



SOUTH AUSTRALIAN GOVERNMENT RESPONSE

to the Draft
Murray-Darling Basin
Plan

16 April 2012



**Government
of South Australia**

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EXECUTIVE SUMMARY

A national icon

The River Murray is the nation's most iconic river and supports estuarine, floodplain and wetland environments of national and international significance. Across the Murray-Darling Basin, there are about 30,000 wetlands with sixteen listed under the Convention on Wetlands of International Importance (the Ramsar Convention). The Basin supports significant agriculture, tourism and other productive industries and is home to more than two million people.

The Murray-Darling system is one of the largest in the world but it carries by far the smallest volume of water of any major river system in the world. It is therefore particularly vulnerable to any degree of change whether by natural causes or consumptive use.

The health of the Murray-Darling Basin's river systems is in decline. River regulation and over-allocation of water have drastically reduced river flows. Under natural conditions, the median flow to the sea at the Murray Mouth was 11,880 gigalitres (GL) per annum – by 1994, it was only 21% of this. The warning signs were there. Reforms before the *Water Act 2007* (Cth) (Water Act) have only dealt with immediate problems. It is vital that we now address the root cause of the Basin's declining health – unsustainable water use.

The significance to South Australia

The River Murray is essential to the economic, social, cultural and environmental wellbeing of South Australians. We rely on a healthy river to protect our Ramsar-listed Riverland-Chowilla floodplain and the wetlands of the Coorong, Lower Lakes, and Murray Mouth. Our irrigators and primary producers rely on a healthy river so they can supply Australians with high-quality food, wine and fibre. Metropolitan Adelaide and country towns rely on the river to supply water for human needs. Traditional owners and river communities rely on the river as the centrepiece of their cultural and social activity.

South Australia has always been a responsible custodian of the river

South Australia only diverts about 7% of the water extracted from the Basin and most of the water that flows into South Australia remains in the river to benefit the environment.

South Australia was the first State to voluntarily put a cap on entitlements in 1969.

South Australian irrigators are some of the most efficient in the nation. We have reduced water losses by installing fully piped pressurised systems, and our irrigators have invested heavily over the years in efficient irrigation practices.

We were the first state to meet our water recovery target under the Living Murray Initiative.

A river system brought to the brink of collapse

While South Australia managed diversions within its cap, other states continued to allow more water to be taken out of an already struggling Basin.

Decades of over-allocation were exacerbated by the recent drought and combined to devastate South Australian communities and river environment.

The Ramsar-listed Coorong, Lower Lakes and Murray Mouth was on the verge of ecological collapse with up to 20,000 hectares of acid sulfate soils exposed, and parts of the Coorong five times saltier than the sea.

Despite having high-security water, irrigator allocations started at only 2%.

The water supply of Adelaide and country towns was threatened and prompted the need for expensive infrastructure. South Australians made many sacrifices to reduce water consumption and help the river survive.

Unless we get the Basin Plan right, this could be the experience of the whole Basin in the future.

South Australian Government analysis of the draft Basin Plan

The South Australian Government has carefully scrutinised the draft Basin Plan.

We have:

- undertaken substantial scientific and policy analysis, including an independent review of the South Australian government scientific analysis by an expert panel of scientists convened by the Goyder Institute for Water Research;
- assessed the Basin Plan against the requirements of the Water Act;
- considered the implications of the Basin Plan for our environment, irrigators, critical human water needs, river communities and traditional owners; and
- consulted extensively across South Australia.

Our analysis has shown that the draft Basin Plan fails to deliver essential outcomes for South Australian environments and communities and does not meet the requirements of the Water Act.

In particular:

The draft Basin Plan fails to protect our environment. Many of the South Australian and Murray-Darling Basin Authority's own environmental water requirements are not met by the proposed water recovery target of 2750 GL. With this amount of water, South Australia's River Murray environment will continue to suffer, with:

- salt accumulating in the lower reaches during dry periods because there won't be sufficient flows to flush it out to sea through the Murray Mouth;
- continued accumulation of salinity in our floodplains degrading our natural environment and causing loss of habitat;
- the potential for extreme low water levels and salinity in the Lower Lakes and Coorong in drought conditions, affecting habitats for native fish and migratory water birds; and
- little or no extra water to the River Murray's middle and high elevation floodplains, with severe consequences for our Black Box and River Red Gum forests.

By failing to restore and protect our environment, the draft Basin Plan does not meet its central purpose under the Water Act, and compromises our international and moral obligations to protect our unique and irreplaceable wetlands for the future.

The draft Basin Plan has not used the best available science. It fails to adequately take into account key factors affecting water availability and environmental watering, such as climate change risks, the uncertainty over groundwater and surface water interactions, and how the removal of physical, operational and policy constraints would improve the delivery of environmental water.

The draft Basin Plan does not recognise South Australia's history of responsible water stewardship. South Australia has consistently shown leadership in efficiently and sustainably managing the River, and we should not be penalised for our previous responsible water management.

The draft Basin Plan does not acknowledge that South Australian irrigators are some of the most efficient in the nation. Our strong history of efficient water use does not allow for the easy wins seen in other states yet South Australian irrigators are exposed to further water recovery.

The draft Basin Plan does not recognise that the river system has not recovered from the effects of the recent drought. Its profound effects are still being felt in the lower reaches of the Murray, with salt levels in Lake Albert remaining unacceptably high and ongoing water quality issues below Lock 1.

Our recommendations

Based on our consultations and our scientific analysis, we have made 71 recommendations to the Murray-Darling Basin Authority, listed at Appendix 1. Key recommendations include:

The MDBA must adopt an environmental water recovery target greater than 2750 GL that delivers on essential environmental outcomes. Our scientific analysis shows that 2750 GL is not enough to meet the environmental water requirements of the Ramsar-listed Riverland-Chowilla floodplain and Coorong, Lower Lakes and Murray Mouth.

The MDBA must deliver a Basin Plan which will meet key salinity and water level outcomes to protect our environment and our regional and metropolitan communities. This includes delivering the following outcomes:

- exporting salt loads of two million tonnes per year over a rolling three year average;
- keeping the Murray Mouth open without the need for dredging in at least 95% of years, with flows through the barrages out to sea every year;
- maintaining average daily water levels in the Lower Lakes above 0.4 metres average height datum (AHD) for 95% of the time and above 0.0 metres AHD at all times;
- maintaining average daily salinity levels in the Coorong (South Lagoon) below lethal thresholds for key species; and
- maintaining average daily salinity levels in Lake Alexandrina below 600mg/L (1000 EC) for 95% of the time and below 900mg/L (1500 EC) for 100% of the time to avoid ecological degradation.

The MDBA must model other water recovery scenarios using the best available science with constraints removed or relaxed. Additional modelling of water scenarios including 3200 GL, 3500 GL and 4000 GL is required to ensure that the figure eventually adopted by the MDBA delivers the key environmental water requirements for the Ramsar-listed Riverland-Chowilla floodplain and Coorong, Lower Lakes and Murray Mouth.

Our analysis shows that environmental outcomes for some sites are improved under a 3200 GL water recovery target but the information available is insufficient to fully determine the outcomes that would result.

Decisions about the additional water needed for the environment must be based on the best available science. This includes modelling with key physical, operational and policy constraints that impede the delivery of environmental water removed. It also includes taking into consideration climate change risks and the impacts of groundwater extraction.

Physical, operating and policy constraints impeding the delivery of environmental water must be addressed. The MDBA must as a priority identify and address these constraints and the Commonwealth Government must commit to investment of funds to address key constraints as an important step to improving environmental water delivery.

Complementary actions are needed to restore drought affected environments to health. Water delivery and a minimum allocation for the Coorong, Lower Lakes and Murray Mouth must be a priority, along with interim measures, including environmental watering, to restore key drought affected environments to baseline health.

South Australia's past responsible management and water use efficiency must be recognised. There must be no forced reductions in water entitlements and the Basin Plan needs to recognise South Australia's history of responsible water management. Any water recovered from South Australia should be achieved through strategic buy-back and investment in water saving infrastructure agreed to by the South Australian Government and relevant industry organisations.

The MDBA must consult more closely with Indigenous organisations to better understand cultural needs, and give consideration to recognising cultural needs across the Basin. Traditional owners rely on the health of the river system to maintain cultural heritage sites and for their cultural economy. This must be better recognised in the Basin Plan.

It is imperative that the Basin Plan delivers what the environment needs, as it will be the River Murray and future generations that will suffer the consequences of not getting this right.

We will continue to pursue a healthy River

South Australia has long recognised the importance of a healthy river, managed as an entire system.

Successive South Australian governments have sought and supported reform of water management in the Murray-Darling Basin. We've demonstrated this through our support for the introduction of the Water Act which led to the establishment of the independent Murray-Darling Basin Authority and the creation of a Basin Plan.

It is now time to see these reforms come to fruition. We need an effective and viable Basin Plan that meets the environmental needs of the river so that Basin communities have a sustainable and prosperous future.

South Australia has long pursued its rights in relation to Basin resources. We have worked actively to protect our river environment. We have struggled for the guaranteed supply of water for critical human needs. We have argued for a minimum entitlement of water resources and we've achieved upstream storage rights.

In addition to the amendments we seek to the Basin Plan, we will continue to pursue:

- compensation for the measures we have taken to protect our water supplies and water users from the damaging effects of upstream over-allocation;
- secure storage rights for South Australian water;
- recognition of our critical human needs water;
- an equitable distribution of Murray-Darling Basin resources;
- targeted social and economic support for vulnerable River Murray communities in South Australia to increase their economic diversity and help them make the transition to a future with a less certain water supply

We maintain that the rights of South Australians will only be met by delivery of a healthy river system and will continue to pursue our rights if the Basin Plan does not meet these requirements.

1. INTRODUCTION

For too long the infrastructure and management of the Murray-Darling Basin has focused on securing social and economic outcomes at the cost of the environment. Basin rivers have been highly modified or 'regulated' to supply drinking water, allow river navigation, and support agriculture. When early water sharing agreements, such as the River Murray Waters Agreement 1915 were made, development and navigation for trade and transport were a primary consideration. Environmental considerations of the kind now addressed in international treaties upon which the *Water Act 2007* (Cth) (Water Act) depends were not yet recognised. In setting up a Plan that secures a healthy future for the Basin, these considerations are now critical.

The Murray-Darling Basin system is one of the largest in the world but it carries by far the smallest volume of water of any major river system in the world. It is therefore particularly vulnerable to any degree of change whether by natural causes or consumptive use.

River regulation and over-allocation of water have drastically reduced river flows. For example, under natural conditions, the median flow to the sea at the Murray Mouth was 11,880 giganlitres (GL) per annum. By 1994, this level had declined to 21 % of the flow that occurred under natural conditions (South Australian Select Committee on the Murray River, 2001). River flows are essential to maintaining and improving the condition of ecological systems and influence water quality, support productive use and allow our water dependent ecosystems to withstand extreme events such as drought.

The Murray-Darling Basin's river systems are in a parlous state of health. Scientists have told us this since the early 1980s. It was the decline in health of water resources across the Murray-Darling Basin that contributed to the establishment of the Murray-Darling Basin Commission in 1987 and the Murray-Darling Basin Initiative in 1992. Following an audit of water use in the Basin, initial steps were taken to limit diversions in 1995 with the Basin-wide cap on diversions fully implemented in 1997.

Numerous studies and scientific reports have highlighted the serious decline in the health of the Murray-Darling Basin's river systems caused largely by the over-extraction of water and river regulation. Internationally recognised environment assets such the Coorong, Lower Lakes and Murray Mouth have suffered significant ecological damage.

By 2002, the Murray Mouth was at high risk of closure due to many years of low river flows. Dredging was required as a last resort to keep the Mouth open and protect the Coorong estuary. Dredging continued to be necessary for eight years at a cost of more than \$40 million.

In 2003 in response to further evidence showing the perilous health of the River Murray system, the Living Murray Initiative was established to recover an average of 500 GL per year as the 'first step' towards restoring the ecological health of six key icon sites.

All of these measures were required by a system desperately out of balance and getting progressively worse. While initiatives have sought to address immediate issues of decline, there has never been a solution that secures the long-term health of the Basin system, particularly in the face of increasing consumptive needs and climatic variation. History has

shown that wetting and drying cycles including future drought are a guaranteed part of the Basin's future.

The development of the Basin Plan offers a once-in-a-generation opportunity to re-balance the system, address over-allocation and prioritise the health of the river for the future, for the benefit of all Australians. This opportunity must not be squandered. The principal aim of the Basin Plan must be to ensure a long term environmentally sustainable future for the Murray-Darling Basin. It is clearly in the interest of all users of the Basin river systems that this is achieved. Severely degraded river systems will ultimately serve no-one.

1.1 The South Australian context

No State relies on the River Murray more than South Australia – it has shaped the State's landscape, people, way of life, and the State's future depends on it.

The length of the River Murray from the South Australian border to its mouth near Goolwa is 640 kilometres. The river system includes around 800 wetland complexes, two of which – the Riverland-Chowilla floodplain and the Coorong, Lower Lakes and Murray Mouth – are of international environmental significance and recognised in a number of international conventions. The Coorong, Lower Lakes and Murray Mouth, the Chowilla Floodplain and the River Murray Channel are also Murray-Darling Basin 'Living Murray Icon Sites'.

Lakes Alexandrina and Albert (referred to as the Lower Lakes) are vitally important for biodiversity and ecosystem services, agriculture, fisheries, water supply, Aboriginal cultural health, recreation and tourism. They are also the main source of freshwater, nutrients and organic material for the ecosystems of the Murray Mouth and Coorong. The Murray Mouth is the exit point for salt accumulated along the entire Murray-Darling system. The long-term health of the entire Basin relies on an effective and functioning Lower Lakes, Coorong and Murray Mouth.

The River Murray is South Australia's largest reliable surface water resource and is essential to the economic, social, cultural and environmental wellbeing of the State. Despite this, South Australia only diverts around 7% of the Basin's extracted surface water resources.

Water sharing in the River Murray is governed by the *Murray-Darling Basin Agreement 2008*. The fundamental principles are that New South Wales and Victoria must contribute equally to the supply of South Australia's minimum entitlement flow of 1850 GL per annum from the water available to them. Subject to this requirement, New South Wales and Victoria share between them all other water in the system, with all inflows upstream of Doctors Point (near Albury) and to the Menindee Lakes are shared equally between New South Wales and Victoria, and all other tributary inflows attributed to either New South Wales or Victoria.

From our minimum entitlement of 1850 GL, most remains in the river to help meet basic environmental, system loss and salinity dilution requirements. Since the implementation of the Basin-wide cap on diversions, an average of 604 GL per year has been taken from the river in South Australia for irrigation, drinking water and other uses.

The River Murray is absolutely essential to supply water for Adelaide and many regional centres such as the Mid North (including large industrial users), the Barossa Valley, the Yorke Peninsula, parts of the Eyre Peninsula and a number of river towns.

Up to 90% of Adelaide's water comes from the River Murray in drought years, compared with around 40% in average rainfall and inflow years. South Australia is almost entirely reliant upon flows across the border from New South Wales and Victoria, as local sources of water contributing to the River's flow within South Australia are negligible.

A healthy river system is vital to the future viability of the communities and industries that use and value this important resource. Irrigated agriculture and horticulture along the length of the river in South Australia have contributed significantly to national, State and regional economies since the late 19th century.

The River Murray is a cultural centrepiece for many South Australians who utilise the area for tourism and recreation activities such as bushwalking, camping, boating, fishing and bird watching.

The River Murray is of significant cultural, economic, spiritual and social value to the Ngarrindjeri people and the First Peoples of the River Murray and Mallee. To these communities, the River Murray system represents life in a practical and spiritual sense. It is central to culturally significant teachings. The fish, birds and other living things are the totems with which Aboriginal people have a strong spiritual connection and responsibility to protect. Water flows are viewed as essential for the continued breeding and health of totems. Traditional owners also rely on the health of the river system for their cultural economy and water is essential for maintaining cultural heritage sites.

1.2 The effects of the recent drought

South Australia's experience in the recent drought is an example of what other Basin States could face in the future if over-allocation is not addressed. The recent extreme drought brought home to people living in South Australia the absolute imperative for change. The drought, following on from years of water over-allocation and resultant low flows, took parts of the River Murray in South Australia to the brink of collapse. The consequences were extreme.

River flows were among the lowest on record and South Australia's irrigation and river communities below Lock 1 experienced a range of devastating impacts.

The drought caused significant environmental devastation including loss of habitat, species decline, hypersalinity and acidification which placed ecosystems including the Coorong, Lower Lakes and Murray Mouth Ramsar site on the verge of ecological collapse.

Exposed acid sulfate soils generated vast quantities of sulphuric acid and liberated toxic metals into the water column – posing human health and environmental dangers. The chemical state of lake and floodplain soils have greatly altered and still drain acid into the river.

The water supply of Adelaide and country towns was threatened and this prompted the need for expensive infrastructure, including the construction of a desalination plant. In addition, the Government had to take the unprecedented step of entering the water market to secure the State's critical human water needs.

South Australians dramatically reduced their water use. They complied with water restrictions. They invested in water-saving devices. Many watched their gardens die. Every time they turned on their tap, watered their garden, planted native plants, installed a rain-

water tank, or found other ways to save water, they acted with the river's preservation in mind.

Water levels in the Lower Lakes receded hundreds of metres and in some cases kilometres back from banks exposing jetties and river infrastructure. Irrigation pumps could not reach the water, even if the water had been usable or palatable.

Salinity levels exceeded all acceptable standards rendering water unsuitable for stock, domestic or irrigation use and for supporting healthy ecosystems.

Water availability across South Australia reached new lows with starting allocations at only 2% in the 2007-08 and 2008-09 water years.

The entire floodplain below Lock 1 subsided irreversibly as much as 1.0 metre and levee banks sustained damage which may result in future breaches causing water loss and damage to irrigation areas. Riverbank collapse became a significant issue placing lives and property in danger, and leaving an emergency management issue that will need to be addressed for many years to come.

The health of floodplain vegetation has declined significantly and there has been increasing salinisation of the landscape due to the effect of drought on top of years of reduced flow regimes.

Shrinking industries created flow-on impacts to supporting regional businesses and people were forced to exit or modify their business practices. Transport infrastructure, agriculture, tourism, recreation and related industries suffered significantly. Fishing, tourism and leisure industries declined, dairy farms closed and agriculture contracted, reducing employment with flow-on impacts for local businesses. Business and consumer confidence was eroded (MDBA, 2011g). The social impacts of the situation were extreme creating emotional problems for families requiring counselling and other health and support services.

These devastating impacts must never be repeated.

Drought response and recovery measures were costly and ranged widely, from additional monitoring and scientific investigations, to works and measures, to additional community counselling and mental health services. Specific projects included:

- bioremediation in the Lower Lakes to combat acidification;
- purchase of water to address environmental issues including severe acidification, salinity and riverbank deterioration ;
- dredging to keep the Murray Mouth open (from 2002 to 2010);
- operation of a State Drought Response Program to provide drought support such as business grants, counselling services, critical water allocations to keep permanent planting alive and a drought response hotline;
- preparation for a weir at Wellington as a potential last resort to protect drinking water supplies for 1.2 million South Australians; and
- construction of a desalination plant when it became clear that water security could no longer be guaranteed for critical human needs.

Legacies of the drought still remain and include further work related to acidification, riverbank collapse, levee bank cracking, and recovery in the Lower Lakes.

There was significant public and private expenditure associated with the drought. This included \$445 million on Government programs and initiatives, with a further \$1.8 billion on the desalination plant. The private costs were substantial and included the purchase of water, loss of permanent plantings, and lost income.

1.3 An issue of justice

South Australia's position at the end of the River has always left our State vulnerable to the impacts of over-allocation upstream and the accumulated impacts of River degradation and drought. The burden borne by the State has had been significant and every South Australian has paid a portion of the price.

South Australia has incurred a range of extra costs and incurred unfair losses in relation to these matters and while some of these costs, such as those outlined above in relation to the last drought were relatively short-term, other costs have been borne over many years.

Recognition of this burden is a fundamental issue of justice.

Costs incurred by South Australia also extend to investment in irrigation efficiency, and foregone production.

Investment in irrigation efficiency infrastructure was borne by both public and private sectors. This includes costs of on-farm infrastructure upgrades and major infrastructure schemes with significant funding from government.

South Australia adopted a cap on water diversions in 1969. Between then and the introduction of the Basin-wide cap in 1997, Basin-wide diversions increased by around 3500 GL per year (and the increase in annual diversions reached 6500 GL in 1997). By working within our self-imposed cap and respecting the River, South Australians went without the economic opportunities enjoyed by the upstream States arising from their dramatic increase in water diversions.

For justice to be served, these costs and losses must be recognised.

1.4 South Australia's reform legacy

In long standing recognition of the importance of the River Murray system to South Australians, successive State governments have taken a strong and principled approach to achieving reform of the Murray-Darling Basin. South Australians have demonstrated exemplary behaviour in managing the water resources of the River Murray and there are many examples of this ongoing leadership, including:

- early actions to 'cap' water entitlements;
- continuous improvement in irrigation efficiency; and
- leadership and commitment to the Living Murray Initiative, including being the first State to meet its water recovery target.

1.4.1 Capping entitlements and irrigation efficiency

For more than 40 years, South Australia has done the right thing. In response to declining water quality and quantity levels in the 1960s, the South Australian Government set its own cap on entitlements in 1969. This was further reduced by the South Australian Government in 1979 and again in 1991.

In response to an audit of water use in the Murray-Darling Basin which found that diversions were increasing and having an impact on river health, the Murray-Darling Basin Ministerial Council implemented a permanent Cap on all states' diversions from the Basin's rivers in 1997.

While South Australia managed diversions within its self-imposed cap, other States continued to issue new licences. If other jurisdictions had taken the same steps to cap entitlements in 1969 then most of the increase in diversions would have been avoided.

South Australian irrigation water delivery infrastructure has been upgraded over the past 30 years, mostly to fully piped pressurised systems, with a proportion of the water savings being returned to the environment. By way of comparison, losses from existing open channel irrigation systems that still exist in other jurisdictions can be in excess of 50%, while best-practice pressurised piped systems lose less than 10%. On-farm, South Australian irrigators have invested heavily in irrigation efficiency to maximise their water availability in the capped environment.

The Basin Plan, and any Commonwealth Government investment and water recovery strategies, must take into account the measures already adopted by South Australia and must not prejudice South Australian irrigators, dependent regional communities or the environment as a result of these responsible early actions.

1.4.2 The Living Murray Initiative

In 2002, a report prepared by some of Australia's top scientists confirmed that the health of the River Murray system was significantly degraded. This led to the Murray-Darling Basin Ministerial Council establishing the Living Murray Initiative with a vision to return the River Murray to the status of a healthy working river. The 2003 'first step' decision involved recovering an average of 500 GL of water per year for the environment by 2009, for use at six icon sites, to achieve agreed environmental objectives and outcomes. The Murray-Darling Basin Commission, and the New South Wales, Victorian, South Australian, Australian Capital Territory and Commonwealth Governments all agreed to contribute to meeting this target.

South Australia committed to recover 35 GL under this agreement and was the only State successful in meeting its water recovery target by the 30 June 2009 deadline.

1.5 Support for further water reform

Successive South Australian governments have sought and supported strong Commonwealth leadership in the reform of the Murray-Darling Basin. This has been demonstrated through our support for the introduction of the Water Act, the establishment of the independent Murray-Darling Basin Authority, and the development of a Basin Plan. A key objective of these reforms is to deliver a Basin Plan that will manage Basin water resources sustainably, equitably and responsibly in the national interest.

The ten year *National Plan for Water Security* was announced in January 2007 backed by \$10 billion of Commonwealth funding. The plan encompassed a range of commitments including investment in irrigation infrastructure, addressing over-allocation of water through entitlement purchases, centralising water information and reforming governance and planning arrangements in the Murray-Darling Basin. In particular it was proposed to reconstitute the Murray-Darling Basin Commission as a Commonwealth authority reporting

to a single Minister and develop a new strategic plan for the Basin that would set new sustainable diversion limits for water resources.

Effective implementation of these reforms envisaged a referral of powers. However at this time Victoria was not prepared to take this step. The Water Act was subsequently enacted by the Commonwealth Government and in 2008 a limited referral of powers was made by all Basin States that replaced the Murray-Darling Basin Commission with the Murray-Darling Basin Authority. The South Australian Parliament was the first to pass its referral bill.

The Water Act represents an important national response to integrate and improve Basin water management. Development of the Basin Plan offers an historic opportunity to finally address the over-allocation of water resources across the Basin, manage salinity issues and achieve enhanced environmental and water security outcomes. The Basin Plan must reflect the requirements of the Water Act and its underpinning international agreements and be based on the best available science. Given the long and problematic history behind the use and sharing of Murray-Darling Basin water, and the fundamental position that the river holds for the future of Basin States and the nation, it is essential that the Basin Plan does not give way to political expediency.

1.6 Analysis of the draft Basin Plan

Since the release of the draft Basin Plan on 28 November 2011, the South Australian Government has undertaken rigorous scientific, policy, legal and technical analysis of the proposals contained in the draft Plan to assess the potential social, economic and environmental impacts of the draft Basin Plan for the State.

As a key component of this analysis, Government scientists and the Goyder Institute for Water Research have evaluated the science underpinning the MDBA's proposed water recovery target of an average of 2750 GL per year and the potential environmental consequences for key Basin environmental assets and ecosystem functions located in South Australia. The published reports of this evaluation can be located at www.waterforgood.sa.gov.au.

The scientific analysis concludes that the MDBA's proposed 2750 GL water recovery scenario is not sufficient to protect and restore key environmental assets and functions and does not meet the requirements of the Water Act.

The Goyder Institute's expert panel report indicates that the draft Basin Plan is unlikely, in the longer term, to maintain the ecological character of the Riverland-Chowilla floodplain and the Coorong, Lower Lakes and Murray Mouth Ramsar wetlands (Goyder, 2012).

The proposed additional water recovery of 2750 GL will not adequately export sufficient salt from the system to maintain healthy ecosystems and good water quality with the risk of an accumulation of salt in the Lower Murray region during drier periods (Goyder, 2012; Higham, 2012; Heneker and Higham, 2012).

The Coorong, Lower Lakes and Murray Mouth Ramsar site would remain at risk from low water levels and high salinities during dry periods, which will adversely affect the health of plants and animals, particularly in the South Lagoon and Lake Albert (Heneker and Higham, 2012; Higham, 2012). Periods of constriction of the Murray Mouth would still occur and may require dredging to ensure it is kept open during periods of low barrage flows, such as during drought (Higham, 2012).

Environmental water requirements of key vegetation communities, such as red gum, lignum and black box, would not be met for significant areas of the floodplain including the Riverland-Chowilla Ramsar site (Bloss, 2012). These assets would remain at risk of continued decline.

The delivery of overbank flows required to water floodplain environments is currently limited by constraints on water delivery, for example limits on channel capacities and operating rules to avoid flooding. Removal or relaxation of these constraints could deliver improved environmental watering, particularly flow events between 40,000 and 80,000 ML/day (Bloss, 2012). This would result in significantly better environmental outcomes for floodplain environments in South Australia. According to the MDBA's modelling, higher flows (above 80,000 ML/day) are delivered through natural floods.

The analysis showed that the actual environmental outcomes delivered from any proposed water recovery scenario, including the 2750 GL water recovery target, are fundamentally dependent on the way in which water is delivered and used. The current outcomes forecast by the MDBA represent only one possible outcome of the delivery of an additional 2750 GL on average per annum. Actual environmental flows will depend on future climate and inflows, the removal of constraints, how water is recovered and how water is delivered under the Basin Plan environmental watering plan (Goyder, 2012).

The MDBA also needs to develop more robust environmental water requirements to inform its modelling and assessment work. South Australia has identified environmental water requirements for its key environmental assets. The Goyder Institute for Water Research has determined that these are more holistic in meeting the Riverland-Chowilla ecological character requirements (Pollino et al, 2011). The South Australian environmental water requirements for the Coorong, Lower Lakes and Murray Mouth represent the outcome of extensive scientific analyses and have been internationally peer reviewed.

This analysis supports the Basin Plan adopting environmental water recovery targets to conserve biodiversity and declared Ramsar wetlands, protect and restore key ecosystems, and meet key salinity and water level outcomes including to:

- export salt loads of 2 million tonnes per year over a rolling 3 year average;
- keep the Murray Mouth open without the need for dredging in at least 95% of years, with flows through the barrages out to sea every year;
- maintain average daily water levels in the Lower Lakes above 0.4 metres AHD 95% of the time and above 0.0 metres AHD at any time;
- maintain average daily Coorong south lagoon salinity levels below lethal thresholds for key species (less than 100g/L);
- avoid adverse salinity impacts on the ecology by maintaining average daily salinity in Lake Alexandrina below 600 mg/L (1000 EC) for 95 % of the time and below 900 mg/L (1500 EC) for 100% of the time;
- maintain a mosaic of healthy floodplain habitats;
- secure delivery of flow regimes up to 40,000 ML/day to meet in-channel environmental water requirements and support low-lying temporary wetlands and associated fish and bird habitats;

- secure delivery of flow regimes between 40,000 and 80,000ML/day for floodplains (exceedence of maximum intervals between watering events should be avoided) to support lateral connectivity, higher elevation wetlands, recruitment and maintenance of key vegetation communities, and important bird habitat and bird breeding events; and
- maintain the current frequency of unregulated flow events.

The 3200 GL sensitivity modelling undertaken by the MDBA was also analysed and demonstrated the potential to deliver improved outcomes for key environmental assets and functions including better outcomes for the Coorong, Lower Lakes and Murray Mouth. However there was not sufficient data to fully determine the outcomes that would result. In particular the modelling did not assess outcomes with constraints to environmental water delivery relaxed or removed. Accordingly we recommend that the MDBA as a priority undertake further modelling of additional water recovery scenarios above 2750 GL, including 3200 GL, 3500 GL and 4000 GL, with constraints relaxed and removed.

1.7 Stakeholder engagement

The South Australian Government consulted extensively with key stakeholders in the South Australian Murray-Darling Basin including the State Natural Resources Management Council, the State's Natural Resources Management Boards, local government, business, irrigation and industry organisations, peak environment groups, Regional Development Australia committees, Aboriginal organisations and other key groups and individuals. A consistent set of views has emerged from these consultation processes which are reflected throughout this submission.

There is widespread agreement that a healthy river is in the interests of all water users and that the Basin Plan must deliver a healthy river system including:

- preventing the adverse water level, water quality and ecological impacts observed during the recent drought;
- exporting salt from the system out to sea through the Murray Mouth;
- maintaining a naturally open Murray Mouth (without dredging) and flows to the sea every year;
- improving water quality and salinity, in particular salinity levels in the Lower Lakes;
- including salinity targets at or near the South Australia/New South Wales border and in the Lower Lakes along with adequate monitoring;
- supporting healthy floodplains and wetlands;
- maintaining water levels above a critical minimum level below Lock 1;
- securing water supplies for Adelaide and country towns;
- recognising Aboriginal cultural values and uses;
- limiting groundwater extractions so they do not adversely impact on surface water flows; and
- addressing climate change impacts.

To achieve these outcomes stakeholders recognise adequate environmental water must be recovered and that physical constraints and operating arrangements impeding the delivery of environmental water must be addressed.

Many concerns were raised about the value of the proposed review of sustainable diversion limits in 2015, with a clear message that any review needed to be robust and based on the best available science, monitoring and information.

Robust and transparent processes for ensuring the delivery of environmental water to key assets and functions are also important. South Australians want the Basin Plan to ensure that environmental water is effectively used, accounted for, and delivers beneficial environmental and improved water quality outcomes.

South Australians are concerned about the potential adverse impacts on their communities and businesses. They are adamant that:

- the Basin Plan and any water recovery strategy must recognise South Australia's past responsible management and irrigation efficiency gains;
- the Basin Plan must not undermine water security for South Australia's water users;
- there should be no further reductions from the South Australian consumptive pool;
- the Commonwealth Government must bridge all the gap and in doing so provide equitable opportunity for investment in efficient infrastructure and other proposals in order to reduce community impacts and provide economic stimulus; and
- where water recovery is likely to have an impact, Commonwealth Government support for industry development assistance and economic diversification must be provided.

South Australian communities consider that we should take the opportunity of water reform to ensure a long-term prosperous and sustainable future for Basin communities. We should not use socio-economic impacts as a justification for delaying action and for not making hard decisions.

The South Australian Government has recognised this opportunity and are co-investing \$20 million through the Riverland Sustainable Future Fund on projects in the Riverland to diversify our regional economy and enable it to become more resilient. These investments are being made in collaboration with the private sector and local communities.

We ask that the Commonwealth support vulnerable River Murray communities in South Australia through targeted social and economic support to assist them to transition to a future with less water availability and increase their resilience. Commonwealth support can help to:

- stimulate and diversify regional economies and increase skills;
- identify and support the development of new food and fibre industries and the adding of value to primary production;
- support communities in their adaptation to more water efficient industries; and
- promote increased water efficiency, including the next generation of irrigation technology.

1.8 The draft Basin Plan

While there are elements of the draft plan that should be retained in a revised final plan, the South Australian Government cannot support the draft Basin Plan in its current form. The draft Plan does not deliver essential outcomes for South Australian environments and communities.

In particular, the draft Basin Plan:

- fails to protect our environment. Many of the South Australian and Murray-Darling Basin Authority's own environmental water requirements are not met by the proposed water recovery target of 2750 GL. With this amount of water, South Australia's River Murray environment will continue to suffer;
- does not use the best available science. The Water Act requires that the Basin Plan be based on the best available science. In addition to not meeting key environmental requirements, the draft Basin Plan fails to adequately take into account key factors affecting water availability and environmental watering, such as climate change risks, the uncertainty over groundwater and surface water interactions, and how the removal of physical, operational and policy constraints would improve the delivery of environmental water;
- does not recognise South Australia's history of responsible water stewardship. South Australia has consistently shown leadership in efficiently and sustainably managing the River. We were the first to voluntarily implement a cap on entitlements in 1969, and invest in widespread water efficiency infrastructure, while upstream States continued to allocate licences. Requiring further reductions from our efficient systems would be unjust;
- does not take into account the measures needed to help iconic sites in South Australia to recover from the effects of drought and over-allocation. Experts from the Goyder Institute for Water Research have advised that early restorative interventions are crucial to protect the ecological character of the Ramsar sites in South Australia;
- speaks in general terms about pursuing objectives but does not have sufficiently clear strategies, steps and evaluation processes to guarantee the objectives that it seeks to promote;
- is not complemented by a socio-economic plan that outlines programs to support affected communities in South Australia to diversify economically and adapt, including adaption to more water efficient industries;
- does not adequately recognise Aboriginal cultural water needs. There is insufficient water to protect and restore ecosystems, habitats and species that are important to meet Aboriginal cultural objectives;
- does not address system constraints that have an impact on the delivery of water to South Australia; and
- does not include sufficiently strong environmental and water quality targets for the river in South Australia.

In addition to not delivering South Australia's essential outcomes, the draft Plan fails to meet the requirements of the Water Act and if the plan were implemented in its current form it would be vulnerable to a determination that it is invalid.

1.9 The Requirements of the Water Act 2007

The *Water Act 2007* was a very welcome and desperately needed national response to the fragmented management of the Murray-Darling River system which had allowed over allocation to significantly threaten the sustainability of the River. The objects of the Act are spelt out in section 3. Sub-section 3(b) requires that effect be given to the relevant international agreements. The Ramsar and Biodiversity Conventions are most significant and they give primacy to environmental considerations. Sub-section 3(c) refers to promoting the use of the Basin in a way that 'optimises economic, social and environmental outcomes' but it is important that this subsection is introduced with the words 'in giving effect to those [international] agreements'. In other words, (c) does not prescribe some other objective that is to compete with (b). Rather, (c) describes the manner in which (b) must be achieved, thus preserving the primacy of (b). This is reinforced by the reference in paragraph 3(d) (i) to the requirement to 'ensure the return to environmentally sustainable levels of extraction'. And while (d) (iii) refers to 'maximise the net economic returns to the Australian community', this is expressly made subject to (d) (i) and (ii). In every other possible way the Act gives primacy to environmental considerations. The Act depends for its Constitutional validity upon giving primacy to ensuring the biodiversity and therefore the sustainability of the River system. The Act cannot permit the elevation of economic and social considerations to the same level or above environmental considerations.

The *Water Act 2007* requires that there is to be a Basin Plan for the management of the Basin water resources. It requires the Authority to prepare a Basin Plan 'as soon as practicable' and following consultations to give it to the Minister for adoption. The Water Act specifies in detail the purpose of the Basin Plan, the basis upon which it is to be developed and the mandatory or necessary content of the Plan. Chief among its objects the Plan must set limits upon the amount of water that can be taken or diverted from the River to reflect an environmentally sustainable level of take and by implication it must prescribe the amounts of water that shall be provided to restore and maintain the River and its environment in good health. The Basin Plan must of necessity reflect the objects and purposes of the Act and it must be otherwise consistent with the Act and conform to those provisions which govern it.

The *Water Act 2007* and the Basin Plan must also be construed subject to any other relevant express and implied right contained in or arising from the Australian Constitution. The pre-Federation rights of the States in relation to transboundary watercourses, the implied equality of the States within the Federation, their immunities and the recognition of aspects of the rights in relation to watercourses all bear upon the validity of the Basin Plan. It is axiomatic in this that South Australia has a right to a reasonable flow and quality of water from the Murray-Darling and that the upstream States have a correlative obligation not to destroy or imperil it. The existence of rights and duties of these kinds has been recognised in analogous circumstances in the United States and within Europe.¹

¹ Customary International law including the Watercourses Convention recognise analogous principles.

It is essential that the Basin Plan is valid and able to withstand legal challenge during its life. It must correctly reflect the objects and purposes of the international instruments upon which it depends for its validity and those of the *Water Act 2007* and it must apply the best available science to that task. It cannot prescribe conditions that reflect political expediency while contradicting the objects of the Act, its specific requirements and the best available science. It must honour the constitutional rights of each State. In its present form it would be vulnerable to the contention that it is at the very least *ultra vires* the Act and invalid. It cannot be predicted whose interests might at any one time whether now or far into the future be served by challenging the validity of the Basin Plan.

It should also be noted that in any controversy or proceedings in which these issues are raised a number of other claims might well be advanced. The claims of the Indigenous owners of the land would loom large in this context.

South Australia and South Australian interests have also suffered losses and damage as a direct result of the abuse of the River system. Some remedial works have been undertaken at the cost of the MDBA but a great many have been paid for by the State. The desalination plant is one major example. Damage to agriculture and other businesses and to the environment has been massive and is quantifiable.

1.10 The draft Basin Plan must be altered to ensure its validity

In order to ensure the validity of the Basin Plan several fundamental alterations will have to be made to the draft. If substantial alterations are not made the Plan will be vulnerable to a determination that it is *ultra vires* the *Water Act 2007* and therefore invalid for the following reasons:

- it contradicts the objects and purposes of the international instruments upon which it depends for its validity;
- it contradicts, both in substance and form, the objects and purposes of the *Water Act 2007* pursuant to which it was prepared;
- if implemented it would deny South Australia's rights under the Australian Constitution and under the general law;
- it does not constitute a 'plan' in the sense required by the *Water Act 2007*;
- it fails to provide for and contain a substantial number of matters that are required of it by the *Water Act 2007* and in particular by sections 19, 20, 21 and 22 of the Act;
- it is based upon assumptions that are at odds with the best available science and it fails to apply the best available science;
- it seeks to have regard to matters that are beyond the scope and purpose of the *Water Act 2007*; and
- it has been prepared for a purpose other than the purpose for which the power to prepare it was conferred.

Section 5.02 of the Basin Plan expressly elevates economic and social considerations to the level and above the level of environmental considerations. Any plain reading of that provision and several others confirms that the draft Basin Plan does not conform to the requirements of the *Water Act* and the international instruments upon which it must

depend for validity. The draft Plan does not take account of climate change in any meaningful way. It does not specify the risks to the water supply and it expressly defers any remedial action until 2019. The draft Plan does not present strategies for dealing with the problems identified in the *Water Act 2007* rather it merely recounts aspirations and restates the objects of the Water Act incorrectly. In very many respects the draft Plan does not meet the specific conditions set down for it in section 22.

The draft Basin Plan is not a plan; it has neither the language nor the content of what is ordinarily understood by the term. It therefore cannot be a plan in the sense ordained by the *Water Act 2007*. A plan would name specific quantifiable objectives and it would then set out the practical and verifiable steps that will be taken to achieve those objects and the times within which those steps will be taken and by whom and the times within which the objectives are intended to be achieved. The draft Plan cannot be rendered valid merely by altering its language or by restating its basis and reasoning differently. The alterations must be of substance as well as of form.

The draft Basin Plan does not guarantee the delivery of a fair or reasonable share of water of adequate quality to South Australia and in doing so it threatens the vital health of the River itself and South Australia's irrigators, and its people. In that respect the draft Plan would if implemented breach South Australia's constitutional rights to reasonable use. Those rights have been breached for many years. Constitutional rights of this kind cannot be waived or abrogated. The eastern states are responsible for the majority of diversions from the Murray-Darling system. The persistent over allocation by the eastern states has imposed drastic limits upon the water available to South Australia. We agreed to a minimum entitlement of 1850 GL² per annum but even that has not consistently been delivered to South Australia by the upstream States. The agreed flow has in some years been met by 'paper allocations' that record an accumulated entitlement for South Australia. The best available science establishes that returning water to the environment is necessary to have a reasonable prospect of maintaining the health of the River and its environment and sustaining it. Any amount that does not meet key defined environmental water requirements poses an unacceptable risk to the achievement of the objectives of the *Water Act 2007* and the health and sustainability of the River system and is therefore not acceptable to South Australia.

The matters that must be addressed in order to ensure the validity and viability of the Basin Plan are set out here. The draft Basin Plan must be amended in a manner that will:

1. correctly reflect both in substance and in form the objects and purposes of the relevant international instruments and the *Water Act 2007* in the terms in which they are specified;
2. contain provisions dealing with each and every requirement of the *Water Act 2007*;
3. set out clear and practical strategies and in that sense constitute a plan as that term is ordinarily understood and required by the *Water Act 2007*;

² In 1914 it was agreed between the States that NSW and Victoria would guarantee to supply South Australia with 1550 GL per annum and that otherwise they would share the waters of the Murray equally between them. It is notable that they did not include the waters of significant tributaries to the system. The Murrumbidgee, Lachlan and Goulburn rivers were excluded. In 1979 the guarantee was increased to 1850 GL in return for the State refraining from the construction of the proposed Chowilla dam.

4. accurately and transparently reflect the application of the best available science;
5. include a proper and verifiable consideration of climate change, including in the determination of Sustainable Diversion Limits (SDL);
6. include an accurate and transparent identification and consideration of the risks to the water supply and set out a strategy to manage each identified risk;
7. clearly explain the way in which each amount, proportion, limit or condition required to be contained in the Plan, including SDLs, Baseline Diversion Limits (BDLs) and environmentally sustainable levels of take (ESLT) has been calculated, determined or arrived at;
8. provide for an environmental watering plan that is to have immediate effect and which includes a focus on the Coorong, Lower Lakes and Murray Mouth and the Riverland-Chowilla flood plain;
9. give priority to the delivery of environmental water to the Coorong during drought directed to the protection of key species of flora and fauna;
10. specify a minimum reserve or allocation of environmental water that will be available for the Coorong, Lower Lakes and Murray Mouth;
11. not at any point or in any way use the introduction of the environmental watering plan to justify the reduction of what would otherwise be the number of unregulated flow events above 80,000 ML/day;
12. wherever possible ensure that environmental watering is coordinated with natural events to maximise the beneficial effects of natural events;
13. adequately protect the Ramsar listed sites in South Australia in the manner and to the extent required by the convention, and to that end:
 - export salt loads of 2 million tonnes per year over a rolling 3 year average;
 - keep the Murray Mouth open without the need for dredging in at least 95% of years, with flows through the barrages out to sea every year;
 - maintain average daily water levels in the Lower Lakes above 0.4 metres AHD 95% of the time and above 0.0 metres AHD at any time;
 - maintain average daily Coorong south lagoon salinity levels below lethal thresholds for key species (less than 100g/L);
 - avoid adverse salinity impacts on the ecology by maintaining average daily salinity in Lake Alexandrina below 600 mg/L (1000 EC) for 95 % of the time and below 900 mg/L (1500 EC) for 100% of the time;
 - maintain a mosaic of healthy floodplain habitats;
 - secure delivery of flow regimes up to 40,000 ML/day to meet in-channel environmental water requirements and support low-lying temporary wetlands and associated fish and bird habitats;
 - secure delivery of flow regimes between 40,000 and 80,000ML/day for floodplains (exceedence of maximum intervals between watering events should be avoided) to support lateral connectivity, higher elevation wetlands, recruitment and

maintenance of key vegetation communities, and important bird habitat and bird breeding events; and

- maintain the current frequency of unregulated flow events;
14. specify a minimum water recovery allocation for environmental purposes of an amount that will guarantee the sustainability and environmental health of the system and which has been the subject of a transparent modelling process based on all data available to the MDBA and which has involved South Australia's scientists. Scientific analysis shows that a water recovery target of 2750 GL is insufficient to achieve this;
 15. ensure that the effects of the capping of use and the efficiency improvements made by South Australia and by South Australian irrigators over the past 40 years are properly reflected in the determination of the SDLs, annual diversion limits (ADLs) and water recovery targets and that they are not used to the disadvantage of South Australia in any calculation, assessment or determination by the MDBA under the Plan;
 16. require the MDBA to provide to the parties a detailed listing of all system constraints upon which it seeks to rely and a clear statement of the source, nature and operation of the constraint and the steps that would be required to remove it;
 17. require the MDBA to provide regular reports of its modelling work and analyses to the parties;
 18. properly address the use and protection of groundwater; and
 19. ensure that any assessment of socio-economic considerations includes the opportunity for the introduction of new food and fibre industries and the adding of value to primary production that can be sponsored by government programs.

There are additional matters that are addressed elsewhere in this submission that compel additional corrections and alterations to the draft Plan. The list above is therefore not exhaustive.

1.11 A positive future for South Australia's Basin communities

History has shown that South Australia's Basin communities are resilient and willing to adjust to changing circumstances to remain viable and productive.

Irrigator communities adjusted their water needs to produce with less water after the 1969 cap.

An effective Basin Plan that provides enough water, fair rules, clear objectives and outcomes, and returns sufficient water to the environment, will restore confidence and provide the essential framework needed for Basin communities to plan positively for the future.

A healthy river will support resilience and sustainability in the Basin system and mean that our irrigators, dairy farmers, fishing industries, recreational and tourism operators will face less threat from drought that we all know is a guaranteed aspect of our future.

In terms of impact on Basin communities, a robust and valid Plan, Commonwealth commitment to 'bridge the gap', and support for regional economies will reduce the doubt and uncertainty that concern river communities. It will also take away the uncertainty for farmers, particularly in the lower reaches of the river system, who face continued problems

with heightened salinity and whether their allocated water will be usable. It will allow tourism operators to thrive, and events such as the Goolwa Regatta week to be planned with the certainty that there will be enough water in the system for boats.

The economic potential of the Basin is very high and in many ways still untapped. There are opportunities for the future that look to the changing global economy and opportunities that have been flagged as priorities for South Australia as a whole.

South Australia has enormous potential to be a clean, green food bowl that gains advantage from our State's unpolluted environment. A healthy River Murray will play a significant role in assuring that advantage. Equally important, greater certainty about agricultural production provides an opportunity for Basin communities to embark upon new 'value adding' industries; and that certainty also offers communities the means to look toward opportunities for economic diversification.

In short, there is a bright future ahead for South Australia's Basin communities but that future depends on a healthy River as its most essential foundation and a healthy River requires a Basin Plan that does the job set out for it in the Water Act.

1.12 Structure of the submission

This submission is structured in several parts. This part contains the South Australian Government's response and recommendations on a number of significant high level issues. Appendix 1 contains a summary list of recommendations. Appendix 2 contains detailed chapter by chapter comments on the draft Basin Plan legal instrument and recommended changes.

This submission relies on several reported scientific studies which can be found at www.waterforgood.sa.gov.au (<http://www.waterforgood.sa.gov.au/rivers-reservoirs-aquifers/murray-darling-basin-plan/sa-government-science-analysis-of-the-draft-basin-plan/>)

We have also asked South Australians for their stories on the hardships they have endured during drought and their vision for a healthy river. These stories are included as Appendix 3.

2. BASIN PLAN MANAGEMENT OBJECTIVES AND OUTCOMES

Key message

- The Basin plan management objectives and outcomes must correctly reflect the purposes and objects of the *Water Act 2007*.

The *Water Act 2007* (Cth) (Water Act) sets out the objects of the Act and the basis and purposes of the Basin Plan. In particular these are set out in sections 3, 19, 20, 21 and 22 of the Act.

The South Australian Government is concerned that the management objectives and outcomes, as articulated in chapter 5 of the draft Basin Plan, fail to correctly reflect the purposes and objects of the Water Act.

Most significantly, the Water Act requires that water is used in a way that achieves sustainability in the use of water resources to give effect to certain international agreements, including the Convention on Biological Diversity and the Ramsar Convention. In simple terms this means that a minimum environmental outcome must be achieved and, provided this outcome can be achieved, the Basin Plan must develop and implement provisions to optimise social, economic and environmental outcomes. The South Australian Government maintains that the objectives and outcomes of the Basin Plan should be amended to correctly reflect this hierarchy and the objects and purposes under the Water Act.

The management outcomes are not currently expressed in a manner that can be easily measured or used to guide management. Often the outcomes restate the objectives rather than providing for clear and measurable outcomes that can effectively guide the policies and activities in implementation of the Plan.

Chapter 5 should also state in broad terms the management objectives and outcomes in relation to management of the risks to the condition or continued availability of Basin water resources identified in chapter 4. Currently this clear link is missing.

Recommendation 1

The objectives and outcomes to be achieved by the Basin Plan must:

- *correctly reflect the purposes and objects of the Water Act 2007 and more clearly define the outcomes to be achieved; and*
- *include objectives and outcomes which address the risks to Basin water resources identified in chapter 4.*

3. IDENTIFICATION AND MANAGEMENT OF RISKS TO BASIN WATER RESOURCES

Key messages

- The Basin Plan must be amended to include more comprehensive identification of risks that are clearly linked to specific risk management strategies.
- Risk management must address the risks associated with climate change, physical, operational and policy constraints, recovery from drought, storage access, groundwater impacts and the effective delivery of environmental water.

The *Water Act 2007* (Cth) (Water Act) requires the Basin Plan to identify the risks to the condition or continued availability of Basin water resources and strategies to manage or address these risks.

The risks outlined in the draft Basin Plan are not comprehensive and are expressed in such broad terms that they fail to reflect the common understanding of key risks to water resources.

The chapter does little more than repeat what is outlined in the Water Act and does not reflect any comprehensive assessment of risks. Risks must be more specifically and precisely identified, including the activities, processes, acts or failures to act that, if not addressed, pose risks. There must be a clear line of sight from the identified risk to risk management strategies.

Furthermore, the risks and their consequences do not appear to relate to the underpinning international agreements. For example, the *Convention on Biological Diversity* seeks sustainable use of resources in a way and at a rate that does not lead to the long-term decline of biological diversity. The taking and use of water such that there is insufficient water available to the environment would result in potential long term decline in biological diversity. It would also result in changes to the intrinsic value of ecosystems in their own right, as well as changes to the ecological character of declared Ramsar wetlands. Environmental consequences are not articulated beyond a broad reference to social and public benefit values.

The strategies listed under section 4.03 of the draft Basin Plan³ are a list of broad statements rather than specific strategies and are so general that they provide little direction on how the MDBA will manage and address risks and contain no measure against which action can be assessed. For example, the strategy to 'improve knowledge of groundwater and surface water resources' is extremely nebulous and does not indicate the purpose for which knowledge is being improved or the particular risks this strategy would address.

A specific description of strategies clearly linked to identified risks rather than just broad statements of objectives is required; for example, developing and implementing water resource plan accreditation and compliance guidelines, a compliance and enforcement

³ All references to the draft Basin Plan are to MDBA, 2011 b.

strategy, a science and knowledge strategy and a detailed monitoring and evaluation plan linked to adaptive management, among others.

In addition to the matters already outlined, the chapter must include risk management strategies to:

- assess climate change risks and incorporate that assessment into any reviews of sustainable diversion limits and the Basin Plan;
- identify and address physical, operational and policy constraints that impede delivery of environmental water;
- promote active recovery of drought-affected key environmental assets and functions;
- improve the understanding of groundwater connections to surface water and the impact of groundwater use on meeting environmental water requirements;
- investigate and address more equitable access to storages to address water security issues;
- improve modelling and decision support systems to inform river management and environmental water delivery; and
- coordinate the effective delivery of environmental water.

The list above is not comprehensive and work is required by the MDBA generally to articulate more clearly the relevant risks and strategies. Other detailed comments are provided in Appendix 2 of this submission.

Recommendation 2

The Basin Plan must include:

- *comprehensive identification of risks that are clearly linked to specific risk management strategies; and*
- *strategies to address particular risks including climate change risks, physical, operational and policy constraints impeding environmental water delivery, recovery from drought, storage access, groundwater impacts and coordination of the effective delivery of environmental water.*

4. PROPOSED ENVIRONMENTALLY SUSTAINABLE LEVEL OF TAKE

Key messages

- The 2750 GL water recovery target fails to deliver an environmentally sustainable level of take and meet the requirements of the Water Act.
- The Basin Plan must include an environmental water recovery target that conserves biodiversity and declared Ramsar wetlands, protects and restores key ecosystems, and meets key salinity and water level outcomes.
- The MDBA must model the outcomes of water recovery greater than 2750 GL with system constraints relaxed or removed.
- Physical, operating and policy arrangements constraining environmental water delivery must be addressed.
- Complementary actions must be implemented to protect and restore key environmental assets and functions.

4.1 Proposed water recovery target

The draft Basin Plan specifies a long-term average sustainable diversion limit of 10,873 GL. To achieve this sustainable diversion limit, the draft Basin Plan proposes a water recovery target of an additional average volume of 2750 GL per year. The sustainable diversion limit must reflect an environmentally sustainable level of take, which is defined in the *Water Act 2007* (Cth) (Water Act) as the level at which water can be taken from a water resource which, if exceeded, would compromise:

- key environmental assets of the water resource; or
- key ecosystem functions of the water resource; or
- the productive base of the water resource; or
- key environmental outcomes for the water resource.

It appears that the MDBA has inappropriately taken into account social and economic interests and physical and operational constraints in determining the environmentally sustainable level of take. This is not consistent with the Water Act and obscures the scientific process used to derive the sustainable diversion limit.

The South Australian Government and Goyder Institute for Water Research have analysed the Basin plan proposal for the South Australian section of the River Murray. That analysis demonstrates that a water recovery scenario of 2750 GL will not deliver an environmentally sustainable level of take.

The 2750 GL water recovery scenario will not protect and restore the key ecosystems, habitats and species reliant on Basin water resources; conserve declared Ramsar wetlands; or prevent long term decline in biodiversity in South Australia. In short the 2750 GL scenario does not meet the requirements of the Water Act.

The Government's analysis is based on the MDBA's modelling of the 2750 GL scenario and sensitivity analysis of 2400 GL and 3200 GL for the South Australian section of the River

Murray. It analysed how well the draft Basin Plan scenario met the minimum environmental water requirements for key environmental assets and functions, focusing on implications for key Ramsar sites located in South Australia, the Coorong, Lower Lakes and Murray Mouth and the Riverland-Chowilla Ramsar sites, as well as the broader floodplain environment.

The Coorong, Lower Lakes and Murray Mouth is a unique Ramsar-listed Wetland of International Importance, protected under national legislation (*Environment Protection and Biodiversity Convention Act 1999* (Cth)). The Riverland-Chowilla Ramsar site is dependent on the River Murray, its backwaters and tributaries, is a major centre for breeding water birds, and contains unique large stands of native river red gum (*Eucalyptus camaldulensis*) forest, which border the creeks and backwaters, providing excellent wildlife habitat. Floodplain vegetation communities perform an important range of ecosystem services linking the river channel, wetlands, floodplain and surrounding mallee environments and provide unique habitat for native species, including some threatened species (Goyder Institute, 2012).

While the draft Basin Plan 2750 GL scenario has potential to deliver some improved environmental outcomes it:

- does not adequately export salt through the Murray Mouth with a risk of accumulation of salt in the Lower Murray region during drier periods (Goyder, 2012; Heneker and Higham, 2012);
- does not meet all environmental water requirements for the Coorong, Lower Lakes and Murray Mouth (Heneker and Higham, 2012);
- will not protect the Coorong, Lower Lakes and Murray Mouth from high salinity, low water levels and acidification during dry periods (similar to those recently experienced in the recent drought) which will adversely impact on the life cycles of aquatic plants and animals, particularly in the Coorong South Lagoon and Lake Albert (Heneker and Higham, 2012; Higham, 2012);
- does not meet the majority of environmental water requirements for key floodplain environmental assets located in South Australia (Bloss et al, 2012);
- only supports between 3% and 11% of floodplain vegetation communities (e.g. river red gums, black box and lignum) located in South Australia at a low level of risk. A large percentage of the floodplain environment therefore remains at risk (Bloss et al, 2012); and
- does not take into account the effects of climate change which poses risks to the environment (Young et al, 2011; Goyder, 2012).

The Goyder Institute's expert panel report indicates that the draft Basin Plan is unlikely to maintain the ecological character of the Riverland-Chowilla floodplain and the Coorong, Lower Lakes and Murray Mouth Ramsar wetlands in the longer term (Goyder, 2012).

The 2750 GL scenario does not adequately export salt through the system. The salt export target in the draft Basin Plan of 2 million tonnes per year as a 10 year rolling average is not met for a significant proportion of the modelled period, particularly during dry periods, due to lower than required barrage releases (Heneker and Higham, 2012). The Government's analysis also demonstrated that the methodology used by the MDBA to estimate salt export

is not accurate and overstates the export of salt during higher flow events (Heneker and Higham, 2012).

Targets for salinity levels are also not met under the 2750 GL scenario. The Coorong, Lower Lakes and Murray Mouth remains at risk of elevated salinity levels during dry periods. For example, there are multiple years where salinities and water levels in the Coorong South Lagoon exceed thresholds for maintaining the life cycles of key plant and animal species reducing the available habitat for submerged vegetation, macro-invertebrates and fish and affecting water birds (Higham, 2012). Only the provision of larger volumes (as indicated by the analysis of the MDBA's 3200 GL water recovery sensitivity scenario) reduced the number and duration of consecutive years when salinity thresholds are exceeded (Higham, 2012). Similar salinity risks remain for the Lower Lakes where thresholds are exceeded in dry years that are likely to result in sub-lethal effects to aquatic plants and animals in Lake Alexandrina and Lake Albert (Heneker and Higham, 2012).

CSIRO found that a water recovery scenario of 2800 GL was not consistent with the MDBA's stated environmental water requirements (Young et al, 2011). A 2800 GL scenario did not meet 55% of the environmental water requirement targets considered achievable under current operating conditions (Young et al, 2011).

The MDBA's supporting documentation also indicates that the draft Basin Plan 2750 GL scenario does not deliver against a number of environmental water requirements for floodplain communities and wetlands across the Basin including in the Murray catchment (e.g. Barmah-Millewa Forest, Hattah Lakes, Riverland-Chowilla floodplain), Goulburn and Mid-Murrumbidgee catchments (MDBA, 2012).

In determining that 2750 GL would provide an environmentally sustainable level of take, the MDBA has not considered the impacts of climate change. The CSIRO noted that this represents a significant risk to the environment during future extended dry periods (Young et al, 2011).

The MDBA has indicated that the ability to meet many of these requirements may be limited by physical, policy and operating constraints (system constraints) on environmental water delivery (MDBA, 2011c; MDBA, 2012). The CSIRO report indicated that while some shortfalls could be attributed to constraints on delivery, other shortfalls appear to be the result of insufficient water (Young et al, 2011).

Constraints are not a valid reason for failing to recover the volume of water that is required to achieve a healthy sustainable Basin. Constraints can be addressed and are more properly viewed as risks to the holding and delivery of sufficient water to achieve environmental outcomes. System constraints limiting the delivery of environmental water must be identified and addressed as a matter of the highest priority.

Of the water recovery volumes analysed, the MDBA's 3200 GL sensitivity scenario came closest to achieving the requirements of the Water Act. This volume delivers significantly better outcomes for the Coorong, Lower Lakes and Murray Mouth Ramsar wetland. Most importantly this water recovery volume indicates it is possible to prevent elevated salinity levels that threaten aquatic species key to the ecological condition of the site (Higham, 2012). However, there was not sufficient data to fully determine the outcomes that would result.

Additional environmental water recovery greater than 2750 GL is also likely to deliver improved outcomes for floodplain environments particularly when combined with actions to address system constraints.

The MDBA must undertake, as a priority, further modelling of additional water recovery volumes, including 3200 GL, 3500 GL and 4000 GL, with system constraints relaxed or removed to determine a water recovery volume that meets key environmental outcomes.

It is vital that the MDBA make sound decisions and recover the water that the environment needs based on best available science. It is the health of the River Murray system that bears all the risk if the Basin Plan gets this wrong.

Recommendation 3

The South Australian Government rejects the proposed environmental water recovery target of 2750 GL as it does not meet the requirements of the Water Act 2007 and requires that the Murray-Darling Basin Authority (MDBA) must adopt an environmental water recovery target greater than 2750 GL that meets key environmental outcomes.

Recommendation 4

The environmental water recovery target adopted by the MDBA must conserve biodiversity and declared Ramsar wetlands, protect and restore key ecosystems, and meet key salinity and water level outcomes including to:

- *export salt loads of 2 million tonnes per year over a rolling 3 year average;*
- *keep the Murray Mouth open without the need for dredging in at least 95% of years, with flows through the barrages out to sea every year;*
- *maintain average daily water levels in the Lower Lakes above 0.4 metres average height datum (AHD) for 95% of the time and above 0.0 metres AHD at any time;*
- *maintain average daily Coorong south lagoon salinity levels below lethal thresholds for key species (less than 100g/L);*
- *avoid adverse salinity impacts on the ecology by maintaining average daily salinity in Lake Alexandrina below 600 mg/L (1000 EC) for 95% of the time and below 900 mg/L (1500 EC) for 100% of the time;*
- *maintain a mosaic of healthy floodplain habitats;*
- *secure delivery of flow regimes up to 40,000 ML/day to meet in-channel environmental water requirements and support low-lying temporary wetlands and associated fish and bird habitats;*
- *secure delivery of flow regimes between 40,000 and 80,000 ML/day for floodplains (exceedence of maximum intervals between watering events should be avoided) to support lateral connectivity, higher elevation wetlands, recruitment and maintenance of key vegetation communities, and important bird habitat and bird breeding events; and*
- *maintain the current frequency of unregulated flow events.*

Recommendation 5

The MDBA must undertake, as a priority, further modelling (including 3200 GL, 3500 GL and 4000 GL water recovery volumes) where system constraints are relaxed or removed to determine a water recovery volume that meets key environmental outcomes.

In order to effectively achieve key environmental outcomes, a number of complementary measures in addition to recovering sufficient additional environmental water will be required. These measures are discussed below. The most critical measure is to address system constraints.

4.2 Physical, operating and policy constraints

System constraints *constrain* the effective delivery of environmental water by preventing deliveries at required volumes, water levels, times, frequencies and/or durations. They include physical, operational and policy constraints, a number of which have been documented and described (MDBA, 2011e; MDBA, 2011c; Heneker and Higham, 2012):

- physical constraints include natural constrictions in landforms or engineering limits (e.g. dam outlet capacities) that determine the volume of water that can pass;
- operating constraints equate to river operations practices that have been predominantly developed to avoid third party impacts and litigation, such as may arise from regulated overbank flooding of infrastructure including roads, bridges and private property; for example releases from Hume Dam are currently limited to 25,000 ML/day; and
- policy constraints are 'rules-based' constraints, shaped by historical agreements concerning water resource management (e.g. the Murray-Darling Basin Agreement) and reflected in existing entitlement frameworks, which have been derived to support social and economic purposes (irrigation, navigation, water supply and recreation), rather than environmental purposes. These affect both river operations and the delivery of environmental water.

By incorporating current physical and operating system constraints the MDBA underestimates the environmental outcomes that could be achieved by provision of increased volumes of water if those constraints were removed or managed.

With the current physical and operating constraints imposed, delivery of environmental water to floodplain environments in South Australia is severely compromised. The inability to effectively deliver environmental water places significant areas of the River Murray floodplain vegetation communities in South Australia at risk of continued decline (Bloss et al, 2012).

The MDBA modelling has relaxed *some* policy constraints including the ability to order environmental water from specific storages; the ability to enhance natural floods (unregulated flows) without the environmental water being substituted in the accounts as part of the unregulated flow event; and the protection of environmental water from re-regulation and supplementary access by NSW licence holders. This has allowed the reuse of these flows in multiple locations. But unless these constraints are in fact addressed through policy changes, the environmental impact of the water delivered will be less than the modelling suggests. A concerted effort from all jurisdictions will be needed to identify and address these and other policy constraints in order to achieve the objectives and outcomes

of the Basin Plan.

The MDBA analysis highlights that relaxing or removing key system constraints is necessary to meet environmental water requirements requiring mid to high flows for floodplain communities in the mid to lower reaches of the River Murray (MDBA, 2011c; MDBA, 2011e). A variety of options could be considered to relax physical and operating constraints with the most promising including the purchase and use of easements, negotiation with landholders to secure voluntary flood easements and the construction of levees for flood protection. Any such action must be complemented by policy changes including ordering of environmental water, supplementation of unregulated flows and protection of reuse.

The MDBA analysis suggests that relaxing or removing key operating constraints at Hume Dam, Menindee Lakes and the Goulburn River may enable significantly more environmental water requirements in the 40,000 ML/day to 80,000 ML/day flow band to be met for floodplain communities in South Australia. The South Australian Government analysis shows this could provide significant benefit for key vegetation communities as outlined in Figure 1 below.

Higher flow events above 80,000 ML/day are, according to the MDBA's modelling, unlikely to be able to be actively managed and delivered using regulated releases from storages. The occurrence of these events is therefore reliant on natural (unregulated) flow events.

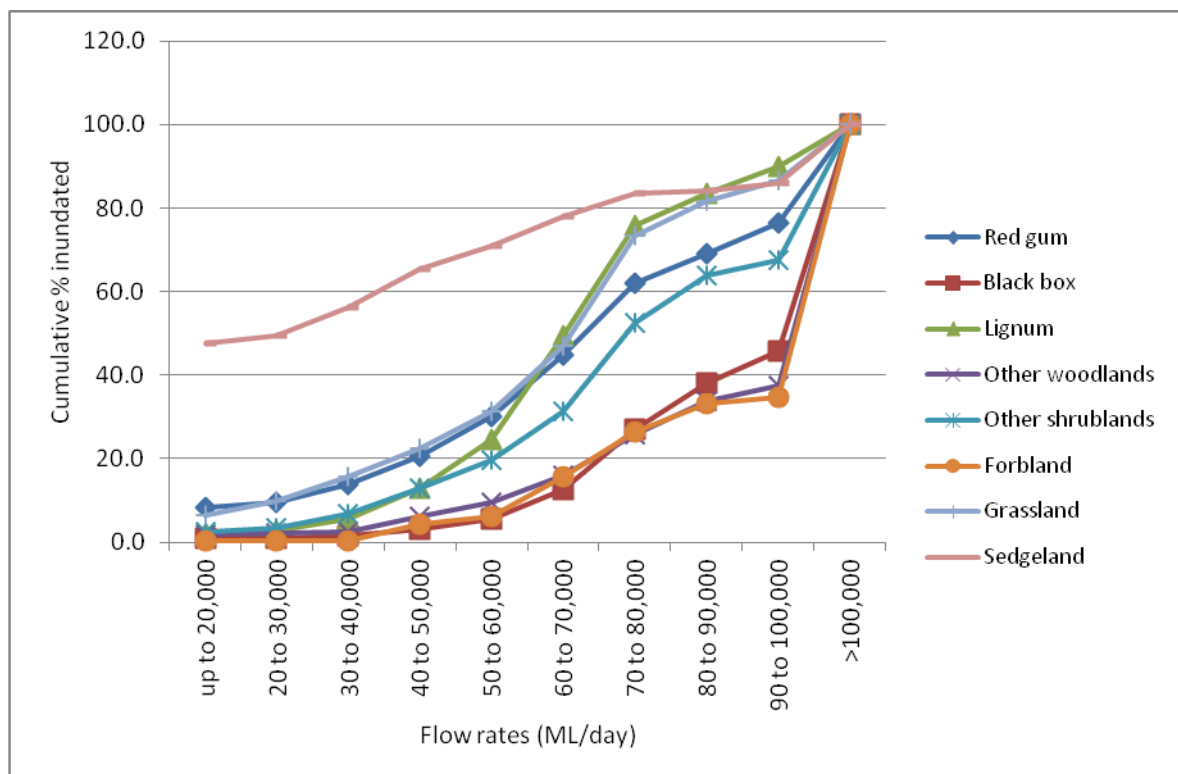


Figure 1: Proportion of each major vegetation group inundated at 10,000 ML/day flow increments on the South Australian River Murray floodplain (Source: Bloss et al, 2012)

Until these issues associated with system constraints are fully investigated and addressed, a significant portion of the River Murray floodplain will remain at high risk of further decline.

Further analysis and modelling is required as a priority to transparently quantify the impact of operational constraints on the delivery of water recovered under the Basin Plan. In addition the Basin Plan should identify risks to environmental water delivery arising from

system constraints and to address key system constraints as a key risk management strategy.

Recommendation 6

The Commonwealth Government must invest in addressing key system constraints, including purchasing flood easements, as an important step to improve environmental water delivery.

Recommendation 7

The MDBA must:

undertake further analysis and modelling to:

- *transparently quantify the impact of known system constraints on the delivery of water recovered under the Basin Plan;*
- *model water recovery scenarios greater than 2750 GL with key system constraints relaxed or removed to determine what is required to optimise the delivery of requirements for key assets and functions, including floodplain flow events; and*

instigate immediately, a new program of work to:

- *identify and describe all physical, operational and policy system constraints;*
- *evaluate options, opportunities and risks associated with relaxing or removing key constraints;*
- *prioritise actions or packages of actions to relax or remove system constraints in the short, medium and long term;*
- *as a matter of urgency, instigate works to relax or remove key delivery constraints; and*
- *undertake modelling of options to amend and simplify existing policy arrangements to provide for environmental water management needs.*

Recommendation 8

The South Australian Government notes that the MDBA's modelling has been undertaken on the basis of relaxed policy constraints, and that actual environmental outcomes will be compromised unless the constraints are changed.

The MDBA must ensure that the policy constraints to achieve the outcomes described in the modelling are removed.

4.3 Institutional impediments to environmental water delivery

Effective coordination, management and accounting for environmental watering will require a number of institutional arrangements to be addressed outside the Basin Plan, including water ordering, trade, measurement of return flows, state entitlements, timing, complexity of decision making and the coordination of implementation.

Long term changes to the *Murray-Darling Basin Agreement* will be required to facilitate the storage, management, delivery, trade and accounting for environmental water in the River Murray system. For example, explicit carryover of environmental allocations could be an important mechanism for delivering water to key environmental assets, particularly during

drier periods. Agreements and good governance among jurisdictions will be required to implement coordination and cooperative arrangements and other matters that cannot be directly addressed by the Basin Plan. Policy changes will also be required in state water resource plans.

Recommendation 9

The MDBA must:

- *urgently establish a program to identify and propose processes to address institutional impediments to the delivery of environmental water, including assessment of carryover provisions that could improve delivery of environmental outcomes; and*
- *expedite existing work under the Review of the Murray-Darling Basin Agreement work program and the River Management Review project.*

Recommendation 10

The Commonwealth Government must lead the development of an intergovernmental agreement and other institutional changes, where required, to facilitate effective environmental water management, delivery and accounting including facilitating multi-site environmental watering.

4.4 Mitigating climate change impacts

A precautionary risk management approach must be taken to manage any potential impacts of climate change.

The South Australian Government notes that the Commonwealth Government's Water for the Future program, and development of new science-based limits on water use through the Basin Plan, are indicated to be key climate change adaptation activities being undertaken by the Commonwealth Government (Department for Climate Change, 2010); however, the determination of the environmentally sustainable level of take in the draft Basin Plan does not address climate change risks. This is clearly a significant concern.

The decline in available surface water resources in the southern connected Basin as a result of forecast climate change could potentially undermine the outcomes being sought by the draft Basin Plan. The CSIRO Murray-Darling Basin Sustainable Yields Project suggests the average surface water availability for the Murray-Darling Basin will fall by 12% by 2030 (CSIRO, 2008).

The potential reduction in surface water availability is greater than the difference between the MDBA proposed 2750 GL scenario and the 2400 GL sensitivity analysis. The South Australian Government's analysis of the MDBA's 2400 GL sensitivity analysis showed increased risks for key environmental assets (Heneker and Higham, 2012; Higham 2012). The MDBA also indicates that this scenario does not achieve key environmental outcomes (MDBA, 2011c).

The failure of the draft Basin Plan to include climate change impacts in consideration of the water recovery needed to protect and restore key environmental assets and functions provides even further weight to the need for a water recovery volume greater than 2750 GL.

Further work is required to improve understanding of climate change risks on environmental watering outcomes as well as consumptive use in order to inform any review of sustainable diversion limits or the Basin Plan.

Recommendation 11

The MDBA must:

- *adopt an environmental water recovery target greater than 2750 GL to take into account climate change risks; and*
- *develop a strategy to improve knowledge of the effects of climate change on water available for environmental outcomes and consumptive water use as a priority.*

4.5 Meeting cultural water objectives

Under the Water Act, Indigenous interests are an important consideration when Basin plans are developed.

The River Murray (and the Basin as a whole) is of significant cultural, economic, spiritual and social value to the Ngarrindjeri people and the First Peoples of the River Murray and Mallee. For example, the Coorong, Lower Lakes and Murray Mouth includes a registered Aboriginal heritage site – under the *Aboriginal Heritage Act, 1988 (SA)*. The 'Meeting of the Waters' site was registered in 2009. This site includes the waters and the bed of the lakes, river and estuary.

In determining environmental water recovery the MDBA must ensure that the additional environmental water recovered is sufficient to protect and restore ecosystems, habitats and species that are important to meet Aboriginal cultural objectives. Aboriginal elders have clearly indicated that the Basin Plan must deliver a guaranteed environmental flow that keeps the Murray Mouth open naturally, and provides sufficient and secure water to protect and restore the cultural values and uses of the Lower Lakes and Coorong.

The analysis by the South Australian Government shows that 2750 GL is unlikely to protect and restore key environments, habitats and species critical to meet Aboriginal cultural objectives.

Recommendation 12

The MDBA must adopt an environmental water recovery target greater than 2750 GL to protect and restore ecosystems, habitats and species to maintain their capacity to meet Aboriginal cultural objectives.

4.6 Environmental water delivery in drought

The South Australian Government's analysis shows that how and when environmental water is delivered will also have a significant impact on achieving environmental outcomes. In particular, special consideration needs to be given to addressing environmental water delivery to sites that are particularly sensitive to the impacts of drought and to maintain key refugia.

Recommendation 13

The Basin Plan must prioritise water delivery during drought to protect refugia and prevent exceedence of thresholds for irreversible changes to key environmental assets.

4.7 Securing the health of the Coorong, Lower Lakes & Murray Mouth

The analysis of the MDBA's 2750 GL water recovery scenario and the sensitivity analyses of 2400 GL and 3200 GL scenarios highlight that the Coorong, Lower Lakes and Murray Mouth remains at risk of acidification, low water levels and high salinity levels that threaten the survival of key plants and animals during dry periods (Heneker and Higham, 2012; Higham, 2012). This risk is reduced when additional environmental water is recovered as demonstrated by the 3200 GL sensitivity analysis. There remains a need to make sure that the Basin Plan ensures delivery of water by establishing a secure minimum reserve or allocation for the Coorong, Lower Lakes and Murray Mouth, and for delivery of water to this site to be prioritised during dry periods. The establishment of a secure allocation is consistent with the agreed approach for the Barmah-Millewa forest.

Recommendation 14

The Basin Plan must provide for:

- *a minimum reserve or allocation of environmental water for the Coorong, Lower Lakes and Murray Mouth for use during dry periods; and*
- *prioritisation of delivery of environmental water to the Coorong in times of drought to sustain key vegetation communities, species and ecosystem functions.*

4.8 Restoring and maintaining high priority environmental assets

Key Basin environmental assets were adversely impacted by the recent drought compounding the effects of over-allocation. This included sites on the River Murray floodplain and at the Coorong, Lower Lakes and Murray Mouth. While there have been some recent signs of recovery, it is critical that these sites be managed now to facilitate full recovery from drought (Goyder Institute, 2012) and achieve successful implementation of the Basin Plan. A remediation program and complementary environmental watering program must be developed to arrest further decline and enable restoration of these sites to a healthy state in the period between adoption of the Basin Plan and when water recovery will be complete.

Recommendation 15

The Basin Plan must provide for a remediation program and complementary environmental watering program for the restoration of priority degraded and drought-affected environmental assets, focussed upon the Ramsar sites of the Riverland-Chowilla floodplain and Coorong, Lower Lakes and Murray Mouth, to commence in 2013.

4.9 High flow events

The South Australian Government recognises that the River Murray is a highly regulated river managed for multiple uses, and as such will never return to a pre-development natural system. Based on the advice provided by the MDBA, flow events above 80,000 ML/day in

the Lower Murray floodplain are unlikely to be actively managed using regulated releases from storages. The occurrence of these events is therefore reliant on natural flood events.

While there is limited opportunity to increase the frequency of such events through active river management and operations, there should not be a decrease in the frequency of these higher flow events (compared with the current baseline). The MDBA (2011c) indicates that high flow events greater than 100,000 ML/day are decreased under the draft Basin Plan 2750 GL scenario. In achieving environmental outcomes through management of high flow events the MDBA must work with the South Australian Government to identify and address any community impacts and constraints.

The future management of environmental water under the Basin Plan must consider the delivery of all flow events (low to high), managed and natural. Where practical to achieve effective and efficient environmental watering, environmental water should be used to enhance natural flow events including unregulated flows.

Recommendation 16

The MDBA must:

- *ensure, as far as practical, that the current frequency of high unregulated flow events are not reduced; and*
- *ensure that the Basin Plan environmental watering plan enables environmental water to be used to enhance unregulated flows to deliver key environmental outcomes.*

4.10 Water recovery products

The South Australian Government's analysis also shows that the type (e.g. high, general or low security) and location of water product recovered has an effect on environmental water delivery. For example, the volume of high security water modelled under the 3200 GL sensitivity analysis provides an indication of the volume that would be required to achieve outcomes similar to those modelled. It will therefore be critical to achieving environmental outcomes that the MDBA provides advice to the Commonwealth Government to inform its water recovery strategy.

Recommendation 17

The MDBA must provide advice to the Commonwealth Government on the location and types of water products that are likely to deliver the best environmental outcomes.

4.11 Works and measures

Works and measures play a role in complementing the recovery and delivery of environmental water. In some circumstances, works and measures can provide for environmental outcomes with less water; greater environmental outcomes with the same water; or overcome delivery constraints or inefficiencies for environmental water.

It is critical that the Commonwealth Government, working with the MDBA, develop an investment program to support feasible and value for money works and measures. The Commonwealth Government has provided some funding to assess the feasibility of proposals put forward by the State Government and local communities; however, there is

no commitment to fund these projects once assessed and determined to be feasible and of value.

Where works and measures to deliver better environmental outcomes, save water or deliver environmental water more efficiently are being considered (including those which may potentially result in changes to sustainable diversion limits) downstream impacts must be scientifically and quantitatively determined. It is important that these works and measures do not detrimentally impact on meeting environmental water requirements at other sites.

Relatively small changes in volume can have significant impacts on downstream sites. For example, the South Australian Government's analysis has identified that a volume change as little as 10 GL across the South Australian border can influence peak salinities in the South Lagoon of the Coorong in periods of drought (Higham, 2002).

The South Australian Government is seeking a commitment that the Basin Plan will require that all proposals for works and measures are quantitatively assessed for downstream impacts over a range of water availability scenarios, including on sensitive sites such as the Coorong, Lower Lakes and Murray Mouth. A robust framework for assessing infrastructure projects also needs to be developed by the MDBA.

Recommendation 18

The Commonwealth Government must work with the MDBA to develop an investment program and works and measures strategy; and the Basin Plan must require that all proposed works and measures are assessed for individual and cumulative effects on downstream assets and functions over a range of water availability scenarios.

4.12 Improved assessment of environmental water requirements

Following from a number of the recommendations set out above, the South Australian Government would welcome discussions with the MDBA about the additional hydrological modelling required and about the development of more comprehensive and robust environmental water requirements for sites in South Australia. In addition to addressing constraints, the modelling may also need to reflect alternate delivery patterns.

South Australia's environmental water requirements for the Coorong, Lower Lakes and Murray Mouth and Riverland-Chowilla Ramsar sites would complement and strengthen the MDBA's environmental water requirements when undertaking modelling and assessment of water recovery scenarios. The Goyder Institute for Water Research has determined that the South Australian environmental water requirements are more holistic in meeting the Riverland-Chowilla ecological character requirements particularly with the inclusion of flow targets for lignum and water bird breeding (Pollino et al, 2011). The South Australian environmental water requirements for the Coorong, Lower Lakes and Murray Mouth represent the outcome of extensive scientific analyses and have been internationally peer reviewed.

Recommendation 19

The MDBA must work with South Australia to develop a more comprehensive and robust set of environmental water requirements for the Coorong, Lower Lakes and Murray Mouth and Riverland-Chowilla Ramsar sites for its modelling and assessment.

4.13 Storage rights and management of environmental water

Under the current provisions of the Murray-Darling Basin Agreement, South Australia's water spills before that of New South Wales and Victoria. As more water is secured by the Commonwealth Environmental Water Holder and this water is stored and used differently to current usage patterns, it is likely that this will result in increased spills and reduced water security for South Australia. More equitable and secure access to storage, such as vertical storage rights, to protect the State's water security, while also facilitating the delivery of environmental water, is of critical importance.

Recommendation 20

The MDBA must investigate options for storage access to protect the State's water security (including vertical storage rights) as a priority.

5. SURFACE WATER BASELINE DIVERSION LIMITS AND SUSTAINABLE DIVERSION LIMITS

Key messages

- South Australia has a long track record of exemplary behaviour in managing the water resources of the River Murray, including capping water entitlements in 1969 and investing in water efficient infrastructure.
- South Australia's past responsible behaviour, irrigation efficiency and diversions for urban water supplies must be taken into account to avoid disproportionate impacts on South Australian irrigated agriculture and regional communities.
- The Basin Plan must be amended to indicate that the Commonwealth Government will 'bridge the gap' between baseline diversion limits and sustainable diversion limits.

5.1 South Australian River Murray baseline diversion limit

The South Australian Government supports the MDBA's approach in the legislative instrument to describe the baseline diversion limit (BDL) in text and to include estimates of the quantity of water represented by the BDLs as notes. This will allow for adjustments to the BDL, if improved models and methods for estimation are developed, without requiring amendment to the Basin Plan. It is important that the process for revising estimates involves consultation with the relevant jurisdictions.

The current BDL for the South Australian River Murray has been estimated as 665 GL/year as set out in Schedule 3, Item 25 of the draft Basin Plan. It is noted that the MDBA has advised that the conversion from Cap to BDL will have no impact on the reliability of existing water entitlements.

In determining the BDL, the MDBA has converted the Cap on diversions that has been implemented since 1997 to a long term average baseline diversion limit. This has required the MDBA to undertake modelling to convert the different components of the Cap that include maximum annual limits, a long term average limit (for the All Other Purposes Cap element that includes irrigation entitlements) and a rolling five year average limit for Metropolitan Adelaide water supply to a single long term average volume.

The South Australian Government will continue to engage with the MDBA to ensure the accuracy of its BDL estimates so that reliability of water entitlements is maintained.

Community and stakeholder feedback highlights that not all stakeholders understand how the South Australian River Murray BDL of 665 GL/year was determined and that they have concerns about the conversion process.

Recommendation 21

The MDBA must:

- *develop and publish a plain English explanation of how the baseline diversion limits (BDLs) were determined, and how this relates to determination of the sustainable diversion limits (SDLs) and to compliance; and*
- *include in the Basin Plan a process for consulting with jurisdictions on any updates to BDL estimates.*

5.2 South Australian River Murray sustainable diversion limit

The proposed sustainable diversion limit (SDL) for the South Australian River Murray is the BDL minus a fixed local reduction target of 101 GL and minus a shared reduction amount (Schedule 2). The total shared reduction amount for the southern connected system is 971 GL (based on a water recovery scenario of 2750 GL). The draft Basin Plan does not specify a State or catchment contribution to the shared reduction amount.

The Basin Plan sustainable diversion limits and associated water recovery must not impact on water security for water entitlement holders.

5.2.1 Sustainable diversion limits – recognising responsible past behaviour

South Australia has a long track record of exemplary behaviour in managing the water resources of the River Murray. The South Australian Government expects an SDL that recognises South Australia's efficient water use practices and past responsible management.

In response to declining water quality and quantity levels in the 1960's, the South Australian Government set its own cap in 1969. This was further reduced by the South Australian Government in 1979 and again in 1991 prior to the implementation of a Basin-wide Cap in 1997.

Over the past 30 years a majority of South Australia's irrigation water delivery infrastructure has been upgraded, mostly to fully piped pressurised systems, with a proportion of the water savings being returned to the environment. On-farm, South Australian irrigators have also invested in irrigation efficiency to maximise water availability in the capped environment.

Despite this, the MDBA has given no recognition to South Australia's prior responsible behaviour in capping entitlements and investment in irrigation efficiency in the setting of SDL's. The target of 15% reduction from the BDL for the South Australian River Murray is exactly the same as that set for the upstream parts of the River Murray catchment. No account is taken of the fact that a large proportion of our diversions are for essential urban water supplies, including Metropolitan Adelaide and Country Towns.

Equally, the proposed shared reduction amount of 971 GL for the southern connected Basin provides no specific recognition of South Australia's history of responsible water management.

This is not an acceptable outcome to the South Australian Government and irrigation communities nor to the broader South Australian community.

In practice a substantial amount of water, around 85 GL, has already been recovered for the environment from the South Australian River Murray mainly from irrigators through the

Commonwealth water buyback program. Given this amount, and other projects in the pipeline, the 101 GL figure is likely to be achieved in the near future.

As a result the South Australian Government is prepared to accept the 101 GL reduction to our baseline diversion limit (notwithstanding our reservations as to the fairness of how this figure was arrived at) on the proviso that no further water recovery amounts are mandated for the South Australian part of the river. As such, none of the 971 GL shared reduction amount should be apportioned to, or mandated to be sourced from, South Australia. In this regard any further contribution by South Australia to the water recovery target should only be through strategies agreed to by the South Australian Government and relevant industry organisations.

Recommendation 22

The State's past responsible behaviour, investment in irrigation efficiency and water held for its urban water supplies must be taken into account to avoid a disproportionate impact on South Australia's irrigated agriculture production, and associated flow-through impacts to dependent regional communities.

Recommendation 23

South Australia's mandated contribution to the water recovery target must be no more than the 101 GL reduction to our BDL, as specified in the draft Basin Plan, and no further contribution to the water recovery target will be sourced from South Australia except where agreed to by the South Australian Government and the relevant industry organisations.

Recommendation 24

The MDBA must clearly explain the way in which the final SDLs, and any associated limits or conditions or apportionment, adopted in the Basin Plan have been calculated, determined or arrived at.

5.2.2 Commonwealth water recovery strategy

The South Australian Government's position is that there should be no forced reductions. The gap between the BDLs and SDLs must be bridged by the Commonwealth Government through a combination of water purchase from willing sellers and water savings from investment in infrastructure and other projects. In South Australia, this must be done in consultation with, and with the agreement of, the South Australian Government and relevant industry organisations.

The South Australian Government maintains the view that water purchase remains a cost effective way to direct water to its highest value use, including the environment and must be a key element of any water recovery strategy. At the same time opportunities for high value investment in infrastructure to secure water savings should also continue.

However such a strategy must not be used to impose an unjust burden on South Australian irrigation communities and must recognise South Australia's early actions to cap its entitlements from the River Murray and the efficiency of our irrigators.

The Commonwealth Government's approach to water recovery will influence social and economic outcomes and significant effort must be directed at understanding and mitigating impacts. The South Australian Government wants a strategic approach to water recovery, whether it be through water purchase or infrastructure projects. Any further contribution by South Australia to the water recovery target beyond the 101 GL specified for South Australia in the draft Basin Plan must only be done in consultation with, and with the agreement of, the South Australian Government and relevant industry organisations.

There are a number of opportunities for a strategic approach to water recovery. One example, which has been put forward to the Commonwealth Government for consideration is the Water Industry Alliance's *South Australian River Murray Improvements Program* that aims to return up to 40 GL of water to the River Murray.

Recommendation 25

The Basin Plan must require that the local and shared reduction targets be met by the Commonwealth Government through its 'bridging the gap' commitment.

Recommendation 26

The Commonwealth Government must take a strategic approach to water recovery and water purchase in South Australia through consultation with, and with the agreement of, the South Australian Government and relevant industry organisations.

Recommendation 27

The Commonwealth Government should develop and publish a water recovery strategy that outlines its plan to 'bridge the gap' and ensures that there are no forced reductions in water entitlements.

5.3 Baseline diversion limits for other SDL resource units

5.3.1 Eastern Mount Lofty Ranges (EMLR) and Marne Saunders SDL resource units

The Basin Plan BDLs should be consistent with the current diversion limits in existing and draft water allocation plans (Marne Saunders and EMLR respectively) developed under the South Australian *Natural Resources Management Act (2004)*.

The proposed limits and water taking rules in these plans have been set to meet environmental objectives while considering social and economic needs for water. The development of the plans has involved extensive community consultation and used best available science and data. All analysis and modelling of that data is described in peer-reviewed, published technical reports which have been provided to the MDBA for review and assessment.

The BDL estimates established in the draft Basin Plan of 28.3 GL per year for Eastern Mount Lofty Ranges (EMLR) and 2.9 GL per year for Marne Saunders SDL resource units (Schedule 3, Item 27 and 28) are considered consistent with the current water allocation plan diversion limits. However a specific change is required to the BDL description for the EMLR (Schedule 3, Item 27) to ensure the correct water management policies are referenced.

Recommendation 28

The MDBA must change the BDL description for the Eastern Mount Lofty Ranges to reflect the correct water management policies as outlined in the detailed comments on chapter 6 in Appendix 2 of this submission.

5.3.2 South Australian Non-Prescribed Areas SDL Resource Unit

The South Australian Government supports a BDL that reflects the current level of use in the non-prescribed areas based on best available science.

The draft Basin Plan determines the BDL to be the long-term average limit on the quantity of water that can be taken to be 3.5 GL/year as set out in Schedule 3, Item 26. It is understood that the data set used by the MDBA represents the current, best available information for the non-prescribed areas.

There is some level of take from watercourses, predominantly for stock and domestic purposes within the sustainable diversion limit resource unit. The BDL description needs to be amended to recognise this take.

Recommendation 29

The BDL description for the South Australian Non-Prescribed Areas SDL Resource Unit must be amended to allow for take from watercourses in addition to run-off dams.

5.4 Sustainable diversion limits for other SDL resource units

The sustainable diversion limit for the EMLR SDL resource unit is the BDL minus the shared reduction amount. The South Australian Government notes that in a practical sense, water recovery from this catchment is likely to be limited as a significant portion of the water is held in farm dams or is taken by commercial forestry.

5.5 SDL compliance and enforcement

The South Australian Government considers that a key element of the Basin Plan is the ability to enforce compliance with sustainable diversion limits. Under the draft Basin Plan water resource plans can only be accredited by the MDBA if they contain rules to manage water within sustainable diversion limits. The chapter 6 provisions provide for an audit of whether on an annual basis Basin States in applying the water resource plan rules have managed within the permitted annual limits.

Provisions allow for a cumulative balance for an SDL resource unit to be 20% in debit before non-compliance is triggered to account for analytical model error. This 20% debit limit must not be increased. It is understood that this reflects the experience with the current Cap and recognises that models cannot perfectly replicate climatic, water resource and market conditions. The MDBA should clearly explain the technical justification for the 20% debit limit and its compliance approach.

The draft Basin plan is silent on the notion of a limit on the accumulation of credits. The South Australian Government is concerned about the potential implications of having no limit on credits. This raises issues, particularly if ongoing accumulated credit is used to support inappropriate overuse with potential environmental impacts.

The draft Basin Plan currently only contains a very broad method for SDL compliance and detailed guidelines will need to be developed. The Basin Plan must refer to the development of those guidelines and require jurisdictions to observe them. Based on the experience gained with implementing and enforcing the Cap on diversions, and the many complex policy and technical matters, this will need to be done with technical input and close consultation with the Basin States. The MDBA's Independent Audit Group (IAG) on Cap Implementation has played an integral part in the development and the ongoing maintenance of the Cap process. The annual audit function of the IAG, the publication of an annual audit monitoring report and the independent nature of the audit has also proved beneficial. There is merit in using a similar, independent expert governance, audit and reporting approach in the development and application of an SDL compliance methodology.

Recommendation 30

The Basin Plan must set a limit on the accumulation of SDL credit amounts.

Recommendation 31

The Basin Plan must:

- *refer to the development of SDL compliance guidelines and require jurisdictions to observe them;*
- *establish a role for an independent audit group, with appropriate expertise, to advise on ongoing SDL compliance, and to assist in the development of SDL compliance policy and the SDL compliance guidelines; and*
- *require the MDBA to prepare and publish an annual water audit monitoring report including information about compliance with annual limits.*

6. GROUNDWATER BASELINE DIVERSION LIMITS AND SUSTAINABLE DIVERSION LIMITS

Key messages

- A precautionary risk management approach must be taken to manage groundwater extraction to avoid impacts on surface water flows and key environments.

6.1 Groundwater SDL resource units in South Australia

The majority of South Australian groundwater SDLs have been set at the same limit as the BDL for each groundwater SDL resource unit area. These limits are consistent with limits in current and draft State water allocation plans.

Where SDLs have been increased, the resources are mostly saline and/or deep confined aquifers that are not connected to surface water resources. Currently, there is no demand for these resources and it is highly likely that they will never be used. Where the saline resources do have connectivity with surface water resources, they have detrimental impacts and extensive salt interception schemes have been constructed to minimise these impacts.

6.2 Determination of groundwater SDLs in other areas of the Basin

According to the information provided by the MDBA, many of the resources where groundwater extraction has been increased from the limits set in the Guide to the proposed Basin Plan are not connected to surface water resources.

However, noting significant concern about potential groundwater extraction impacts on connected surface water resources, the MDBA must embrace the precautionary principle put forward by the National Water Commission as consistent with the National Water Initiative (NWI):

'To mitigate the risks to the water resource, the Commission considers that unless and until it can be demonstrated otherwise, surface water and groundwater resources should be assumed to be connected, and water planning and management of the resources should be conjunctive.' (National Water Commission, 2009, pg 36).

Consistent with this principle, the MDBA must include provisions in the Basin Plan to ensure appropriate risk assessment is undertaken to demonstrate that the taking of groundwater will not adversely impact on surface water flows and associated ecosystems. In addition, it is recommended that the MDBA undertake a program to increase knowledge of groundwater-surface water interactions as a key risk management strategy in chapter 4 of the draft Basin Plan. A review of the Basin Plan provisions should be undertaken to ensure that these provisions are adequate to manage groundwater in a precautionary manner.

Recommendation 32

The Basin Plan must:

- *include a precautionary principle with regard to groundwater that requires an assumption of connection to surface water unless proven otherwise; and*
- *consistent with this principle include provisions that ensure groundwater sustainable diversion limits cannot be increased unless it can be demonstrated that increased diversion will not impact on surface water resources or environmental watering.*

7. SUSTAINABLE DIVERSION LIMITS AND SOCIAL AND ECONOMIC ISSUES

Key messages

- The South Australian Government is concerned that communities located in the Riverland and below Lock 1 are particularly vulnerable to reductions in consumptive water use.
- The Commonwealth Government must develop a socio-economic plan to complement the Basin Plan; and provide targeted social and economic support to communities to mitigate impacts and assist them to transition to a future with lower water availability.

The South Australian Government acknowledges the concerns of Basin communities in regard to the possible impact of the Basin Plan on their future. In implementing any reform agenda there are likely to be socio-economic impacts which need to be appropriately recognised and addressed.

The South Australian Government rejects the concept that delivering a sustainable future for the environment of the Murray-Darling Basin is incompatible with ensuring a strong socio-economic future for communities reliant on this important natural resource.

Prosperity within river communities and the long-term viability and productivity of river dependent industries, such as irrigated agriculture, is intrinsically linked to the environmental health of the river system. This interdependent relationship cannot be ignored in meeting the challenge of reducing water extractions to ensure a sustainable river system.

7.1 Socio-economic impacts in South Australia

Communities located in the Riverland and below Lock 1 may be particularly sensitive to changes as a result of the Basin Plan. For these communities, the Basin Plan is just one of a number of pressures currently facing them. Factors such as commodity prices, the legacy impacts of the prolonged drought (including often high levels of debt), technological change, climate change and adaptive capacity will also play a major role in the socio-economic impacts that are experienced in these regions. There are also a range of adverse market conditions currently affecting industries in these regions, particularly dairy farmers and wine grape and citrus growers.

The impacts of drought have adversely affected cash flows and capital and increased the debt levels of farms, households and businesses in the agriculture, forestry and fishing industries and related sectors.

A number of stakeholders have expressed concern that the impacts of drought and poor market conditions have left a significant number of irrigators in South Australia in a tenuous position, increasing the likelihood that large numbers of irrigators could sell water to the Commonwealth Government, leaving an unsustainable industry base in the region. There are also concerns about water purchases creating a 'swiss cheese' effect and associated cost pressures in irrigation networks should irrigators choose to exit the industry entirely. These issues support the need for a strategic approach to water recovery and water purchase.

7.2 Socio-economic impacts across the Basin

The South Australian Government recognises the significant amount of work undertaken by the MDBA to identify the possible socio-economic impacts from implementation of the Basin Plan. These studies consistently find that broad scale, long term impacts are likely to be relatively minor, particularly when taking offsets such as water purchase, investment in water-saving infrastructure and productivity gains into account.

While overall costs are projected to be small, in comparison to the scale of the Basin wide economy, these aggregate estimates can mask more significant local and regional community impacts.

Any reduction in irrigated agriculture production that results from water purchase can create third party impacts for farmers who remain, irrigation operators, businesses that service farmers, processing companies and community level businesses and services. These flow-on impacts can lead to significant local impacts over the short to medium term.

The South Australian Government strongly supports the Commonwealth Government's commitment to fully 'bridge the gap' and suggests that this commitment is formalised including through reference in the Basin Plan. This commitment will help ensure that impacts on individual water entitlement holders are minimised and increase security for irrigators. Investment in irrigation efficiency measures will also provide a number of social and economic benefits to individuals and communities through generating income streams in the short to medium term.

Assurance of the security of entitlements is fundamental to underpinning business confidence in the irrigated agriculture sector. The South Australian Government maintains that there must be no impact on the security of water entitlements as a consequence of implementing the Basin Plan. Certainty of the functional and market value of entitlements is fundamental to confidence in irrigated agricultural business. This includes ensuring that delivery of water for the environment does not have unintended consequences for third parties, including irrigators.

7.3 Opportunities to strengthen economies

There is opportunity for the Commonwealth Government to commit to a process of strengthening the economies of Basin jurisdictions through targeted economic development, diversification and industry development initiatives, which disappointingly have been largely ignored to date. Such investments will need to be above and beyond funding already available under *Water for the Future* and the *Regional Development Australia Fund*.

These water reforms could be used as an opportunity to support a long-term prosperous and sustainable future for Basin communities and to show the world that it is possible to deliver ecological sustainability alongside vibrant and productive industries and communities. The Commonwealth Government and the studies undertaken by the MDBA to date have not fully explored the economic effects and opportunities of this reform.

The South Australian Government has recognised this opportunity and will be investing \$20 million over the next five years on projects in the Riverland to diversify our regional economy

and enable them to become more resilient to future economies through the Riverland Future Fund. These investments will be made in collaboration with local communities.

The Commonwealth Government must take action to strengthen the economies of the South Australian Murray-Darling Basin region, including the development of a socio-economic plan to complement the Basin Plan that outlines programs to support affected communities to diversify economically and adapt, including adaption to more water efficient industries. An objective of the plan could be to increase employment above levels that existed prior to the Basin Plan.

Recommendation 33

The Commonwealth Government must:

- *provide targeted social and economic support to vulnerable River Murray communities in South Australia to assist them to transition to a future with less water availability and increase their resilience; and*
- *develop a socio-economic plan to complement the Basin Plan.*

7.4 Infrastructure investment

Over the past 30 years most of South Australia's irrigation water delivery infrastructure has been upgraded to fully piped pressurised systems. In addition, farmers have invested in high-efficiency irrigation infrastructure to maximise water effectiveness in a constrained environment.

It would be unfortunate if this meant that the State missed out on the potential economic stimulus provided by investment in infrastructure including through the Commonwealth Governments \$5.8 billion Sustainable Rural Water Use and Infrastructure Program.

Because of the eligibility criteria, there has been very low uptake of the Private Irrigation Infrastructure Operators Program in South Australia. After two rounds of funding only \$14.4 million of the \$110 million available has been granted.

Innovative opportunities to offset impacts through infrastructure investment and other projects are required to avoid a disproportionate impact on South Australia's irrigated production and associated flow-through impacts to dependent regional communities.

South Australian industry has recently developed a proposal to further improve the State's irrigation efficiencies and infrastructure. The Water Industry Alliance's *South Australian River Murray Improvements Program* aims to return up to 40 billion litres of water to the River Murray through improvements to irrigation efficiencies, and industry reconfiguration and renewal. The program would also help irrigators get back on a sustainable financial footing after the drought.

When it comes to bridging the gap, there is not a 'one size fits all' approach. It is imperative that Commonwealth Government funding criteria for infrastructure investment is relaxed and enhanced to enable these programs to better address the needs of South Australian industries and communities and provide more equitable access to funding.

Where investment results in direct water savings or SDL offsets, it will be important that there is a robust and transparent framework for assessing water recovery.

Recommendation 34

The Commonwealth Government must change its funding criteria to ensure more targeted and equitable access to funds, including under the Water for the Future program and the Regional Development Australia Fund. In particular, the South Australian Government seeks flexibility in the application of remaining unspent Commonwealth funds.

Recommendation 35

The MDBA must develop a robust and transparent framework to allow for the evaluation of proposed water recovery savings or SDL offsets that may accrue from infrastructure investments.

7.5 Socio-economic benefits

Assessments of the socio-economic benefits of restoring the Basin to health have largely been missing from the MDBA's process to develop the Basin Plan. Only three of the 23 studies commissioned by the Authority have looked at such benefits, with the most significant study of these only released a week and a half before the finalisation of the statutory consultation period. This has certainly been a missed opportunity in the MDBA's approach and one that has limited a more informed public debate.

Notwithstanding the lack of emphasis on benefits, the studies that have been completed suggest overwhelmingly that the benefits of a healthy Basin are significant. For instance, the value of restoring the Coorong alone to good health has been estimated to be worth \$4.3 billion to Australians (Morrison and Hatton MacDonald, 2010). The *Assessment of the Ecological and Economic Benefits of Environmental Water in the Murray-Darling Basin* by the CSIRO, estimated the economic value of benefits of the 2800 GL scenario is between \$3 billion and \$8 billion (CSIRO, 2012).

Recommendation 36

The MDBA should develop and implement a communications strategy to communicate the findings of the 'Assessment of the Ecological and Economic Benefits of Environmental Water in the Murray-Darling Basin' report by the CSIRO, and other studies, which demonstrate the socio-economic benefits of a Basin Plan as soon as possible.

8. PROPOSED REVIEW OF SUSTAINABLE DIVERSION LIMITS IN 2015

Key message

- The South Australian Government does not believe it is possible to have a credible review of sustainable diversion limits in 2015.
- Transparent assessment and governance frameworks must be established to guide any review of the Basin Plan.

8.1 Appropriateness of a 2015 review of SDLs

The South Australian Government believes that the proposed 2015 timeframe will not deliver a credible review due to lack of adequate science and lack of robust information on water savings and more efficient water delivery.

Noting the timeframes associated with the procedures for finalising the Basin Plan that are outlined in the Water Act, it is unlikely that the Basin Plan will come into effect prior to the end of 2012. This would mean that there may only be two years between the Plan coming into effect and the review. Within this timeframe it will be difficult to gather robust evidence with which to assess changes to SDLs as a result of works and measures and other actions. In particular, construction and successful implementation of many proposed and potential works and measures that aim to improve the efficiency of environmental watering are unlikely to have occurred by this time, let alone have had time to realise the intended water savings and other benefits. Changes to river operations and management are also needed to enable the efficient and effective delivery of environmental water and may have an impact on sustainable diversion limits and this will also take time to investigate, resolve and implement.

In addition, the full water recovery volume will not be available to the environment at this time and there may only be limited improved understanding of whether the Basin's environmental water requirements are being adequately met. It will take time to determine Specific Measurable Achievable Realistic Time bound (SMART) condition objectives and targets, and then to determine trends in ecological health from monitoring and evaluation programs.

The Water Act clearly did not envisage that a review would take place so early after the Plan's adoption. The Water Act provides for the Basin Plan to be fully reviewed every ten years and in fact prohibits either the responsible Commonwealth Minister or Basin States from requesting a review within the first five years after the Basin Plan takes effect.

Recommendation 37

The South Australian Government rejects the need for a review of sustainable diversion limits in 2015, noting that a review in 2015 will not allow for sufficient, robust evidence on which to review the sustainable diversion limits.

8.2 Matters on which the Authority may express its views

Section 6.06 outlines matters that the MDBA may express its view on in relation to the need to adjust the SDL for a SDL resource unit. The South Australian Government considers this list deficient and recommends it include the impacts of climate change and groundwater extraction impacts. Consideration of physical, operation and policy constraints must also be explicit under this section.

Recommendation 38

The Basin Plan must explicitly allow the MDBA to express a view on the need for actions to address policy, physical and operating system constraints; groundwater extraction impacts; and climate change impacts in section 6.06.

8.3 The need for transparent and appropriate governance

Any review of the Basin Plan needs to be undertaken through a robust and transparent process with appropriate expertise (including scientific expertise). The South Australian Government recommends that the MDBA establish an advisory committee including jurisdictional representation and relevant experts. Prior to any review the MDBA must also consult with the jurisdictions on the terms of reference for the review, including identifying the governance arrangements, timeframes, objectives, methods, consultation and data analysis requirements on which assessments will be based.

Recommendation 39

The Basin Plan must:

- *establish a review advisory committee including jurisdictional representation and appropriate expertise (including scientific expertise); and*
- *develop transparent terms of reference, governance and review methods in consultation with the Basin States.*

8.4 A framework for assessing proposals to adjust SDLs

The South Australian Government is concerned that the proposal for a review of SDLs has created a high level of expectation that the 2750 GL water recovery target will be reduced, despite there being clear evidence that this volume is insufficient to meet a significant number of the key environmental water requirements.

It should be clearly recognised that investment in environmental works and measures and addressing or relaxing systems constraints may assist in meeting environmental water requirements that are not currently met under the water recovery target and may not result in a reduction to this target. As noted elsewhere in this submission it is critical that downstream impacts are thoroughly assessed. The MDBA must consult with jurisdictions regarding any proposals to adjust SDLs.

Recommendation 40

The MDBA must develop clear principles and a robust assessment and modelling framework for assessing the individual and cumulative impacts of any proposals to adjust SDLs in consultation with jurisdictions.

9. WATER QUALITY AND SALINITY MANAGEMENT PLAN

Key messages:

- The Water Quality and Salinity Management Plan (WQSMP) and its suite of targets are critical to guide future actions to manage salinity and other water quality issues.
- A modified salt load export target and two additional targets are recommended to ensure protection of water quality in the lower reaches of the River Murray.
- Reporting arrangements against the salinity provisions of the WQSMP must occur annually to support adaptive management.

Due to its location at the end of the river system, the River Murray in South Australia is particularly vulnerable to adverse water quality and high salinity levels, especially during low flow periods. Low flow periods increase the risk of cyanobacterial blooms. Wetlands and floodplains that undergo extended dry periods accumulate greater amounts of leaf litter that – when inundated – contribute to blackwater events. Acidification becomes a problem when long-wet sulfidic sediments are exposed due to very low water levels.

The MDBA's Independent Audit Group (IAG) for salinity reports that *'...with the absence of high flows for 13 years, salt continues to build up in the Basin's flood plains, risking very high salinities following the next period of high flows. In addition to salt accumulation in the floodplain, low flows and reduced water levels below Lock 1 have resulted in no major export of salt from the basin to the ocean through the Murray Mouth for the last 3 years. The extreme dry conditions and low flows have led to salinity, acidification and environmental problems reaching crisis point in Lakes Alexandrina and Albert, the Coorong and in other basin lakes.'* (MDBA, 2010; pg vii)

Poor water quality and high salinity affects environmental assets, irrigators and critical human water supplies and therefore has significant environmental, social and economic implications. For example, peaks in salinities can threaten productivity of key horticultural industries in the Riverland and ongoing high salinities can result in damage to industrial and household infrastructure. In the recent drought period, salinity threatened water supplies for human consumption.

Water quality and salinity issues are not just a problem for the River Murray in South Australia they also affect water resources across the Basin. Actions that occur upstream to manage or contribute to water quality and salinity levels affect the health of basin water resources downstream, therefore disposing of salt is a Basin-wide responsibility.

9.1 Objectives and targets

The draft Basin Plan salinity operational targets; salt load (salt export) target; continuation of Schedule B and the Basin Salinity Target (termed planning targets); and water quality and salinity targets for irrigation, recreational, raw water for human consumption and water dependent ecosystems are important to ensure the effective management of Basin water resources into the future.

The existing BSMS has proven robust and the inclusion of a Basin Salinity Target at Morgan as a long term target has helped to guide salinity management actions such as salt interception. However the BSMS is deficient in providing a framework of targets for shorter term, operational management of salinity. This was identified as a major gap in the BSMS Mid-Term Review (MDBC, 2008) and in numerous recommendations of reports of the MDBA appointed Independent Audit Group for Salinity since 2007 (MDBC, 2009; MDBA, 2010; MDBA, 2011a).

Environmental watering also poses some ongoing risks to salinity levels and water quality. The inclusion of salinity operational targets in the Basin Plan will address the shortcomings of the BSMS and also provide an important basis for adaptive management of environmental watering.

The draft Basin Plan includes targets for dissolved organic carbon (associated with blackwater events), dissolved oxygen and alkalinity and it is important that these are retained, not only in the context of environmental water management but also in terms of managing water quality for human consumption.

The draft Basin Plan targets go some of the way to addressing gaps in the current strategies, but additional targets are required. A number of other improvements are needed to strengthen the proposed Basin Plan water quality and salinity targets and management provisions.

9.1.1 Salinity operational targets

A target at or near the border must be retained in the WQSMP. Additionally, the WQSMP must be strengthened through the inclusion of additional salinity operational targets upstream of South Australia to:

- drive accountability for operational decision making by all jurisdictions in the connected southern system;
- enable the significant salt accessions to the River Murray from upstream locations to be managed; and
- provide a recognisable basis for the assessment of water quality entering the State.

The additional upstream target sites need to be geographically located so that they inform understanding of salt discharge from major tributary valleys that have an impact on salinity in the Lower Murray and enable appropriate management action to address that discharge.

Additional salinity operational targets downstream of Murray Bridge are also required. The draft Basin Plan does not offer adequate protection for areas below Murray Bridge and particularly for water quality in the Lower Lakes. Salinity and water level targets are required to guide and measure progress on the provision and management of water flows to protect these assets. The inclusion of these targets will also address a major gap in the BSMS that became particularly apparent during the recent drought. In 2008-09 the BSMS Basin Salinity Target at Morgan was achieved and salinity at this site did not exceed 624 EC (MDBA, 2010). However in April 2009, the Lower Lakes salinities reached record levels - Lake Alexandrina reached 6000 EC and Lake Albert almost 20,000 EC (Department for Water, 2011). This demonstrates that the Morgan site does not adequately reflect conditions in the lower reaches and Lower Lakes.

The Basin Plan must avoid the catastrophic acidification, salinity levels and ecological collapse that occurred during the recent drought and the associated significant social and economic costs. Communities below Lock 1 are adamant that specific water quality related targets must be included in the Basin Plan to enhance the level of protection for the water resources, consumptive users and ecosystems in this region. The inclusion of a salinity operational target and water level target for Lake Alexandrina will provide for the management of salinity, water levels and water quality in both Lake Alexandrina and Lake Albert. As such, specific targets for Lake Albert are not considered necessary.

The best available science informs us that a target such that salinity levels in Lake Alexandrina are maintained below 600 mg/L (1000 EC) for 95% of the time and below 900 mg/L (1500 EC) for 100% of the time (measured as lake average) is required.

Recommendation 41

The Basin Plan must include:

- *additional salinity operational targets upstream of South Australia (to those listed at section 8.18) including a target at or just upstream of the border to drive a more robust approach to operational decision making by all jurisdictions; and*
- *an additional salinity operational target such that salinity levels in Lake Alexandrina are maintained below 600 mg/L (1000 EC) for 95% of the time and below 900 mg/L (1500 EC) for 100% of the time (measured as lake average).*

9.1.2 A water level target to inform operational decisions

The experience of the recent drought highlights the importance of a water level target below Lock 1 to maintain water quality and prevent ecological collapse and adverse community and economic impacts. Both water levels and salinity are critical parameters in the assessment of impacts below Lock 1 and in the Lower Lakes. Water levels below 0.0 metres AHD result in high risk of broad scale acidification (Heneker and Higham, 2012; Pollino et al, 2011) and maintaining Lower Lakes water levels below 0.0 metres AHD has been set as an environmental water requirement by the MDBA.

A minimum water level target provides for salt management and management of acidification of Lake Albert and the margins of Lake Alexandrina and below Lock 1. It will avoid salinity and acidification risks to water quality and agricultural production along the main river channel below Lock 1. Maintaining water levels will minimise lowering of adjacent water tables that leads to increasing salinity and acidification.

Based on its scientific analysis, the South Australian Government supports a water level target of 0.4 metres AHD with an absolute minimum of 0.0 metres AHD measured as daily averages across Lake Alexandrina. It is noted that this would achieve higher water levels, depending on flow, between Lock 1 and Wellington.

Recommendation 42

The Basin Plan must include a minimum operational water level target of 0.4 metres AHD for 95% of the time with an absolute minimum of 0.0 metres AHD for 100% of the time (measured as a daily average across Lake Alexandrina).

9.1.3 Salt load target

South Australia supports the concept of a salt load target as an indicator of Basin health and system connectivity. The removal of salt through the Murray mouth is vital to the health of the system, and ensures that the Lower Lakes are not used as the end point for the Basin's salt.

The South Australian Government is concerned that measurement of the achievement of the target over a preceding ten year period will mask significant impacts that can occur over that timeframe. Measurement of the target over a three year rolling average is necessary. This is supported by modelling analysis (Heneker, 2010) that shows:

- the impact of a single large inflow event to the Lower Lakes and the resulting ability to export salt is generally exhausted within any 2-3 year period, due to evaporation in the Lower Lakes; and
- a 10 year rolling average target can be met while still experiencing significant peaks in salinity in the lakes that could damage the ecological character of the site.

Recommendation 43

The Basin Plan must:

- *require the MDBA to assess achievement of the salt load target against the number of tonnes of salt per year averaged over the preceding three years; and*
- *require action by the MDBA where the salt load target is not met on an ongoing basis.*

9.2 Water quality adaptive management and reporting

The five year reporting requirements outlined in Chapter 8 are inadequate, particularly as they relate to salinity management. Infrequent reporting will lead to an inability to drive accountability for actions that may affect water quality and salinity and will reduce the ability to adaptively manage the river system. To actively manage salinity in the system including salt from environmental watering there is a need to review and adapt management on an annual basis. Annual reporting will support this and provide a sound basis for understanding how the MDBA and jurisdictions have considered trade-offs and costs and benefits of actions prior to their undertaking and to drive improved accountability for actions.

Annual reporting on BSMS implementation already occurs under Schedule B to the Murray-Darling Basin Agreement. Hence, it would not be a significant additional reporting burden for jurisdictions to report annually concurrently with this process on how they have had regard to the salinity operational targets, and achievement against the salinity targets for raw water for treatment for human consumption and irrigation water.

Annual reporting for water quality parameters other than salinity is desirable and should be investigated further by MDBA.

Recommendation 44

The Basin Plan must include annual reporting against the salt load target, the salinity operational targets, and the salinity targets for raw water for treatment for human consumption and irrigation water in line with existing Basin Salinity Management Strategy processes. Recommended wording changes to sections in chapter 8 are outlined in Appendix 2 of this submission.

10. ENVIRONMENTAL WATERING PLAN

Key messages

- The Commonwealth Environmental Water Holder must manage its water in accordance with Basin annual watering priorities set by the Authority.
- Coordination and governance need to be improved for long term planning, setting watering priorities, and water delivery.

The environmental watering plan is a critical element of the Basin Plan. It must provide a flexible but effective plan to coordinate the planning, prioritisation, delivery, monitoring and reporting of environmental water use across the Basin. To achieve this outcome the plan must:

- build on existing state planning and consultation arrangements;
- provide for effective governance and decision making arrangements that will coordinate environmental water planning, prioritisation, delivery, reporting and monitoring and evaluation across the MDBA, State governments and the Commonwealth Environmental Water Holder;
- provide flexibility to address changing climatic, water availability and river management conditions; and
- take a risk management approach to planning and prioritisation that allows for fit for purpose planning, minimises costs and can be practically applied.

Although the environmental watering plan (EWP) integrates and builds on the long term watering plan for individual water resources plan areas, it must also provide a sufficiently specific and cohesive guide to environmental watering across the Basin that it also stands alone. The South Australian Government is concerned that the EWP as it currently stands is too generic and aspirational. Aspects of the draft EWP indicate deficiencies in this respect.

10.1 Objectives and targets

The environmental watering plan provides for a set of high level, environmental objectives that encompass the key characteristics of healthy water dependent ecosystems. The South Australian Government supports the intent of these objectives. However, measuring progress against these objectives will require translation to a subsidiary set of measurable outcomes or SMART⁴ objectives/targets for a select set of sites and/or functions along with criteria for objectively evaluating whether the higher level objectives are being achieved. This translation is not adequately achieved by the targets set out in Schedule 7, which simply outlines a broad list of components that could be measured for loss, degradation and improvement with no definition of what these terms may mean.

The Basin Plan must require the MDBA to develop a transparent set of SMART objectives and targets, establish baselines for monitoring change, define terms and set agreed indicators and criteria for assessing whether positive/negative progress is being achieved (e.g. thresholds for concern. It may also require investigation and determination of

⁴ SMART: Specific, Measurable, Achievable, Realistic and Timebound

monitoring and evaluation methods. Without this it will be impossible to transparently and objectively determine if the Basin Plan is achieving its environmental objectives. This work is also needed to give guidance to State long term watering plans and water resource plans.

This process should involve a multi-jurisdictional advisory group that includes scientific and policy experts. Given the critical, complex and specific nature of defining measurable objectives and targets and agreed thresholds of concerns this cannot be addressed by the broad and generic monitoring and evaluation framework in chapter 12.

The process for undertaking and integrating monitoring and evaluation in the short term to inform annual adaptive management and over the long term remains unclear. Site or regional scale monitoring and evaluation requirements could be included in States' long term watering plans and used to inform broader monitoring and evaluation by the MDBA and the Commonwealth Government. Without integration and agreement on measures, baselines, methods and scale, as well as funding, it is difficult to see how the MDBA will measure progress towards achieving the environmental watering plan objectives in any meaningful way.

A number of suggested revisions on the detail of the environmental objectives in chapter 7 are provided in the detailed chapter comments in Appendix 2 of this submission.

Recommendation 45

The Basin Plan must:

- *require the MDBA to develop SMART objectives and targets, and a detailed plan for assessing progress for achieving these targets and objectives including baselines, indicator sites and indicators/measures, assessment criteria and methods, and monitoring and evaluation;*
- *provide for environmental monitoring and evaluation linked to State long term watering plans; and*
- *the MDBA must fund the work required to meet these recommendations.*

10.2 Governance, coordination and integration

Coordination and effective use of environmental water will require good governance, clear decision making processes and cooperation between the Commonwealth Environmental Water Holder (CEWH), other water holders, the MDBA and Basin States. Coordination and governance mechanisms require improvement. Issues include that:

- there is no forum established for jurisdictions to discuss environmental watering priorities and delivery, resolve conflicts and provide policy and operational advice to the MDBA and the CEWH. Under section 7.25 the establishment of an advisory committee to provide advice on environmental watering is optional and its advice is limited to Basin annual environmental watering priorities;
- there is no process outlined for how the MDBA will identify Basin annual environmental watering priorities and, importantly, make decisions where there are conflicting priorities or competing requirements; and
- there is no process for coordination of environmental water delivery, adaptive management and monitoring and evaluation.

10.2.1 Establishing advisory/coordinating committees

The Living Murray Committee and Environmental Watering Group established under the Living Murray Initiative provide an example of a model that should be built upon for facilitating coordination of environmental water planning and management. It is critical that Basin States have an opportunity to advise on annual priority setting, policy, operational, ecological matters, delivery and monitoring, particularly as the environmental watering plan also guides the use of state environmental water.

The environmental watering plan needs to include provisions that would support the establishment and function of coordinating and advisory committees. The committees should have jurisdictional representation and include relevant scientific, policy and river operations experts. These committees could have a role in developing and advising on:

- long-term environmental watering plans;
- annual environmental watering priorities;
- resolution of policy constraints for delivery of environmental water;
- delivery of environmental water;
- environmental watering schedules;
- monitoring and evaluation; and
- complementary activities and policy issues.

Depending on the complexity of the issues different committees may be needed. For example, an environmental water policy committee to deal with policy and planning aspects of environmental watering and an environmental water operations committee to deal with environmental water delivery, accounting, monitoring and reporting may need to be established. These may not be required for all areas but are likely to be necessary for the southern connected Basin.

10.2.2 Long term watering plans for connected resources

For connected water resources, the South Australian Government suggests that the Basin Plan should enable the preparation of long term watering plans that could apply across jurisdictional boundaries and water resource plan areas. For example, there would be considerable benefit in preparing a long term watering plan for the River Murray system including the Lower Darling. This would enable planning for watering inter-annually, integrated monitoring and evaluation, cooperative watering arrangements and decision making processes for different water availability scenarios to provide guidance to the multiple states, multiple water holders and multiple water resource areas.

These suggestions would avoid sub-optimal environmental outcomes and inefficient environmental water use due to lack of coordination and duplication of delivery and management processes for different water holdings.

Recommendation 46

The Basin Plan must:

- *establish committees to coordinate and advise on environmental watering activities from planning through to delivery and monitoring and evaluation;*
- *include an additional principle requiring the MDBA, Basin States and the Commonwealth Environmental Water Holder to work cooperatively to determine and implement environmental watering priorities in the Basin;*
- *develop guidelines, in consultation with jurisdictions, that outline the detail of how environmental watering prioritisation decisions will be made (e.g. including decision making criteria and conflict resolution processes) and how environmental water delivery, reporting and monitoring and evaluation will be coordinated;*
- *require the MDBA to coordinate the development of long term watering plans for connected water resources in consultation with jurisdictions; and*
- *enable the development of multi-year watering agreements for priority assets.*

10.3 Delivery of environmental water consistent with the environmental watering plan

The draft Basin Plan currently requires that environmental watering is to be undertaken having regard to the Basin annual environmental watering priorities published by the Authority (s7.42). These priorities are developed based on state long term watering plans and state annual environmental watering priorities.

This principle must be applied in environmental watering. While the Water Act requires the CEWH to manage its Basin environmental water holdings in accordance with the EWP, the draft Basin Plan places a lower level of obligation on the use of that water i.e. 'to have regard to' the Basin annual environmental watering priorities.

Environmental watering by the CEWH should be done 'in accordance with' annual watering priorities. The Basin Plan must be consistent with the Water Act in this regard which envisages that the EWP provides the guidance to the CEWH for the Murray-Darling Basin.

In addition where long term watering plans are developed for connected resources or other multi-year watering agreements are established, then these must be used to inform annual watering priorities. Alternatively watering will need to be undertaken in accordance with these long term watering plans or multi-year watering agreements.

Recommendation 47

The Basin Plan must ensure that environmental watering by the Commonwealth Environmental Water Holder in the Murray-Darling Basin is undertaken in accordance with the Basin annual environmental watering priorities and where relevant long term watering plans published by the MDBA.

10.4 Need for an interim watering plan for the southern connected system

The South Australian Government is concerned that the proposed framework established under the EWP in the draft Basin Plan is too broad and does not provide certainty regarding the use of the additional environmental water recovered in the short to medium term. There is the risk of a substantial lag time between the adoption of the Basin Plan and the development of any detailed environmental watering plan or priorities.

The MDBA should coordinate, with relevant jurisdictions and water holders, the development of a specific interim environmental watering plan that informs annual watering priorities for the southern connected system to commence in the 2013-14 water year. The development of such a plan could build on the existing State processes and the work undertaken to assess and model environmental watering requirements.

Recommendation 48

The Basin Plan must provide for the development of a specific interim environmental watering plan for the southern connected system in consultation with relevant jurisdictions and the Commonwealth Environmental Water Holder, to commence in the 2013-14 water year and which guides the application and delivery of environmental water.

10.5 Guidance for portfolio management

The location of, and types of water products that are purchased and/or traded by the CEWH can have significant implications for environmental water delivery in the southern connected system. The proposal in Part 8 of the EWP that the Authority may prepare recommendations on where additional environmental water should be recovered appears reasonable, subject to changes to avoid unintentional consequences as outlined in the detailed chapter feedback (see Appendix 2). This could provide valuable guidance to the CEWH about managing its portfolio to meet the objectives of the EWP as required under s106 of the Water Act. It is considered that additional guidance could also be provided by the state long term watering plans and annual environmental watering priorities.

Recommendation 49

The Basin Plan must require the Commonwealth Environmental Water Holder to have regard to State long term watering plans and annual environmental watering priorities in planning for the recovery of additional environmental water and trading of environmental water.

10.6 'Fit for purpose' planning

The planning and prioritisation framework has been developed with a focus on regulated systems where there will be active environmental water management through use of held environmental water. However Basin States and the MDBA must apply this same framework to unregulated systems in water resource plan areas regardless of whether there is a need for active environmental water management or not. In many unregulated

systems, the rules governing environmental watering are outlined in a water resource plan and do not change annually. For areas with a low level of development the necessary planning and resource investment to protect environmental outcomes may be minimal.

Under the draft Basin Plan, groundwater dependent ecosystems are managed through water resource plans presumably because there is no active watering using held or planned environmental water and the environmental water requirements of dependent ecosystems are met through the rules in a water resource plan. However, for surface water the EWP currently requires the same level of planning, consultation and effort to be applied to the South Australian River Murray as to the more limited resources in the unprescribed arid areas of the South Australian Murray-Darling Basin. It is unlikely the MDBA will need to set Basin annual environmental watering priorities for all water resource plan areas.

The relationship between the long term watering plans and annual watering priorities and water resource plan requirements in chapter 9 remains unclear and this is an area that needs improvement.

Recommendation 50

The Basin Plan's environmental watering framework must:

- *include sections that enable 'fit for purpose' long term environmental water planning and annual prioritisation; and*
- *improve the linkages with water resource plan requirements in chapter 9.*

10.7 Decision making in relation to setting annual watering priorities and environmental water delivery

Under the draft Basin Plan it is proposed that the Basin States develop long term watering plans and annual environmental watering priorities. These requirements will require the use of best available science and consultation with the community. These are significant planning and prioritisation exercises with resourcing implications. The documents developed should be the key elements considered by the MDBA in setting Basin annual watering priorities. These documents will also be invaluable in informing environmental water delivery and monitoring and evaluation. As far as practical, the MDBA must determine annual environmental watering priorities consistent with State level planning and prioritisation. The Basin Plan must be amended to ensure the long term plans and annual priorities are given a much greater weighting of consideration.

Recommendation 51

The Basin Plan must require the MDBA to give first priority to the State long term watering plans and annual environmental watering priorities for water resource plan areas when determining Basin annual watering priorities

10.8 Audit and compliance

There is no clear mechanism in chapter 7 to ensure that environmental watering occurs in accordance with long-term environmental watering plans and annual priorities. Due to the complexities of accounting for environmental water management, an audit/compliance mechanism is needed that incorporates necessary expertise. It is recommended that the MDBA build on the existing Independent Audit Group (IAG) process for The Living Murray

water. A separate IAG for environmental watering should be established which reports to the MDBA and potentially also advises the National Water Commission (NWC) in its role as auditor of the Basin Plan and water resource plans and in its new role in evaluating the Commonwealth's Government management of environmental water.

Recommendation 52

The Basin Plan must establish an environmental watering audit and compliance process including the establishment of an Independent Audit Group for environmental watering.

10.9 Implementation and development of guidelines

In principle, the planning and prioritisation framework provides the basis for an effective planning hierarchy at local, State and Basin levels; however from a practical perspective the framework is hard to follow. The MDBA should give consideration to restructuring this chapter for clarity and to make it easier to follow and implement.

The EWP should make specific reference to the development of detailed guidelines to guide implementation, coordination and cooperative arrangements. Guidelines should be developed in consultation with the Basin States and Commonwealth agencies (including the CEWH) as a matter of priority. Ideally draft guidelines should be presented to the Legislative and Governance Forum on the Murray-Darling Basin (formerly the Murray-Darling Basin Ministerial Council) at the same time as the revised Basin Plan is presented for consideration. Suggestions for what should be covered in the guidelines are provided in the detailed chapter comments in Appendix 2.

Recommendation 53

The Basin Plan must include provision for the development of guidelines by the MDBA in consultation with the Basin States and Commonwealth agencies (including the Commonwealth Environmental Water Holder) that have regard to long term planning, prioritisation and application of environmental water.

11. WATER RESOURCE PLAN REQUIREMENTS

Key messages

- The MDBA must permit flexibility in planning requirements so they are 'fit for purpose' commensurate with the level of development and potential risks to the resource.
- Transparent and robust accreditation, audit and compliance mechanisms are necessary to ensure water resources are managed in accordance with accredited plans.
- The South Australian Government believes that section 9.09 which deals with 'change in reliability' will have unintended consequences and should be amended.

The Basin Plan provides an important opportunity to progress a more consistent, robust and integrated approach to water planning across the Basin, consistent with the requirements of the National Water Initiative (NWI). As well as ensuring that water will be managed in accordance with the new sustainable diversion limits set in the Basin Plan, water resource plans provide security for water users by defining the rules governing water entitlements and serve as a key mechanism for community input to water planning decision making.

The water resource plan accreditation requirements outlined in the draft Basin Plan are broadly consistent with the framework outlined in the *Draft NWI Policy Guidelines for Water Planning and Management*. However the Plan must address the key issues as discussed below. Other recommendations for changes and improvements are outlined in the detailed chapter comments in Appendix 2.

11.1 'Fit for purpose' planning

To ensure that water resource plans adequately reflect how the resource is to be managed, the plans must include clearly identified and measurable management objectives and outcomes that reflect the intent of the NWI and *NWI Policy Guidelines for Water Planning and Management*. The objectives and outcomes would then serve as the link to the monitoring and evaluation provisions in part 10 and chapter 12 to assess the outcomes of implementation efforts.

Recommendation 54

The Basin Plan water resource plan requirements must include provisions for clearly identified and measurable management objectives and outcomes.

It is important that water resource plan requirements are flexible enough to allow different levels of regulation commensurate with the development and risk to the resource. Despite this flexibility, jurisdictions should be required to provide evidence that they have given adequate regard to the water resource plan requirements. The detailed chapter comments in Appendix 2 identify various amendments to provisions to more adequately accommodate fit for purpose planning.

Recommendation 55

The Basin Plan must allow flexibility to adapt accreditation requirements to reflect different situations as relevant based on the management objectives and risk assessment for the water resource.

Recommendation 56

The Basin Plan must wherever there is a 'have regard to' requirement, require jurisdictions to demonstrate that they have given adequate regard to that requirement.

11.2 Reliability of water allocations

The South Australian Government is concerned that the provisions relating to change in reliability (s9.09) and the literal wording of s9.09(2) may have unintended consequences, potentially allowing jurisdictions to opt out of water resource plan requirements by citing a change in reliability.

It may be necessary to specify rules regarding times of take or to allow passage of some low flows to protect environmental outcomes. Section 9.09 could be used to inappropriately justify not including such rules for protection of environmental outcomes or to preclude States from including such rules where it has been identified they are necessary to manage risks.

It should also be noted that there may be circumstances where, in consultation with communities through the water resource planning process, Basin States may decide to include provisions which result in a change in reliability of water allocations (irrespective of the Basin Plan requirements). This section appears to preclude this occurring without effecting full implementation of the Basin Plan provisions.

There is no definition of 'reliability' in the draft Basin Plan or *Water Act 2007* (Cth) (Water Act) which further increases the risk of this section being used inappropriately. The Basin Plan should include a definition of reliability consistent with the NWI definition, being '...the frequency with which water allocated under a water access entitlement is able to be supplied in full' so that any conditions of take, such as specified times of take, do not constitute a change in reliability.

Recommendation 57

The MDBA must:

- *amend section 9.09 to ensure that unintended consequences including inappropriate 'opting out' of applying requirements and limitations on State management approaches are addressed; and*
- *include in the definitions section (chapter 1) a definition of reliability that is consistent with the National Water Initiative definition.*

11.3 Transparent accreditation process and reporting

The accreditation process for water resource plans is likely to be a long and resource intensive process. The MDBA must be transparent in their accreditation assessments and provide advice and support to jurisdictions where necessary. It is suggested that the MDBA prepare a publicly available report on its accreditation of water resource plans to allow

jurisdictions to learn from the experience of others and encourage greater consistency across plans.

Recommendation 58

The MDBA must prepare and publish a publicly available report on its accreditation process for each water resource plan.

11.4 Trade and transfer of water between environmental and consumptive pools

Under the draft Basin Plan, water entitlements that are used for environmental watering are accounted for outside the sustainable diversion limits. The transfer of environmental water by water holders into and out of a consumptive pool has the potential to impact significantly on achievement and compliance with sustainable diversion limits.

Any accounting process must ensure transparency and also that there is no net movement of water from environmental use to consumptive use. It may also need to include a requirement on the Commonwealth Environmental Water Holder that it does not by its actions cause sustainable diversion limits to be breached or result in a net reduction in environmental water.

It is important that the Basin Plan clearly set out how trade into and out of the environmental pool will be accounted for and managed, particularly for the trade undertaken by the Commonwealth Environmental Water Holder. This must address both trade in permanent water entitlements and in temporary water allocations. The current provisions in chapters 6 and 9 are unclear and do not appear to adequately provide a robust accounting and management framework, in particular to account for situations when an entitlement is not used for environmental purposes.

It is noted that, in general, there remain significant issues associated with the Commonwealth Environmental Water Holder trading held environmental water that need to be worked through in consultation with the Basin States.

Recommendation 59

The Basin Plan provisions for temporary and permanent trade in held environmental water must be strengthened to:

- *avoid States potentially being non-compliant with sustainable diversion limits; and*
- *robustly and transparently account for the movement of water between environmental use and consumptive use.*

11.5 Ongoing compliance with water resource plan requirements

The NWC may have a role under the Water Act to audit the effectiveness of the Basin Plan and the water resource plans. These audit provisions are important for ensuring that the actions and outcomes arising from water resource plans are achieved and to communicate these outcomes to stakeholders including governments, water resource managers and the community. The NWC already works in conjunction with the COAG Reform Council to assess States' performance against water reform commitments and has prepared a water planning report card (www.nwc.gov.au/reform/assessing/continuing/report-card) which assesses the quality of water plans, their implementation and areas for improvement.

The South Australian Government supports a role for the NWC to audit the implementation of the Basin Plan and the management of environmental water by the Commonwealth Environmental Water Holder and report these findings to COAG. In undertaking these audits, the NWC should be supported by Independent Audit Groups with expertise on specific aspects, such as SDL compliance, salinity and water quality and environmental water management, as well as the ACCC with regards to water trade rules.

In addition, assessment and reporting requirements for the Basin Plan should be coordinated wherever possible to minimise the reporting burden on the States and avoid expensive and wasteful duplication.

Recommendation 60

The Basin Plan must:

- *provide for independent audit mechanisms to complement the National Water Commission's audit role; and*
- *in implementing the Basin Plan, the MDBA must build on and streamline existing water resource plan monitoring and compliance mechanisms and where possible avoid duplication of existing reporting activities.*

To ensure effective implementation of the Basin Plan, there must be sufficient incentives to assist Basin States to continue meeting the water resource plan requirements.

Recommendation 61

The Commonwealth Government must provide incentives to jurisdictions to implement and ensure ongoing adherence to the water resource plan requirements in the Basin Plan.

11.6 Indigenous values and uses

Indigenous communities throughout the Basin have a deep connection to the River and its regions. The health of the River is viewed as intrinsic to their physical, spiritual and cultural health.

It is clearly stated in the Water Act that the MDBA and the Minister must have regard to Indigenous issues (Section 21 (4) (v)).

Section 22(1) of the Act, which outlines the mandatory content of the Basin Plan, states that the description of the Basin water resources and the context in which those resources are used must include information about the uses to which the Basin water resources are put (including by Indigenous people).

To “have regard to Indigenous issues”, in the context of the Basin Plan requires understanding of complex matters that require an appropriate level of consultation. Issues such as cultural values and principles, uses and flows have not yet been fully explored by the MDBA with Indigenous communities, such as the First Peoples of the River Murray and Mallee, and the Ngarrindjeri People.

For example, the Ngarrindjeri People in South Australia are the traditional owners of numerous large water-based Aboriginal sites in the lower reaches of the Murray and their place at the end of the River is of particular relevance to ensuring the critical importance of keeping the River healthy and alive from the bottom up.

The Ngarrindjeri have set out the cultural principles underlying their position on the Basin Plan as it relates to 'The Meeting of the Waters' and the relationship of this important site to their culture and wellbeing.

The 'Meeting of the Waters' includes the Goolwa channel, the Murray Mouth and parts of the Currency Creek and Finniss River. The natural state of this area requires adequate fresh water flows from up river to flush out the Murray Mouth and ensure that the Ngarrindjeri are able to continue to exercise their cultural rights in this area.

Ngarrindjeri state:

'The Meeting of the Waters is a fundamental aspect of the Ngarrindjeri world where all things are connected, whether they are living, from the past and/or for future generations. The Meeting of the Waters makes manifest core concepts of Ngarrindjeri culture that bind land, body, spirit, and story in an integrated, interfunctional world. The principles that flow from this cultural system are based upon respect for story, country, the old people, elders and family. The pursuit of these principles is contingent upon maintaining a relationship with country. The violation of these respect principles is manifest through the destruction of Ngarrindjeri yarluwar ruwe (a concept that embodies the connectedness and interfunctionality of Ngarrindjeri culture) and the effect upon the behaviours and survival of ngatji (the animals, birds and fish). According to these principles and contingent beliefs the "environment" cannot be compartmentalised: the land is Ngarrindjeri and Ngarrindjeri are the land. All things are connected and interconnected. Ngarrindjeri philosophy is based on maintaining the integrity of the relationship between place and person. It is the responsibility of the living to maintain this continuity. The past is not and cannot be separated from the here and now or the future. To break connections between person and place is to violate Ngarrindjeri culture. The objective in undertaking activities upon Ngarrindjeri country should be to not cause violence to Ngarrindjeri culture.'

- Ngarrindjeri Regional Authority Inc

These matters are significant to the integrity of the Basin Plan. Further, the failure of the MDBA to properly complete its function under the Water Act in relation to cultural values, and its proposal to push these issues down to individual Basin States for consideration, creates an added level of uncertainty for Indigenous people. Notwithstanding that there are different legislative regimes, relationships and histories in each state, different Basin States could deal with the issues in entirely different ways, and thus create an inequality between Indigenous people depending upon where they are located in the Basin.

Given the complexity of Indigenous issues as they relate to the Basin Plan, the South Australian Government recommends that the MDBA undertake further consultation with Aboriginal communities to gain a deeper understanding of these matters, and to develop agreed definitions as appropriate. These consultations are also of importance to ensure that the rights and requirements defined under relevant legislation including the Water Act are respected and met.

The Basin Plan needs to specify a pathway for developing agreed definitions for complex concepts such as cultural values, uses and flows, before they can be referenced in accreditation requirements. Such a pathway needs to include a dialogue between

Indigenous representatives and Basin States that builds on existing research and work undertaken by the jurisdictions and the NWC.

Recommendation 62

The MDBA must undertake further consultation with Aboriginal communities to ensure their needs are met.

12. CRITICAL HUMAN WATER NEEDS

Key messages

The Basin Plan must provide for the secure delivery of South Australia's critical human water needs during drought.

Critical human water needs (CHWN) are recognised in the Water Act as the highest priority water use for communities that are dependent on the Basin's water resources.

Critical human water needs requirements take into consideration requirements such as drinking, food preparation and hygiene; water to cover community essentials such as operating hospitals, schools, emergency services and other key services; water for essential commercial and industrial users; and water to maintain as far as possible the social fabric of the community.

The South Australian Government is generally supportive of the scope and content of chapter 10 of the draft Basin Plan which builds on the lessons learnt from the recent drought and formalises a process for water sharing under dry conditions.

The South Australian Government supports the identification of 204 GL as the State's critical human water needs requirements from the River Murray that have priority for conveyance. This volume is expected to meet the State's minimum requirements during drought.

The South Australian Government also supports provisions for a reserve policy to ensure sufficient water is available to deliver critical human water needs and the inclusion of water quality triggers to protect water quality and initiate emergency responses during low water availability. It is noted that the chapter also sets out water availability and water quality conditions for moving between different water sharing arrangements.

While there are no major policy issues, there are a number of recommended detailed improvements are outlined in the detailed chapter comments provided at Appendix 2.

13. WATER TRADING RULES

Key messages

- The South Australian Government expects the Basin Plan to deliver water trading rules that support an efficient and open water market.
- Provisions that limit trade restrictions for surface water should commence immediately upon adoption of the Basin Plan.

The South Australian Government supports the general intent of the Basin Plan trade rules which aim to promote the open and efficient operation of trading markets consistent with the NWI. The Government also acknowledges the advice of the Australian Competition and Consumer Commission (ACCC) in the development of the Basin Plan trading rules.

13.1 Trade restrictions

13.1.1 Prevention of artificial trade barriers

Upon signing the Intergovernmental Agreement on a National Water Initiative in 2004, all jurisdictions agreed to '*...facilitate the operation of efficient water markets and the opportunities for trading, within and between States and Territories, where water systems are physically shared or hydrologic connections and water supply considerations will permit water trading*' (Clause 58).

The South Australian Government believes that continued implementation of artificial trade barriers, such as the 4 per cent limit of permanent trade out of irrigation areas and exit fees, is in direct conflict with this agreement. In addition, such policies are having a number of potential negative social and economic impacts upon the market including:

- preventing water moving to its highest value use;
- artificially segmenting the water market;
- preventing the efficient operation of water markets; and
- preventing irrigators experiencing financial distress from realising the value of their water.

Artificial trade barriers have constrained the Commonwealth Government's environmental water purchase program by reducing the supply of water available for purchase. The Commonwealth Government's water purchase program is a key element underpinning the effective implementation of the Basin Plan and returning the system to health.

The South Australian Government sees no sufficient reason why these limits require a transition phase to 1 July 2014 as allowed under the draft Basin Plan. This view is supported by the ACCC's advice on water trading rules to the MDBA (March 2010) which states that '*...the Basin Plan water trading rules should provide for the immediate and complete removal of the 4 per cent limit (and other, similar limits) upon commencement of the Basin Plan.*' (Australian Competition and Consumer Commission, March 2010)

Recommendation 63

Sections 11.15 to 11.19, which deal with preventing inappropriate trade restrictions for surface water must commence immediately upon adoption of the Basin Plan.

13.1.2 Administrative impediments to free trade

The South Australian Government strongly believes that free and unrestricted trade should underpin the efficient and effective operation of the water market. It is recognised however that some Basin management arrangements are causing trade restrictions to be necessary to protect the environment and third parties.

For example, current carryover policies between jurisdictions, combined with arrangements for late season trade, have the potential to distort the market and have significant impacts on third parties, in particular the reliability of entitlements. In these situations trade restrictions are required to ensure that entitlement holders are not impacted by the adverse consequences of these policies in the following water year.

These trade restrictions should not be considered as the preferable management tool and amendments to state policies should be pursued to avoid these situations in the future.

Recommendation 64

The Commonwealth Government must direct the Productivity Commission to undertake an inquiry into current State water management policies and trade arrangements that are causing market distortion.

13.1.3 Declarations process for new restrictions

The provisions relating to the adoption of new trade restrictions must be significantly strengthened. The South Australian Government is concerned that the current provisions permit jurisdictions to put new trade restrictions in place without any form of central oversight before the imposition of a restriction.

The current provision, which provides for a declaration by the MDBA only after a restriction is already in place, increases the risk that an inappropriate restriction could be put in place. Any inappropriate restriction, regardless of whether it is eventually removed or not, has the potential to disrupt the market, impact on market confidence and have financial implications. The longer such a restriction is in place, the greater the potential impact.

While South Australia notes that other jurisdictions have previously put forward concerns in regard to the ability to react in a timely manner to critical trading issues, a pre-emptive declaration process would not need to be onerous. Jurisdictions will need to undertake their own due diligence in order to put a new restriction in place – a declaration by the MDBA could be undertaken concurrently to this.

A declaration from the MDBA would help to ensure there was sufficient transparency in relation to new trade restrictions and underpin market confidence that any new restrictions were necessary and appropriate.

Recommendation 65

The Basin Plan must require:

- *States to notify the MDBA of the intent to impose restrictions; and*
- *the MDBA to make a declaration of whether the trade restriction is allowable prior to the restriction being put in place.*

13.2 Compliance

The South Australian Government notes that water resource plans generally outline the trade rules that apply to that water resource. While the draft Basin Plan includes a range of trade rules with which jurisdictions must comply, there is nothing within the draft Basin Plan that requires trade rules contained within water resource plans to be reviewed by the MDBA for consistency or accredited by the Commonwealth Minister.

The South Australian Government is also concerned that under section 245 and 246 in the Water Act, water trade rules contained in transitional or interim water resource plans would continue to be valid until a Basin Plan compliant water resource plan is accredited by the MDBA, even if these rules are inconsistent with the Basin Plan. Essentially this will mean that the full suite of water trading rules may not be applied consistently across the Basin until 2019. This would not be acceptable.

Recommendation 66

The MDBA must specify how compliance against trade rules will be managed to ensure trading rules come into effect within the timeframes prescribed in the Basin Plan.

13.3 Trade of Commonwealth held environmental water

The South Australian Government notes that the Commonwealth Environmental Water Holder (CEWH) intends to engage in trade as a way of optimising its environmental water portfolio. It is also noted that a discussion paper has recently been released by the CEWH to canvas stakeholder views on this issue.

While the CEWH will be required to act consistently with legislated requirements, including the trading rules in the Basin Plan, a water trading framework must be put in place to ensure trade is undertaken in a transparent manner and consistently with requirements in the Water Act.

This framework should outline the circumstances in which trade of both allocation and entitlement may be considered and how trade will be undertaken, for example through direct approach to the market or through tender.

Recommendation 67

As a complementary action to the Basin Plan, and in consultation with Basin States, the Commonwealth Government must develop a framework to guide the trade of water held by the Commonwealth Environmental Water Holder.

Recommendation 68

The MDBA must consider provisions under the environmental watering plan that provide for the establishment of guidelines on the trade of environmental water holdings by the Commonwealth Environmental Water Holder.

14. MONITORING AND EVALUATION

Chapter 12 of the draft Basin Plan contains a very high level outline of principles and a framework for monitoring, evaluation and reporting. Without further elaboration of a detailed monitoring and evaluation plan or plans, chapter 12 as currently drafted will not ensure effective monitoring and evaluation of the Basin Plan. There is clearly a need to develop a more detailed and specific monitoring and evaluation plan. In addition this chapter would benefit from improved clarity on the monitoring and evaluation framework links to mandatory and other proposed reviews under the Water Act and Basin Plan.

The framework in the Basin Plan and a more detailed plan must also include provision for monitoring and evaluation of social and economic issues.

A five-yearly review of the environmental watering plan will not support active adaptive management and a specific focus on environmental watering monitoring and evaluation will be needed as outlined in section 10.

A detailed monitoring and evaluation plan would need to be based on program logic and address a number of matters including outlining in more detail the roles and responsibilities for monitoring and evaluation, including the determination of reporting requirements, indicators, and funding arrangements. Any monitoring and evaluation detail must build on the existing programs within the states and be funded adequately into the future to ensure consistency in data collection and analysis.

It will need to address how and when baselines will be determined. Baselines should be set to pre-drought conditions as setting a baseline sometime during the drought when the 'health' of the environment was arguably at its lowest, does not provide an adequate measure of whether the Basin Plan is meeting its objectives outcomes and targets. The MDBA must demonstrate transparency and logic in setting baseline targets. Links to the compliance and audit functions of the plan are also important to ensure a complete picture of the success of the plan.

The environment can take some time to respond to management actions. A clear line of sight is needed between monitoring short term achievements and how they demonstrate progress towards the longer term goal of improved environmental outcomes. This will facilitate the MDBA in convincing the Australian public that investment in the Basin Plan has been successful.

Importantly adaptive management must be strongly built into the plan to enable learning from actions and to continuously improve implementation to ensure the outcomes are achieved.

Recommendation 69

The Basin Plan must:

- *require the MDBA, in consultation with Basin States, to prepare and implement a Basin Monitoring and Evaluation Plan which is reviewed on an annual basis; and*
- *include provisions for the monitoring of social and economic impacts.*

15. TRANSITIONAL ARRANGEMENTS AND IMPLEMENTATION COSTS

15.1 Basin Plan implementation costs

Implementation of the Basin Plan will result in increased planning, compliance, monitoring, evaluation and reporting requirements. While the costs associated with these increased requirements are currently difficult to accurately quantify, they are expected to be substantial. The South Australian Government understands that the MDBA is currently preparing a Regulatory Impact Statement and this may assist in understanding Basin States' implementation costs.

The *2008 Intergovernmental Agreement on Murray-Darling Basin Reform* (IGA) established that Basin States will not bear additional net costs as a consequence of the reforms agreed between parties and the implementation of the *Water Act 2007* (Cth) (Water Act) (including the Basin Plan). However, the sunset for this provision is 30 June 2015.

When the IGA was agreed in 2008 it was understood that the Basin Plan would be finalised by 2010. Subsequently, the preparation of a Basin Plan has been delayed with flow-on effects for state water resource planning and other implementation requirements. As a result most of the additional net costs associated with the reforms are likely to occur post 2015. The no additional net cost commitment from the Commonwealth must be extended to cover these costs, in accordance with the intent of the clause contained in the IGA.

In addition there have been practical issues with the methodology used to determine no additional net costs claims. This methodology needs to be reviewed and amended to enable more efficient determination and processing of valid claims.

Recommendation 70

The Commonwealth Government must:

- *extend its commitment that the Basin States will not bear additional costs as a consequence of the reforms agreed between the parties and the implementation of the Water Act 2007; and*
- *amend the process for determining costs to enable valid claims to be addressed.*

15.2 Transition pathways for water resource plans

The delay in the development of the Basin Plan will have implications for the development of compliant water resource plans in South Australia in accordance with the timeframes established under the Water Act. As a result the MDBA will need to work with the South Australian Government to establish pathways and practical timeframes for transitioning from existing water resource plans to Basin Plan compliant water resource plans.

Recommendation 71

The MDBA must work with the South Australian Government to develop transition pathways and practical timeframes for transitioning from existing water resource plans to Basin Plan compliant water resource plans.

16. REFERENCES

- Australian Competition and Consumer Commission, 2010, *Water trading rules final advice*, Australian Competition and Consumer Commission, Canberra.
- Bloss C., Steggles, T., Bald, M., and Heneker, T.M., 2012, *Hydro-ecological analysis of the proposed Basin Plan – South Australian Floodplain Department for Water Technical Report 2012/11*, South Australian Department for Water, Adelaide.
- CSIRO, 2008, *Water Availability in the Murray: A report to the Australian Government from the CSIRO Murray-Darling Basin Sustainable Yields Project*, Commonwealth Science and Industrial Research Organisation, Australia.
- CSIRO, 2012, *Assessment of the ecological and economic benefits of environmental water in the Murray-Darling Basin*, CSIRO Water for a Healthy Country National Research Flagship, Australia
- Department for Climate Change, 2010, *Adapting to Climate Change in Australia: An Australian Government Position Paper*, Commonwealth Department for Climate Change, Canberra.
- Department for Water, 2011, *When the River Runs Dry...The South Australian Experience*, viewed 3 April 2012, <http://www.waterforgood.sa.gov.au/wp-content/uploads/2011/11/water-news-winter-drought-feature.pdf>
- Goyder Institute, 2012, *Expert Panel Assessment of the South Australian Evaluation of the Draft Murray-Darling Basin Plan Technical Report Series No. 12*, Goyder Institute for Water Research, Adelaide.
- Heneker, T.M., 2010, *Development of Flow Regimes to Manage Water Quality in the Lower Lakes, South Australia: DFW Technical Report 2010/05*, South Australian Department for Water, Adelaide.
- Heneker, T.M. and Higham J.S., 2012, *Review of the Basin Plan Water Recovery Scenarios for the Lower Lakes, South Australia: Hydrological and Ecological Consequences: DENR Technical Report*, South Australian Department for Environment and Natural Resources, Adelaide. *In preparation*.
- Higham, J., 2012, *An analysis of MDBA modelling outputs for the draft Basin Plan: Hydrodynamic modelling of the Coorong and Murray Mouth*, South Australian Department for Environment and Natural Resources, Adelaide.
- Morrison, M. and Hatton MacDonald, D., 2010, *Economic valuation of environmental benefits in the Murray-Darling Basin*, Institute for Land, Water and Society, Charles Sturt University and CSIRO Ecosystem Sciences, Sydney.
- Murray-Darling Basin Authority, 2009, *Report of the Independent Audit Group for Salinity 2007-2008*, Murray-Darling Basin Authority, Canberra.
- Murray-Darling Basin Authority, 2010, *Report of the Independent Audit Group for Salinity 2008-2009*, Murray-Darling Basin Authority, Canberra.
- Murray-Darling Basin Authority, 2011a, *Basin Salinity Management Strategy 2008-09 Annual Implementation Report*, Murray-Darling Basin Authority, Canberra.

Murray-Darling Basin Authority, 2011b, *Proposed Basin Plan – a draft for consultation*, Murray-Darling Basin Authority, Canberra.

Murray-Darling Basin Authority, 2011c, *The proposed “environmentally sustainable level of take” for surface water of the Murray-Darling Basin: Methods and outcomes*, Murray-Darling Basin Authority, Canberra.

Murray-Darling Basin Authority, 2011d, *Report of the Independent Audit Group for Salinity 2009-2010*, Murray-Darling Basin Authority, Canberra.

Murray-Darling Basin Authority, 2011e, *River management - challenges and opportunities*, Murray-Darling Basin Authority, Canberra.

Murray-Darling Basin Authority, 2011f, *Scoping the desired characteristics of environmental water: Paper to The Living Murray Committee*, Murray-Darling Basin Authority, Canberra.

Murray-Darling Basin Authority, 2011g, *Socio-economic analysis and the draft Basin Plan: Part A – Overview and Analysis*, Murray-Darling Basin Authority, Canberra.

Murray-Darling Basin Authority, 2012, *Hydrologic modelling to inform the proposed Basin Plan: methods and results*, Murray-Darling Basin Authority, Canberra.

Murray-Darling Basin Commission, 2008, *Basin Salinity Management Strategy 2001-2015, Mid-term review Final report*, Murray-Darling Basin Commission, Canberra.

National Water Commission 2009, *Australian Water Reform 2009: Second biennial assessment of progress in implementation of the National Water Initiative*, National Water Commission, Canberra

Pollino, C.A., Lester, R.E., Podger, G.M., Black, D., and Overton, I.C., 2011, *Analysis of South Australia's environmental water and water quality requirements and their delivery under the Guide to the proposed Basin Plan*, Goyder Institute for Water Research, Adelaide.

South Australian Select Committee on the Murray River, 2001, *South Australian Select Committee on the Murray River Final Report*, South Australian Select Committee on the Murray River, Adelaide

Young, W.J., Bond N., Brookes J., Gawne, B. and Jones G.J., 2011, *Science Review of the Estimation of an Environmentally Sustainable Level of Take for the Murray-Darling Basin: A report to the Murray-Darling Basin Authority from the CSIRO Water for Healthy Country Flagship*, Commonwealth Science and Industrial Research Organisation, Australia.

APPENDIX 1: SUMMARY LIST OF RECOMMENDATIONS

BASIN PLAN MANAGEMENT OBJECTIVES AND OUTCOMES

Recommendation 1

The objectives and outcomes to be achieved by the Basin Plan must:

- *correctly reflect the purposes and objects of the Water Act 2007 and more clearly define the outcomes to be achieved; and*
- *include objectives and outcomes which address the risks to Basin water resources identified in chapter 4.*

IDENTIFICATION AND MANAGEMENT OF RISKS TO BASIN WATER RESOURCES

Recommendation 2

The Basin Plan must include:

- *comprehensive identification of risks that are clearly linked to specific risk management strategies; and*
- *strategies to address particular risks including climate change risks, physical, operational and policy constraints impeding environmental water delivery, recovery from drought, storage access, groundwater impacts and coordination of the effective delivery of environmental water.*

PROPOSED ENVIRONMENTALLY SUSTAINABLE LEVEL OF TAKE

Recommendation 3

The South Australian Government rejects the proposed environmental water recovery target of 2750 GL as it does not meet the requirements of the Water Act 2007 and requires that the Murray-Darling Basin Authority (MDBA) must adopt an environmental water recovery target greater than 2750 GL that meets key environmental outcomes.

Recommendation 4

The environmental water recovery target adopted by the MDBA must conserve biodiversity and declared Ramsar wetlands, protect and restore key ecosystems, and meet key salinity and water level outcomes including to:

- *export salt loads of 2 million tonnes per year over a rolling 3 year average;*
- *keep the Murray Mouth open without the need for dredging in at least 95% of years, with flows through the barrages out to sea every year;*
- *maintain average daily water levels in the Lower Lakes above 0.4 metres average height datum (AHD) for 95% of the time and above 0.0 metres AHD at any time;*
- *maintain average daily Coorong south lagoon salinity levels below lethal thresholds for key species (less than 100g/L);*

- *avoid adverse salinity impacts on the ecology by maintaining average daily salinity in Lake Alexandrina below 600 mg/L (1000 EC) for 95% of the time and below 900 mg/L (1500 EC) for 100% of the time;*
- *maintain a mosaic of healthy floodplain habitats;*
- *secure delivery of flow regimes up to 40,000 ML/day to meet in-channel environmental water requirements and support low-lying temporary wetlands and associated fish and bird habitats;*
- *secure delivery of flow regimes between 40,000 and 80,000 ML/day for floodplains (exceedence of maximum intervals between watering events should be avoided) to support lateral connectivity, higher elevation wetlands, recruitment and maintenance of key vegetation communities, and important bird habitat and bird breeding events; and*
- *maintain the current frequency of unregulated flow events.*

Recommendation 5

The MDBA must undertake, as a priority, further modelling (including 3200 GL, 3500 GL and 4000 GL water recovery volumes) where system constraints are relaxed or removed to determine a water recovery volume that meets key environmental outcomes.

Recommendation 6

The Commonwealth Government must invest in addressing key system constraints, including purchasing flood easements, as an important step to improve environmental water delivery.

Recommendation 7

The MDBA must:

undertake further analysis and modelling to:

- *transparently quantify the impact of known system constraints on the delivery of water recovered under the Basin Plan; and*
- *model water recovery scenarios greater than 2750 GL with key system constraints relaxed or removed to determine what is required to optimise the delivery of requirements for key assets and functions, including floodplain flow events; and*

instigate immediately, a new program of work to:

- *identify and describe all physical, operational and policy system constraints;*
- *evaluate options, opportunities and risks associated with relaxing or removing key constraints;*
- *prioritise actions or packages of actions to relax or remove system constraints in the short, medium and long term;*
- *as a matter of urgency, instigate works to relax or remove key delivery constraints; and*
- *undertake modelling of options to amend and simplify existing policy arrangements to provide for environmental water management needs.*

Recommendation 8

The South Australian Government notes that the MDBA's modelling has been undertaken on the basis of relaxed policy constraints, and that actual environmental outcomes will be compromised unless the constraints are changed.

The MDBA must ensure that the policy constraints to achieve the outcomes described in the modelling are removed.

Recommendation 9

The MDBA must:

- *urgently establish a program to identify and propose processes to address institutional impediments to the delivery of environmental water, including assessment of carryover provisions that could improve delivery of environmental outcomes; and*
- *expedite existing work under the Review of the Murray-Darling Basin Agreement work program and the River Management Review project.*

Recommendation 10

The Commonwealth Government must lead the development of an intergovernmental agreement and other institutional changes, where required, to facilitate effective environmental water management, delivery and accounting including facilitating multi-site environmental watering.

Recommendation 11

The MDBA must:

- *adopt an environmental water recovery target greater than 2750 GL to take into account climate change risks; and*
- *develop a strategy to improve knowledge of the effects of climate change on water available for environmental outcomes and consumptive water use as a priority.*

Recommendation 12

The MDBA must adopt an environmental water recovery target greater than 2750 GL to protect and restore ecosystems, habitats and species to maintain their capacity to meet Aboriginal cultural objectives.

Recommendation 13

The Basin Plan must prioritise water delivery during drought to protect refugia and prevent exceedence of thresholds for irreversible changes to key environmental assets.

Recommendation 14

The Basin Plan must provide for:

- *a minimum reserve or allocation of environmental water for the Coorong, Lower Lakes and Murray Mouth for use during dry periods; and*

- *prioritisation of delivery of environmental water to the Coorong in times of drought to sustain key vegetation communities, species and ecosystem functions.*

Recommendation 15

The Basin Plan must provide for a remediation program and complementary environmental watering program for the restoration of priority degraded and drought-affected environmental assets, focussed upon the Ramsar sites of the Riverland-Chowilla floodplain and Coorong, Lower Lakes and Murray Mouth, to commence in 2013.

Recommendation 16

The MDBA must:

- *ensure, as far as practical, that the current frequency of high unregulated flow events are not reduced; and*
- *ensure that the Basin Plan environmental watering plan enables environmental water to be used to enhance unregulated flows to deliver key environmental outcomes.*

Recommendation 17

The MDBA must provide advice to the Commonwealth Government on the location and types of water products that are likely to deliver the best environmental outcomes.

Recommendation 18

The Commonwealth Government must work with the MDBA to develop an investment program and works and measures strategy; and the Basin Plan must require that all proposed works and measures are assessed for individual and cumulative effects on downstream assets and functions over a range of water availability scenarios.

Recommendation 19

The MDBA must work with South Australia to develop a more comprehensive and robust set of environmental water requirements for the Coorong, Lower Lakes and Murray Mouth and Riverland-Chowilla Ramsar sites for its modelling and assessment.

Recommendation 20

The MDBA must investigate options for storage access to protect the State's water security (including vertical storage rights) as a priority.

SURFACE WATER BASELINE DIVERSION LIMITS AND SUSTAINABLE DIVERSION LIMITS

Recommendation 21

The MDBA must:

- *develop and publish a plain English explanation of how the baseline diversion limits (BDLs) were determined, and how this relates to determination of the sustainable diversion limits (SDLs) and to compliance; and*
- *include in the Basin Plan a process for consulting with jurisdictions on any updates to BDL estimates.*

Recommendation 22

The State's past responsible behaviour, investment in irrigation efficiency and water held for its urban water supplies must be taken into account to avoid a disproportionate impact on South Australia's irrigated agriculture production, and associated flow-through impacts to dependent regional communities.

Recommendation 23

South Australia's mandated contribution to the water recovery target must be no more than the 101 GL reduction to our BDL, as specified in the draft Basin Plan, and no further contribution to the water recovery target will be sourced from South Australia except where agreed to by the South Australian Government and the relevant industry organisations.

Recommendation 24

The MDBA must clearly explain the way in which the final SDLs, and any associated limits or conditions or apportionment, adopted in the Basin Plan have been calculated, determined or arrived at.

Recommendation 25

The Basin Plan must require that the local and shared reduction targets be met by the Commonwealth Government through its 'bridging the gap' commitment.

Recommendation 26

The Commonwealth Government must take a strategic approach to water recovery and water purchase in South Australia through consultation with, and with the agreement of, the South Australian Government and relevant industry organisations.

Recommendation 27

The Commonwealth Government should develop and publish a water recovery strategy that outlines its plan to 'bridge the gap' and ensures that there are no forced reductions in water entitlements.

Recommendation 28

The MDBA must change the BDL description for the Eastern Mount Lofty Ranges to reflect the correct water management policies as outlined in the detailed comments on chapter 6 in Appendix 2 of this submission.

Recommendation 29

The BDL description for the South Australian Non-Prescribed Areas SDL Resource Unit must be amended to allow for take from watercourses in addition to run-off dams.

Recommendation 30

The Basin Plan must set a limit on the accumulation of SDL credit amounts.

Recommendation 31

The Basin Plan must:

- *refer to the development of SDL compliance guidelines and require jurisdictions to observe them;*
- *establish a role for an independent audit group, with appropriate expertise, to advise on ongoing SDL compliance, and to assist in the development of SDL compliance policy and the SDL compliance guidelines; and*
- *require the MDBA to prepare and publish an annual water audit monitoring report including information about compliance with annual limits.*

GROUNDWATER BASELINE DIVERSION LIMITS AND SUSTAINABLE DIVERSION LIMITS

Recommendation 32

The Basin Plan must:

- *include a precautionary principle with regard to groundwater that requires an assumption of connection to surface water unless proven otherwise; and*
- *consistent with this principle include provisions that ensure groundwater sustainable diversion limits cannot be increased unless it can be demonstrated that increased diversion will not impact on surface water resources or environmental watering.*

SUSTAINABLE DIVERSION LIMITS AND SOCIAL AND ECONOMIC ISSUES

Recommendation 33

The Commonwealth Government must:

- *provide targeted social and economic support to vulnerable River Murray communities in South Australia to assist them to transition to a future with less water availability and increase their resilience; and*
- *develop a socio-economic plan to complement the Basin Plan.*

Recommendation 34

The Commonwealth Government must change its funding criteria to ensure more targeted and equitable access to funds, including under the Water for the Future program and the Regional Development Australia Fund. In particular, the South Australian Government seeks flexibility in the application of remaining unspent Commonwealth funds.

Recommendation 35

The MDBA must develop a robust and transparent framework to allow for the evaluation of proposed water recovery savings or SDL offsets that may accrue from infrastructure investments.

Recommendation 36

The MDBA should develop and implement a communications strategy to communicate the findings of the 'Assessment of the Ecological and Economic Benefits of Environmental Water in the Murray-Darling Basin' report by the CSIRO, and other studies, which demonstrate the socio-economic benefits of a Basin Plan as soon as possible.

PROPOSED REVIEW OF SUSTAINABLE DIVERSION LIMITS IN 2015

Recommendation 37

The South Australian Government rejects the need for a review of sustainable diversion limits in 2015, noting that a review in 2015 will not allow for sufficient, robust evidence on which to review the sustainable diversion limits.

Recommendation 38

The Basin Plan must explicitly allow the MDBA to express a view on the need for actions to address policy, physical and operating system constraints; groundwater extraction impacts; and climate change impacts in section 6.06.

Recommendation 39

The Basin Plan must:

- *establish a review advisory committee including jurisdictional representation and appropriate expertise (including scientific expertise); and*
- *develop transparent terms of reference, governance and review methods in consultation with the Basin States.*

Recommendation 40

The MDBA must develop clear principles and a robust assessment and modelling framework for assessing the individual and cumulative impacts of any proposals to adjust SDLs in consultation with jurisdictions.

WATER QUALITY AND SALINITY MANAGEMENT PLAN

Recommendation 41

The Basin Plan must include:

- *additional salinity operational targets upstream of South Australia (to those listed at section 8.18) including a target at or just upstream of the border to drive a more robust approach to operational decision making by all jurisdictions; and*
- *an additional salinity operational target such that salinity levels in Lake Alexandrina are maintained below 600 mg/L (1000 EC) for 95% of the time and below 900 mg/L (1500 EC) for 100% of the time (measured as lake average).*

Recommendation 42

The Basin Plan must include a minimum operational water level target of 0.4 metres AHD for 95% of the time with an absolute minimum of 0.0 metres AHD for 100% of the time (measured as a daily average across Lake Alexandrina).

Recommendation 43

The Basin Plan must:

- *require the MDBA to assess achievement of the salt load target against the number of tonnes of salt per year averaged over the preceding three years; and*
- *require action by the MDBA where the salt load target is not met on an ongoing basis.*

Recommendation 44

The Basin Plan must include annual reporting against the salt load target, the salinity operational targets, and the salinity targets for raw water for treatment for human consumption and irrigation water in line with existing Basin Salinity Management Strategy processes. Recommended wording changes to sections in chapter 8 are outlined in Appendix 2 of this submission.

ENVIRONMENTAL WATERING PLAN

Recommendation 45

The Basin Plan must:

- *require the MDBA to develop SMART objectives and targets, and a detailed plan for assessing progress for achieving these targets and objectives including baselines, indicator sites and indicators/measures, assessment criteria and methods, and monitoring and evaluation;*
- *provide for environmental monitoring and evaluation linked to State long term watering plans; and*
- *the MDBA must fund the work required to meet these recommendations.*

Recommendation 46

The Basin Plan must:

- *establish committees to coordinate and advise on environmental watering activities from planning through to delivery and monitoring and evaluation;*
- *include an additional principle requiring the MDBA, Basin States and the Commonwealth Environmental Water Holder to work cooperatively to determine and implement environmental watering priorities in the Basin;*
- *develop guidelines, in consultation with jurisdictions, that outline the detail of how environmental watering prioritisation decisions will be made (e.g. including decision making criteria and conflict resolution processes) and how environmental water delivery, reporting and monitoring and evaluation will be coordinated;*
- *require the MDBA to coordinate the development of long term watering plans for connected water resources in consultation with jurisdictions; and*
- *enable the development of multi-year watering agreements for priority assets.*

Recommendation 47

The Basin Plan must ensure that environmental watering by the Commonwealth Environmental Water Holder in the Murray-Darling Basin is undertaken in accordance with the Basin annual environmental watering priorities and where relevant long term watering plans published by the MDBA.

Recommendation 48

The Basin Plan must provide for the development of a specific interim environmental watering plan for the southern connected system in consultation with relevant jurisdictions and the Commonwealth Environmental Water Holder, to commence in the 2013-14 water year and which guides the application and delivery of environmental water.

Recommendation 49

The Basin Plan must require the Commonwealth Environmental Water Holder to have regard to State long term watering plans and annual environmental watering priorities in planning for the recovery of additional environmental water and trading of environmental water.

Recommendation 50

The Basin Plan's environmental watering framework must:

- *include sections that enable 'fit for purpose' long term environmental water planning and annual prioritisation; and*
- *improve the linkages with water resource plan requirements in chapter 9.*

Recommendation 51

The Basin Plan must require the MDBA to give first priority to the State long term watering plans and annual environmental watering priorities for water resource plan areas when determining Basin annual watering priorities

Recommendation 52

The Basin Plan must establish an environmental watering audit and compliance process including the establishment of an Independent Audit Group for environmental watering.

Recommendation 53

The Basin Plan must include provision for the development of guidelines by the MDBA in consultation with the Basin States and Commonwealth agencies (including the Commonwealth Environmental Water Holder) that have regard to long term planning, prioritisation and application of environmental water.

WATER RESOURCE PLAN REQUIREMENTS

Recommendation 54

The Basin Plan water resource plan requirements must include provisions for clearly identified and measurable management objectives and outcomes.

Recommendation 55

The Basin Plan must allow flexibility to adapt accreditation requirements to reflect different situations as relevant based on the management objectives and risk assessment for the water resource.

Recommendation 56

The Basin Plan must wherever there is a 'have regard to' requirement, require jurisdictions to demonstrate that they have given adequate regard to that requirement.

Recommendation 57

The MDBA must:

- *amend section 9.09 to ensure that unintended consequences including inappropriate 'opting out' of applying requirements and limitations on State management approaches are addressed; and*
- *include in the definitions section (chapter 1) a definition of reliability that is consistent with the National Water Initiative definition.*

Recommendation 58

The MDBA must prepare and publish a publicly available report on its accreditation process for each water resource plan.

Recommendation 59

The Basin Plan provisions for temporary and permanent trade in held environmental water must be strengthened to:

- *avoid States potentially being non-compliant with sustainable diversion limits; and*
- *robustly and transparently account for the movement of water between environmental use and consumptive use.*

Recommendation 60

The Basin Plan must:

- *provide for independent audit mechanisms to complement the National Water Commission's audit role; and*
- *in implementing the Basin Plan, the MDBA must build on and streamline existing water resource plan monitoring and compliance mechanisms and where possible avoid duplication of existing reporting activities.*

Recommendation 61

The Commonwealth Government must provide incentives to jurisdictions to implement and ensure ongoing adherence to the water resource plan requirements in the Basin Plan.

Recommendation 62

The MDBA must undertake further consultation with Aboriginal communities to ensure that their needs are met.

WATER TRADING RULES

Recommendation 63

Sections 11.15 to 11.19, which deal with preventing inappropriate trade restrictions for surface water must commence immediately upon adoption of the Basin Plan.

Recommendation 64

The Commonwealth Government must direct the Productivity Commission to undertake an inquiry into current State water management policies and trade arrangements that are causing market distortion.

Recommendation 65

The Basin Plan must require:

- *States to notify the MDBA of the intent to impose restrictions; and*
- *the MDBA to make a declaration of whether the trade restriction is allowable prior to the restriction being put in place.*

Recommendation 66

The MDBA must specify how compliance against trade rules will be managed to ensure trading rules come into effect within the timeframes prescribed in the Basin Plan.

Recommendation 67

As a complementary action to the Basin Plan, and in consultation with Basin States, the Commonwealth Government must develop a framework to guide the trade of water held by the Commonwealth Environmental Water Holder.

Recommendation 68

The MDBA must consider provisions under the environmental watering plan that provide for the establishment of guidelines on the trade of environmental water holdings by the Commonwealth Environmental Water Holder.

MONITORING AND EVALUATION

Recommendation 69

The Basin Plan must:

- *require the MDBA, in consultation with Basin States, to prepare and implement a Basin Monitoring and Evaluation Plan which is reviewed on an annual basis; and*
- *include provisions for the monitoring of social and economic impacts.*

TRANSITIONAL ARRANGEMENTS AND IMPLEMENTATION COSTS

Recommendation 70

The Commonwealth Government must:

- *extend its commitment that the Basin States will not bear additional costs as a consequence of the reforms agreed between the parties and the implementation of the Water Act 2007; and*
- *amend the process for determining costs to enable valid claims to be addressed.*

Recommendation 71

The MDBA must work with the South Australian Government to develop transition pathways and practical timeframes for transitioning from existing water resource plans to Basin Plan compliant water resource plans.



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