progress towards achieving them
The substantial amount of money available, ongoing programs to achieve SDLs and progress already made in recovering water for the environment requires

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[50] ALP Campaign Media Release 10 August 2010. 'Buying back the water our rivers need'.
[51] http://www.budget.gov.au/2010-11/content/myefo/html/appendix_c-03.htm Pg 314.
[52] http://www.environment.gov.au/water/policy-programs/entitlement-purchasing/2008-09.html
[53] See the Environment Victoria submission to the MDBA (in prep). Nov 2010.
[54] Guide to the proposed Basin Plan, page xxix
[55] Derek Rutherford, pers comms.

demonstration and emphasis to rural and regional communities concerned about the size of the 'gap' and how it is to be bridged. In particular the Authority should emphasise the fact that compulsory acquisition and non-compensated acquisition are not contemplated.

Gaps between the current diversion limits and SDLs should be presented as net figures rather than gross figures and include figures for water already acquired and water with a reasonable likelihood of recovery also being included from the states as well as from the Commonwealth.

To achieve the best environmental outcomes the ongoing water recovery process under the Federal Government's 'Water for the Future' program should be closely aligned with priority areas identified in the Guide to the Basin Plan, ie, the valleys targeted by the Commonwealth Environmental Water Holder should be the ones identified in the Guide to the proposed Basin Plan as being those where water diversions will need to be significantly reduced.

Adequacy of Information about Key Environmental Assets, Key Environmental Functions and Environmental Watering

There are around 30,000 wetlands in the Basin. The Guide talks about protecting 2442 'key environmental assets', grouped into 18 hydrological indicator sites along with 88 'key environmental functions', expressed as flow regimes at conveniently located gauging stations. But the environmental watering plan for these assets has yet to be properly divulged. In the absence of detailed modelling and a publicly available peer-review of the process and its proposed outcomes, ACF lacks confidence this approach will be effective in watering all the key environmental assets in the Basin.

We are particularly concerned about the protection of the internationally significant Ramsar wetland sites in the Basin. There are 16 Ramsar listed wetlands in the Basin, many of which are currently stressed due to over-extraction and poor river management. Experts advise that the proposed SDLs scenarios (3,000GL, 3,500GL, 4,000GL) in the Guide will not secure the ecological character of these wetlands into the future, especially when climate change predictions are taken into consideration.[56]

Part of the purpose of the Basin Plan is to give effect to international conventions such as the Ramsar Convention, yet the Guide does not prioritise restoring health to these Ramsar sites and their associated dependent species. This should be addressed by the Authority before the release of the Proposed Basin Plan.

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[56] Jamie Pittock, Max Finlayson, Alex Gardner & Clare McKay (2010) *Changing Character: The Ramsar Convention on Wetlands and climate change in the Murray-Darling Basin Australia,* Volume 27 Part 6 Environmental & Planning Law Journal.

More detail is required to show how the environmental watering requirements will be met by the proposed SDLs and how the Basin Plan will provide for non-hydrologically connected wetlands such as Fivebough and Tuckerbill, a Ramsar listed site.

Both the Environmental Watering Plan and the Water Quality and Salinity Management Plan ought to be published in better detail to allow detailed analysis and assessment of their efficacy.

Also, the Guide does not cover interception of groundwater and surface water by mining operations, only interception from farm dams and forestry operations. This is an omission that should be corrected.

If water theft and unauthorised or unregulated floodplain harvesting and interception activities were regulated and reduced, they could achieve around 20 per cent of the reductions needed[57]. Government reluctance to manage these issues needs to be overcome so that the necessary reductions are not borne solely by those with river licences.

The MDBA should review river operations and the delivery of planned environmental water to identify opportunities for better targeted delivery of existing environmental water. The Authority should look for ways environmental outcomes could be secured by state water utilities using consumptive water. ACF believes there are significant opportunities to obtain substantial outcomes without impacting upon SDLs if existing, planned environmental water, or state held environmental water was better used.

Recommendation 6: More detailed and integrated understanding of environmental needs and how they are to be met

The Committee should advise the Authority to publish detailed modelling and information that demonstrates clear linkages between the Environmental Watering Plan, and Water Quality and Salinity Management Plan and the SDLs. More work needs to be done on the opportunities and risks that arise from dealing with floodplain harvesting, mining operations, planned environmental water delivery and the linkages between groundwater and surface water require and on how the requirements of non-hydrologically connected wetlands will be met.

Additional matters

In addition to articulating the benefits of returning between 4,500 and 7,600 GL / year of additional water to the environment, ACF strongly encourages the Committee to advise the Authority and Government to look at all non-water dependent opportunities to deliver an ecologically healthy Basin. There are many threats to the ecological integrity of the MDB but over-extraction of water is by far the most

[57] See Guide to the proposed Basin Plan, page xxiii

significant[58] and if it is not adequately dealt with, attempts to address other threats, for example, pests, weeds, cold-water pollution, barriers to fish passage, logging, grazing, etc will be redundant. Changes in water allocation alone, however, will not maximise environmental outcomes. As the Basin Plan and 'Water for Future' programs address over-extraction, other land and water management issues will become increasingly important. There is a large gap in investment and policy response to non-flow related matters which should be addressed by all levels of government and NRM bodies, including the MDBA.

Increasing environmental outcomes per unit environmental water

Scientifically robust SDLs are essential for a long-term solution to over-extraction from the MDB. But there are other, complementary ways to reduce the amount of water needed to achieve particular outcomes. We feel these have been largely overlooked or lack a policy basis or funding source, for example through carry-over provisions or environmental infrastructure. These require attention to optimise the use of environmental water.

In relation to carry-over provisions for held environmental water, for example, environmental water holders are subject to exactly the same rules and privileges as other entitlement holders. While we agree with the general premise that all entitlement holders should be treated equally, we would caution against a strict application of this rule as it could create barriers to creative ways of providing for the environment whilst minimising third party impacts. For example, Drew and Scoccimaro[59] showed that compared to a situation without carry-over, the ability to carry-over water up to a limit of 4.5-times the volume of entitlement held, reduced by 70 per cent, the amount of water needed to meet environmental demands 80 per cent of the time. Preferential carry-over provisions for environmental water need not impact on the security of irrigation water if such arrangements are contingent on appropriate rules being set. Indeed this may benefit allocations for all entitlement holders by increasing the volume in storage when carried over and therefore reducing the proportional loss by evaporation.

There are also case-by-case opportunities to employ environmental infrastructure such as regulators or pumps to reduce the volume of water required to achieve particular outcomes.

While there is no substitute for large-scale, natural, over-bank flooding, but ACF believes there is a role for limited use of additional infrastructure which will secure environmental outcomes.

A prosperous future for rural and regional communities

Over-extraction of water is a consequence of poor decision making by governments. Rural and regional communities need support to adjust to the reduced availability of

[58] http://www.thelivingmurray.mdbc.gov.au/__data/page/1482/ERPreport1.pdf Viewed 11.02.10

[59] Collins and Scoccimaro (2006). Natural resource buybacks and their use to secure environmental flows. Land and Water Australia, Canberra, August.

water and the Basin Plan should be accompanied by a 'whole of government' response to target investment into communities and facilitate their transition to sustainable economies. This should include investment in complementary land management, payments for ecosystem services, stewardship payments, a functioning green carbon market and new jobs such as those offered by a transition to a clean, efficient energy sector which would be especially beneficial to rural and regional areas[60]. This would augment the benefits of water reform across the Basin and provide additional income streams for affected communities, with benefits for the nation.

It is not in the long-term interests of rural and regional communities, or irrigation industries, to delay the process of change any longer. The alternative to 'sustainable diversion limits' is the continuation of 'unsustainable diversion limits' and that will not support any recognised values of the Murray-Darling Basin into the future.

Recommendation 7: Support management and investment that complements water recovery and delivers sustainable communities

The Committee should advise all Murray-Darling Basin governments to commit to augmenting the current reform processes with a Basin-wide raft of complementary management measures that will augment and optimise environmental flow benefits, promote ecological and community resilience in the light of climate change and protect high conservation value freshwater areas.[61] These should include environmental works and measures and operational changes, for example carry over provisions for environmental water that would optimise the use of environmental water, as well as payments for ecosystem services, stewardship payments, a functioning green carbon market and new jobs such as those offered by a transition to a clean, efficient energy sector which would be especially beneficial to rural and regional areas.[62] Rural and regional communities need support to adjust to the reduced availability of water and the Basin Plan should be accompanied by a 'whole of government' response which will target investment into communities and facilitate their transition to sustainable economies. ACF urges the Committee to advise the Government and the Authority to clearly articulate the need for measures above and beyond the Water Act and Basin Plan at this important time.

For more information, please contact ACF Healthy Rivers Campaigner:

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[60] ACF & ACTU 2010 'Creating Jobs – Cutting Pollution The roadmap for a cleaner, stronger economy. http://www.acfonline.org.au/uploads/res/ACF_Jobs_report_190510.pdf Viewed 18.05.10

[61] Beyond the Basin Plan: ACF (2010). In preparation.

[62] ACF & ACTU 2010 'Creating Jobs – Cutting Pollution The roadmap for a cleaner, stronger economy. http://www.acfonline.org.au/uploads/res/ACF_Jobs_report_190510.pdf Viewed 18.05.10